

# The College Journey and Academic Engagement: How Metaphor Use Enhances Identity-Based Motivation

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People commonly talk about goals metaphorically as destinations on physical paths extending into the future or as contained in future periods. Does metaphor use have consequences for people's motivation to engage in goal-directed action? Three experiments examine the effect of metaphor use on students' engagement with their academic possible identity: their image of themselves as academically successful graduates. Students primed to frame their academic possible identity using the goal-as-journey metaphor reported stronger academic intention, and displayed increased effort on academic tasks, compared to students primed with a nonacademic possible identity, a different metaphoric framing (goal-as-contained-entity), and past academic achievements (Studies 1–2). This motivating effect persisted up to a week later as reflected in final exam performance (Study 3). Four experiments examine the cognitive processes underlying this effect. Conceptual metaphor theory posits that an accessible metaphor transfers knowledge between dissimilar concepts. As predicted in this paradigm, a journey-metaphoric framing of a possible academic identity transferred confidence in the procedure, or action sequence, required to attain that possible identity, which in turn led participants to perceive that possible identity as more connected to their current identity (Study 4). Drawing on identity-based motivation theory, we hypothesized that strengthened current/possible identity connection would mediate the journey framing's motivating effect. This mediational process predicted students' academic engagement (Study 5) and an online sample's engagement with possible identities in other domains (Study 6). Also as predicted, journey framing increased academic engagement particularly among students reporting a weak connection to their academic possible identity (Study 7).

*Keywords:* academic achievement, conceptual metaphor theory, goals, identity-based motivation, possible selves

College orientation materials commonly describe an undergraduate career metaphorically as if it were a physical journey. Duke University, for example, tells students, "You are about to begin the journey of undergraduate education"; Carnegie Mellon University reminds students that "ahead of you lay unlimited possibilities"; and the University of Hawai'i offers suggestions for "what happens if you hit a road block." Of course, college is not literally a

journey, and academic activities such as studying are superficially quite unlike the experiences of moving forward on a physical path, choosing a direction, and navigating difficult terrain. Why is the journey metaphor used so widely to inspire students to care about and invest effort into academic activities?

One possibility is that such communications tap into metaphor's undiscovered potential to spur action. Encouraging students to imagine themselves as academically accomplished graduates can be insufficient to boost academic engagement, and it may be uniquely motivating to frame that "accomplished graduate" possible identity metaphorically as a destination on a journey that they actively take. The journey metaphor cues a sense that one knows how to reach a goal and fosters identity connection. In this article we propose that these elements are essential to understanding how the journey metaphor uniquely influences students' understanding of their academic future and hence their motivation to achieve academic goals.

In the current studies we integrate conceptual metaphor theory (Lakoff & Johnson, 1980) and identity-based motivation theory (Oyserman, 2007, 2013) to test these propositions. We do so in two parts. First, we test whether priming a journey-metaphoric framing of an academic possible identity increases academic engagement,

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operationalized as academic intention and effort, and whether this effect persists over time (Studies 1–3).

Second, we unpack the cognitive processes mediating this effect. While not all journeys follow a linear, predetermined route, people generally know that on a journey there is a clear procedure for how to reach the destination: One must take action now to progress; steps are actively taken in a sequence designated by the path; and each step clarifies what needs to be done next. Consequently, current action feels relevant to reaching the destination. When people use the journey metaphor to frame a goal, they transfer this procedural confidence to their understanding of goal attainment. This strengthens their perception that a goal is connected to their current identity through a coherent sequence of actions that begins in the present. To test this process model (elaborated later), we ask three questions: Does priming a journey-metaphoric framing strengthen perceived connection to a possible identity by means of buttressing procedural confidence about that identity (Study 4)? Does a journey-metaphoric framing increase engagement with a possible identity by means of increasing identity connection (Studies 5 and 6)? Is a journey framing beneficial particularly for individuals who perceive a weak connection to their possible identity (Study 7)?

Beyond the theoretical innovation of modeling metaphoric influences on motivation, understanding how metaphor use can enhance goal engagement is of practical importance. In the academic domain, it is clear that students commonly plan to succeed, yet they often fail to prioritize and invest sufficient effort into their current academic activities. Using the journey metaphor can be a way forward if the right conditions are in place.

### The Problem: Low Academic Engagement

Most American high school students, regardless of their race-ethnicity or socioeconomic background, plan to earn at least a bachelor's degree (nearly 85% of U.S. 10th graders; *Domina, Conley, & Farkas, 2011*). A third of students starting college plan to major in science, technology, engineering, or math-related fields (STEM). However, academic attainment does not always meet these high expectations (e.g., *Maltese & Tai, 2011*). Only about half of students who enroll in four-year colleges finish within 6 years (*Symonds, Schwartz, & Ferguson, 2011*). Moreover, even students who graduate often do so after shifting out of demanding majors due to their poor test performance (e.g., *Rask, 2010*). Qualified students switch out of STEM majors when they encounter what has been described as “the math–science death march” in which they are made to compete with hundreds of other students in large lecture hall classes with high demands and lower grades relative to other majors (*Drew, 2011*).

In these settings, student attainments may fall short of aspirations because courses are set up to “weed out” students, with grading designed to reduce the number of students eligible for the next level of required coursework. Additionally, the content of academic tests widely used for such weeding out is often loaded with cultural knowledge that is irrelevant to the knowledge or skill being assessed, causing performance disparities between groups of students with dissimilar cultural backgrounds (*Hamdi, Knirk, & Michael, 1982; Reynolds, 1982*). Further, students may be unable to compete because they have not received appropriate prior preparation or because they are stereotyped as unable to do so (*Croizet,*

*2008; Entwisle, Alexander, & Olson, 2005; Jackson, 2010; Orfield, Losen, Wald, & Swanson, 2004; Steele, Spencer, & Aronson, 2002*). Salient stereotypes can undermine performance when they lead students to interpret difficulties to mean that the task is impossible (*Smith, Novin, Elmore, & Oyserman, 2014*), that they simply do not have the ability (*Aronson, Fried, & Good, 2002*), or that they do not “fit in” at college generally (*Walton & Cohen, 2007*).

While these psychological and structural barriers to success are important for explaining underperformance among students targeted by stereotypes and disadvantaged by social-structural conditions, students who do not experience these impediments also underperform compared to their aspirations. This is partly due to a mismatch between students' academic engagement—the degree to which they intend to prioritize and put their best effort into academic activities—and how much engagement is necessary to succeed. As a result, college students often fail to take advantage of tutoring and other academic resources (*Hu & Kuh, 2002*), fail to prioritize academic goals over other goals (*Arum, Roksa, & Cho, 2011*), and devote too little time and energy to attending class, studying, and doing coursework (*Bishop, 2001*).

Although correlated with social-structural factors (e.g., *Stout & Christenson, 2009*), this engagement gap undermines academic success across social groups. For example, while student background characteristics (e.g., race, gender, and socioeconomic status) explain 7% of freshman-year failure rates, course absences and time devoted to studying explain an additional 61% (*Allensworth & Easton, 2007*). Students may miss class and study too little because they fail to notice that they need to take immediate and sustained action to succeed. Perhaps for this reason, interventions meant to increase the salience of academic goals and their fit with one's current identity significantly improve academic performance (e.g., *Oyserman, Bybee, & Terry, 2006*).

### A Solution: Increasing Academic Engagement by Activating a Connected Possible Identity

*Lewin (1942)* proposed that goal engagement in the face of difficulty depends on seeing time as extending beyond one's present situation to include a meaningful and inspiring future goal. In some cases people represent a future goal in the form of a possible identity—an image of the self that one could become. *James (1890)* noted earlier that people emotionally invest in desired possible identities such as “me as successful scholar” or “me as popular” and despair when they are not making progress toward attaining them. Formalizing these views, *Markus and Nurius (1986)* proposed that a desired possible identity serves as a goal that provides direction and impetus for current planning, decision making, and goal-directed action.

Although salient desired possible identities are sometimes enough to motivate goal-directed action (*Ruvolo & Markus, 1992*), this is not always the case (*Oyserman, Bybee, Terry, & Hart-Johnson, 2004*). Instead, imagining a desired possible identity can boost optimism and positive feelings without prompting action (*Gonzales, Burgess, & Mobilio, 2001*). Across studies, academic and career possible identities are sometimes, but not always, associated with increased academic engagement and performance (*Kirk et al., 2012; Strauss, Griffin, & Parker, 2012; Vansteenkiste, Simons, Soenens, & Lens, 2004*). Studies priming fitness and

health-related possible identities reveal similarly inconsistent results (Dalley & Buunk, 2011; Hoyle & Sherrill, 2006; Murru & Martin Ginis, 2010).

This disparity between possible identities' personal value and their limited impact on current action has been widely studied (e.g., Gollwitzer & Sheeran, 2006; Oyserman, 2013; Wakslak, Nussbaum, Liberman, & Trope, 2008). People report valuing their future self as a truer representation of themselves than their current self (Wakslak, Trope, Liberman, & Alony, 2006), yet they often choose immediate short-term gains over longer term rewards, a phenomenon captured in the large literature on temporal discounting (e.g., Ballard & Knutson, 2009; Chapman & Elstein, 1995; Thaler, 1981). One explanation for this disparity is that people fail to notice that now is the time to act (Gollwitzer & Sheeran, 2006). This suggests that one solution is to focus on specific strategies for action (termed *implementation intentions*), such as "When I get out of class, I'll immediately sit down and reread my notes," instead of thinking about a possible identity in more global terms (Gollwitzer & Sheeran, 2006).

Another explanation is that people fail to fully appreciate the connection between their current actions and a possible identity that may or may not be realized in the remote future. Unless something in the context clarifies the connection between present and future and, in so doing, affirms that strategies for action are needed, people may fail to act in the present (Oyserman, 2013). For example, doing homework, eating a healthy diet, and exercising regularly might feel like a good investments if the present feels connected to desired possible identities as a "successful college graduate" or "healthy me"; otherwise these activities are more likely to feel like chores to be shirked (Oyserman & James, 2009).

This suggests that one means of increasing academic engagement is to make explicit the connection between one's current identity and academic possible identity. A number of studies support this hypothesis (Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009; Hershfield et al., 2011). In one, students who described their future career success as dependent on their academic success studied more than students who did not (Destin & Oyserman, 2010). In a follow-up study, children were shown either a stepwise graph in which each increment in education yielded higher average income or a graph of the incomes of top actors, athletes, and musicians. Children led to believe that school success was an effective means of attaining financial success studied more and turned in more homework than the other children (Destin & Oyserman, 2010). In another study, students were simply asked how connected their current and future "adult" identities felt, and those who reported more connection worked harder on school tasks (Nurra & Oyserman, 2011).

In an experimental replication of this effect, students assigned to consider the connection (vs. disconnection) between their current and adult identities worked harder on academic tasks (Nurra & Oyserman, 2011). Content coding revealed that the adult identity being described almost always involved a career, with the implication that seeing a future identity as connected to the current identity encourages schoolwork by making it seem like a step on the path to attaining a successful possible identity.

These studies strongly suggest, but do not test, the prediction that the journey metaphor used by many colleges works in the same way. That is, students thinking about their possible identity as academically accomplished graduates might use the journey

metaphor to connect that possible identity to their current identity through a sequence of actions that begins in the present. This should, in turn, increase their academic intention and prompt them to invest more effort into academic tasks. To articulate more fully why this might be the case, we turn to conceptual metaphor theory and the growing body of research on metaphor's role in cognition.

### Conceptual Metaphor Theory and Research

Conceptual metaphor theory posits that metaphor is not merely a communication device, as is traditionally assumed; rather, it is a cognitive tool that people can use to understand one concept in terms of a superficially dissimilar concept (Gibbs, 1994; Kövecses, 2010; Lakoff & Johnson, 1980, 1999). The concept people try to understand (the "target") is typically abstract, referring to entities and relations that cannot be directly observed; the other concept (the "source") is typically more concrete, referring to perceptual and embodied experiences that are familiar, observable, and well understood (e.g., experiences of space, movement, containment).

Metaphor use facilitates understanding of the target by mentally mapping its characteristic features onto analogous features of the source. In this way, an accessible metaphor supports interpretations of the target that are consistent with knowledge of the source. More specifically, the metaphor transfers source knowledge in a way that highlights some target features and downplays others. Thinking about the same target in terms of an alternative source or without a metaphor will highlight and downplay different target features.

The current research builds on studies that prime metaphor experimentally by exposing participants to a metaphoric framing: a communication comparing (e.g., by means of words or images) a target and a source. The reasoning behind this empirical strategy is that if a metaphoric framing activates metaphor use, it should lead recipients to transfer their source knowledge to interpret analogous features of the target, even those that are not explicitly referred to in the communication. Supporting this reasoning, participants who read a message framing the stock market as a living agent (e.g., "the NASDAQ started *climbing* upward") were more likely to infer that price trends would continue along their current trajectory than participants who read a message framing the stock market as an inanimate object ("the NASDAQ was *swept* upward"; Morris, Sheldon, Ames, & Young, 2007). Similarly, participants primed to frame a city's crime problem as an aggressive animal were more supportive of punitive crime-reduction strategies than those primed to frame crime as a disease, who preferred to address the root causes of crime (Thibodeau & Boroditsky, 2011). In each case, though not directly tested, effects were consistent with the hypothesized knowledge transfer process. That is, participants primed with an agent-metaphoric framing presumably transferred their knowledge of living agents (they move with intention) to interpret the target, while those primed with a disease-metaphoric framing transferred their knowledge of curing disease (address root causes).

There is some experimental evidence that primed metaphors influence self-perceptions. Studies show that priming bodily cues associated with source concepts (e.g., tasting something sweet, looking up) changes perceptions of target personality traits (e.g., agreeableness, dominance) in directions consistent with conventional metaphors (Meier, Moeller, Riemer-Peltz, & Robinson,

2012; Robinson & Fetterman, 2013). Yet no prior studies have examined the potential for primed metaphors to influence people's understanding of the person they may become in the future. Also, no prior studies have examined consequences of metaphor use for motivational outcomes.

### The Goal-as-Journey Metaphor and Identity-Based Motivation

People commonly talk about future goals in journey-metaphoric terms: "choose the right *path*," "get a good *start*," "I see *where* I need to go," "Once I get to that *place* I can decide to *keep going* or *take a different direction*" (Lakoff, 1993; Lakoff & Johnson, 1999). The journey metaphor also pervades communication strategies to encourage various goal-directed behaviors. In addition to being used by colleges in their orientation materials, the journey metaphor is used by physicians to encourage their patients to maintain health and treatment routines (Penson, Schapira, Daniels, Chabner, & Lynch, 2004). Advertisers encourage consumers to choose their product to embark on a journey toward a healthier, wealthier, or more attractive version of themselves (Ágnes, 2009; Milne, Kearins, & Walton, 2006). Influential leaders such as Martin Luther King Jr., Winston Churchill, and Barack Obama have attempted to rally civic action by describing a physical journey toward a state of the nation as egalitarian, prosperous, or victorious over evil (Charteris-Black, 2011). These qualitative examples provide suggestive evidence that framing a future goal using the journey metaphor uniquely increases engagement with that goal.

Stronger support comes from evidence that using the journey metaphor to think about personal identity over time influences self-perceptions that are closely related to those that predict possible identity engagement. Keefer, Landau, Rothschild, and Sullivan (2011) showed that individuals primed to frame separate episodes from their past as locations along a path (versus without a metaphor) perceived those past experiences as more strongly connected to their current identity. It is possible that framing a possible future identity using the journey metaphor will similarly make that identity feel more connected to one's current identity. And, as we noted earlier, studies show that a strong perceived connection to a possible identity spurs individuals to engage with that identity in the present (Oyserman, 2013). The current studies integrate these prior findings to assess the journey metaphor's impact on engagement. They are also the first to directly examine the knowledge transfer process that is theorized to mediate metaphor priming effects.

### Overview of the Current Studies

Studies 1–3 test the prediction that priming students with a journey-metaphoric framing of their desired academic possible identity will increase their academic engagement. College students randomly assigned to this key priming condition thought about themselves in the future as an academically accomplished college graduate. Using the metaphoric framing procedure described earlier, we primed these participants to visualize their academic possible identity as a destination on a physical path representing their college career. We assessed the generalizability of the predicted effect by testing whether it replicated across two operational

definitions of academic engagement used in prior research: academic intention (Study 1) and effort (Studies 2 and 3). We also test whether this effect persists over time as reflected in test performance a week following the priming manipulation (Study 3).

Following this first set of studies, we present our model of the processes underlying the journey metaphor's hypothesized effect on engagement. Briefly stated, this model specifies that using the journey metaphor to frame a possible identity results in a transfer of the procedural confidence associated with physical journeys to understand a possible identity, bolstering confidence that one knows the procedure necessary to attain that identity. This procedural confidence makes a possible identity feel more connected to one's current identity, and this identity connection in turn increases engagement (as demonstrated in prior research on identity-based motivation). Study 4 tests whether a journey-metaphoric framing of a possible identity strengthens identity connection by increasing procedural confidence. Studies 5 and 6 test the mediating role of identity connection in predicting engagement. Study 6 extends the model beyond the academic domain to test whether journey-enhanced identity connection predicts engagement with a variety of desired possible identities reported by working adults. Study 7 tests the hypothesis, derived from our theoretical integration, that a journey-metaphoric framing will particularly benefit individuals who generally perceive a weak connection to their possible identity.

To test whether our key priming condition uniquely improves academic engagement, we included comparison conditions that differ along three critical dimensions: whether the salient possible identity focuses on academics or another domain; whether an academic possible identity is framed with the journey metaphor, no provided metaphor, a different metaphor for time, or a passive journey metaphor; and whether the primed identity refers to past achievements or future success. The introduction to each study provides details of the comparisons used.

### Samples

Given our focus on academic engagement and academic possible identities, we recruited students enrolled in introductory psychology courses who received course credit or extra credit (Study 3). The exceptions were our pilot study and Study 6, in which we recruited adult samples from Amazon's Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011). Recruiting an online sample in Study 6 enabled us to test whether and how the journey metaphor influences engagement with possible identities in domains other than academics.

### Sample Size

Our procedure for terminating data collection was straightforward. For each experiment, we collected data until the end of semester with the goal of obtaining at least 20 observations per condition, as recommended by Simmons, Nelson, and Simonsohn (2011). This minimum cell size goal was met except in Study 2, in which data were collected at the end of the semester and many participants did not follow task instructions, leaving us with cell sizes between 17 and 18 (see footnote 3).

## Preliminary Analyses

Given our dependent measures of academic engagement, we obtained gender and race–ethnicity information to explore whether these demographic factors were associated with the outcomes or moderated the effect of our predictor variables (the exception was Study 5, in which researcher oversight meant that race–ethnicity was not obtained). Table 1 provides a distribution of race–ethnicity by study. Because Caucasian and Asian Americans formed three quarters or more of each sample, our analysis of possible race–ethnicity effects was underpowered. Research on stereotype threat suggests that negative stereotypic expectancies on academic tasks are likely to be salient for African American, Hispanic American, and American Indian students (Steele et al., 2002). Therefore, we combined these racial–ethnic categories and compared them to those of Caucasian and Asian students. We found a main effect of gender in Study 7, as described in that study. We did not find any interaction between gender or race–ethnicity and our predictor variables.

### Part 1: Priming a Journey-Metaphoric Framing of a Possible Academic Identity Enhances Academic Engagement

#### Study 1: Academic Intention

In Study 1 we operationalized academic engagement as academic intention. Specifically, we used both self-report and behavioral measures of students' interest in actual academic resources (e.g., online study guides, tutoring services) designed to help them succeed.

We assessed the specific effect of the journey-framed academic possible identity (PI) prime against comparison primes differing in target identity and framing. For target identity, one group was asked to think about themselves as socially accomplished college graduates. Establishing social relationships is a major goal in college and a common PI in free-response studies (Oyserman & James, 2011), but it is irrelevant to academic engagement. For framing, one group was primed to frame their academic PI without a provided metaphor. Another group framed their academic PI as an entity located inside a container representing their senior year. Like the journey metaphor, the goal-as-contained-entity framing is commonly used to communicate about goals (e.g., one *enters* and

*exits* an academic year).<sup>1</sup> Yet people generally know that entities located inside separate, bounded containers do not influence one another (Lakoff, 1993; Lakoff & Johnson, 1980). In fact, studies show that people perceive a weak connection between their current identity and past events that are metaphorically placed inside containers (Li, Wei, & Soman, 2010). When used to frame a PI, the container metaphor implies that engagement is necessary once one is “in” the future, but not before (Gentner, Imai, & Boroditsky, 2002), and was therefore not expected to increase academic engagement.

**Method.** Participants were 92 University of Kansas (KU) freshmen (54% female, 82% White) randomly assigned to one of four priming conditions: journey-framed academic PI, nonmetaphoric academic PI, container-framed academic PI, and nonmetaphoric social PI.

Participants completed a packet, the first three pages of which constituted the priming manipulation. The first page contained the PI prompt. In the academic PI conditions, instructions (adapted from Ruvolo & Markus, 1992) asked participants:

Imagine yourself during your *Senior Year*. Visualize yourself as having achieved all of your academic goals. Imagine that your experience in classes has gone as well as it possibly could have, and that you have performed extremely well academically. In the space below, write a few sentences describing this image of yourself during your *Senior Year*. What are you like, and what do you see yourself doing? Describe how you feel in this imagined scene. Try to create a vivid picture of the “academic you” in your *Senior Year*.

Underneath the instructions were lines provided for the written response.

Typical responses were “I see myself as a geology major applying for internships and looking to start a career”; “I think I would be very happy with myself. I would feel confident in the classroom and I would probably be doing some sort of outreach or research”; “I would graduate with my finance degree and have an internship in the business world. I would feel accomplished and still driven to achieve more.”

In the social PI condition, participants were instructed:

Imagine yourself during your *Senior Year*. Visualize yourself as having achieved all of your social goals. Imagine that your experience with friends, family, and romantic partners has gone as well as it possibly could have, and that these relationships have gone extremely well. In the space below, write a few sentences describing this image of yourself during your *Senior Year*. What are you like, and what do you see yourself doing? Describe how you feel in this imagined scene. Try to create a vivid picture of the “social you” in your *Senior Year*.

A typical response was “I am living in a house near campus with my friends from freshman year. I go out with them but I also go out with the girls from my rowing team. I also have a boyfriend whom I spend time with. Aside from my friends, I visit my sister and brother-in-law often and talk to the rest of my family as much as I can.”

The instructions on the second page read: “Based on the description you just wrote, write a word in each box on the next page

Table 1

Demographic Information by Study (Percent)

Study	Caucasian American	Asian American	African American	Hispanic American	American Indian	Other
1	82	6	3	3	2	4
2	79	6	10	3	3	0
3	90	2	4	0	2	2
Pilot	74	11	5	9	0	1
4	70	4	9	11	3	3
6	72	11	8	7	2	1
7	84	4	5	4	0	4
Average	79	6	7	6	2	2

*Note.* Race–ethnicity not recorded in Study 5 due to experimenter oversight. Percentages may not sum to 100% across rows due to rounding.

<sup>1</sup> Moser's (2007) linguistic analysis shows that of the 22 source concepts that people spontaneously use to talk about change in their identity over time, *journey* and *container* were among the three most frequent.

that you feel best describes the ‘academic you’ [‘social you’] that you envision being during your Senior Year.”

The third page displayed five vertically arranged spaces in which participants made responses. In the journey-framed academic PI condition, the page had a background image of a path extending forward from the viewer’s vantage and labeled progressively with undergraduate years (see Figure 1, left panel). In the container-framed academic PI condition, the image was of trunks labeled left to right with the undergraduate years (see Figure 1, right panel). For both images, the five response spaces were visually linked to the senior year. In the two nonmetaphoric framing conditions (academic or social PI) the response spaces appeared alone on the page.

**Academic intention (self-report).** On the next page was an announcement of an upcoming workshop:

Developing Your Finals Approach: Do you need to develop your approach to finals week? This workshop will enable you to establish your plan, focus on your priorities while getting more tasks accomplished, and use your time effectively. Workshop will be held on November 30th from 12:00–12:45 in the Banquet Room of the Ekdahl Dining Commons (Mrs. E’s).

All participants were run prior to November 18, 2011, and thus had the opportunity to attend this workshop, which was in fact offered by KU’s Academic Achievement and Access Center.

Participants rated their agreement with five items assessing interest in attending the workshop (e.g., “I am interested in attending this workshop,” “I am likely to attend this workshop”; 1 = *strongly disagree*, 7 = *strongly agree*). Responses were averaged ( $M_{\text{grand}} = 4.07$ ,  $SD = 1.37$ ,  $\alpha = .89$ ). Higher composite scores indicate stronger interest.

**Academic intention (behavioral).** Participants then read a description of the “Success Guides” available online through KU’s Academic Achievement and Access Center. They read a list of the topics (e.g., note taking, testing tips) on which they could receive assistance, followed by instructions: “If you are interested in reading these guides after you complete today’s study, the website information is provided below. You are welcome to tear off the slip at the bottom of this page and take this information with you.” Underneath the instructions, and demarcated by a dotted line approximately 2 in. from the bottom of the page, was the (actual) website address for accessing the academic success guides. We recorded the number of participants who took this information with them. Intensive postsession interviews revealed that none of the participants in this study expressed suspicion about this procedure.<sup>2</sup>

**Results.** Submitting workshop interest scores to a one-way (priming condition) analysis of variance (ANOVA) returned a significant omnibus effect,  $F(3, 88) = 3.23$ ,  $p = .03$ ,  $\eta_p^2 = .10$ . To decompose this effect, we conducted pairwise comparisons using Fisher’s least significant difference to take into account the overall error term. As predicted, participants primed with a journey-framed academic PI reported stronger interest in the workshop ( $M = 4.82$ ,  $SD = 1.19$ ) than those primed with a nonmetaphoric academic PI ( $M = 4.03$ ,  $SD = 1.37$ ;  $p = .05$ ), a container-framed academic PI ( $M = 3.82$ ,  $SD = 1.13$ ;  $p = .01$ ), and a nonmetaphoric social PI ( $M = 3.68$ ,  $SD = 1.55$ ;  $p = .005$ ). No other pairwise comparison reached statistical significance ( $ps > .37$ ).

Next, we used a chi-square test to analyze the number of participants who took information about accessing online academic success guides. Here too we found the predicted effect. As shown in Table 2, approximately half the participants primed with a journey-framed academic PI took the information, whereas only 13%–17% of participants in the other conditions did so,  $\chi^2_{\text{omnibus}}(3) = 9.62$ ,  $p = .02$ ;  $\chi^2_{\text{pairwise comparisons}} \geq 4.62$ ,  $ps < .03$ .

**Discussion.** College freshmen primed to frame their academic PI metaphorically as a destination on a journey reported stronger academic intention as reflected in their interest in academic resources. This effect held for both self-report and behavioral measures of interest in both online and in-person academic resources, supporting our claim that a journey-framed academic PI can prompt students to take specific steps in the present to achieve academic goals.

We also found discriminant evidence for the uniquely motivating effect of framing an academic PI using the journey metaphor. Students in this condition showed stronger academic intention than students primed to frame their academic PI without a provided metaphor and using a different metaphor (as an entity in a separate container), as well as those who thought about a PI in a different domain (the “social me”). Still, it is possible that the observed effect is due simply to the salience of the journey metaphor itself, rather than a journey-framed academic PI specifically. Perhaps the “journey” is simply a cliché symbol of motivation that globally cues action in any accessible domain. We assessed this alternative possibility in Study 2 by including two comparison conditions in which participants used the journey metaphor to frame different target identities.

## Study 2: Academic Effort

In Study 2 we operationalized academic engagement as effort on academic tasks. Participants completed numerical addition problems designed to be relatively simple, thereby ensuring that academic effort could be measured as percentage of problems solved.

We tested our claim that a primed journey metaphor increases academic engagement specifically when it is used to frame an academic PI, and not identities differing in domain or time frame. In two comparison conditions students were primed to use the journey metaphor to frame their social PI or a past academic achievement. Including the latter condition allowed us to test whether the key priming condition increases engagement by orienting the person toward a possible identity and not, alternatively, by activating a self-image as globally competent in the relevant domain.

**Method.** Participants were 82 KU freshmen randomly assigned to one of four priming conditions: journey-framed academic PI, container-framed academic PI, journey-framed social PI, and journey-framed past academic achievement. The materials for the first three of these conditions were identical to those used in Study 1. In the fourth condition, participants thought about their

<sup>2</sup> The same procedure was used with the same result in all subsequent studies, except Study 2, as described in that study. For the pilot study and Study 6, we recruited online samples, so we replaced in-person interviews with a series of open-ended questions tapping possible suspicions. None were reported.

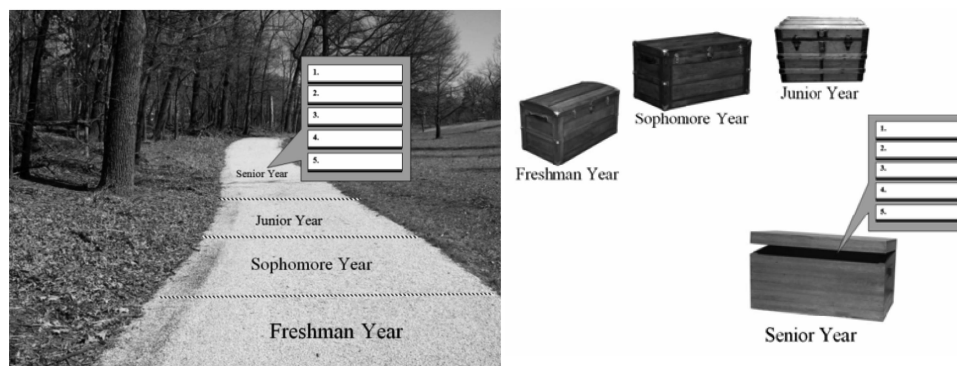


Figure 1. Images used in the journey-metaphoric (left; Studies 1, 2, and 7) and container-metaphoric (right) framing conditions (Studies 1 and 2).

academic achievements in the past. Specifically, they were instructed:

Reflect back on your *Senior Year* of high school. Visualize yourself during the times when you achieved all of your academic goals. Reflect on the times your experience in classes went as well as it possibly could have, and when you performed extremely well academically. In the space below, write a few sentences describing this image of yourself during your *Senior Year* of high school. What were you like, and what do you see yourself doing back then? Describe how you felt at this time. Try to create as vivid a picture as possible of the “academic you” in your *Senior Year* of high school.

Typical responses were “I reached nearly all of my academic goals during my senior year of high school. I got into all the schools I wanted to get in to, I received high marks in my classes and I was ranked among the top ten students in my graduating class”; “I felt very proud of myself for all of the hard work I put into my senior year and believe that the work really paid off.” Note that participants in this condition were explicitly instructed to write about past academic achievements. Coding of the responses revealed that all participants complied with those instructions.

Next, participants wrote words descriptive of that past achievement in spaces linked to the “Senior Year” portion of the path image in Figure 1 (left panel). In this way we used the same path image to refer to college years in the future or high school years in the past, depending on condition.

Postsession interviews revealed that three participants expressed major suspicions about the procedure (suspecting, for example, that the social PI prompt was designed to disrupt math task

performance). Additionally, eight participants did not follow instructions for the math task, as detailed next. These 11 participants were excluded from the analysis, leaving a final sample of 71 (63% female, 79% White).<sup>3</sup>

**Academic effort.** Next, participants read: “For the next part of the study, you will be presented with some mental math problems. How well you perform on these problems is a reliable indicator of your overall academic ability.” Participants were presented with 50 math problems and told to solve as many as they could in a 5-min period without the use of scratch paper or a calculator. Each problem involved summing three two-digit numbers (e.g., 54 + 28 + 89). Materials and instructions were from previous research on intellectual task engagement (DeStefano & LeFevre, 2004; Lisjak, Molden, & Lee, 2012; Vohs et al., 2008). After 5 min the computer automatically advanced to prevent completion of further problems or modification of responses. No participant completed all the problems (maximum score = 41). Eight participants failed to comply with instructions, either by using scratch paper or a calculator ( $n = 4$ ) or by clicking through the computerized materials at random ( $n = 4$ ).

Since the problems were quite solvable, participants attempted ( $M = 45.55\%$ ,  $SD = 14.93\%$ ) only a few more problems than they solved ( $M = 40.51\%$ ,  $SD = 14.98\%$ ), and attempted response and correct response scores correlated at .96. Thus, our analysis focuses on correct responses, though the pattern of results was the same for either outcome measure.

**Results.** A one-way ANOVA (priming condition) returned the predicted omnibus effect,  $F(3, 67) = 3.64$ ,  $p = .02$ ,  $\eta_p^2 = .14$ . Pairwise comparisons using Fisher’s least significant difference revealed that participants primed with a journey-framed academic

Table 2  
*Academic Intention (Interest in Online Academic Success Guides) as a Function of Priming Condition (Study 1)*

Priming condition	Took information?		
	Yes	No	% Yes
Journey-framed academic PI	10	11	48
Nonmetaphoric academic PI	4	19	17
Container-framed academic PI	4	21	16
Nonmetaphoric social PI	3	20	13

Note. PI = possible identity.

<sup>3</sup> The 11 excluded students were equally represented in the four priming conditions. Including their data in the analysis did not change the overall pattern of predicted pairwise comparisons, although the omnibus effect became nonsignificant,  $F(3, 78) = 1.12$ ,  $p = .35$ . In this study, but not the other current studies, a number of participants expressed major suspicions about the procedure or failed to follow instructions. This disparity is likely due to the fact that data collection for this study, but not the other current studies, was concentrated at the end of the semester, by which time participants had taken part in many studies involving deception. Indeed, past research shows that students who complete their research participation requirements later (vs. earlier) in the semester show reduced compliance with instructions (Neuberg & Newsom, 1993, Study 5).

PI solved a higher percentage of the problems ( $M = 50.80\%$ ,  $SD = 15.43\%$ ) than those primed with a container-framed academic PI ( $M = 38.90\%$ ,  $SD = 14.75\%$ ;  $p = .02$ ), a journey-framed social PI ( $M = 39.11\%$ ,  $SD = 16.51\%$ ;  $p = .02$ ), and a journey-framed past academic achievement ( $M = 35.11\%$ ,  $SD = 9.08\%$ ;  $p = .002$ ). No other pairwise comparison reached statistical significance ( $p > .40$ ).<sup>4</sup>

**Discussion.** Students put more effort into an academic task after being primed to frame their academic PI using the journey metaphor compared to those primed to frame their academic PI using a different metaphor of time (goal-as-contained-entity) and those primed to use the journey metaphor to frame a nonacademic PI or a past academic achievement. The latter two comparisons cast doubt on the alternative possibility that the effect of the key priming condition in Study 1 was due to the salience of the journey metaphor itself. Instead, these findings support our claim that a primed journey metaphor increases academic engagement specifically when it frames an academic PI.

In Studies 1 and 2 we measured students' academic engagement directly following the priming manipulation. In Study 3 we assess the lasting effect of the key priming condition by testing whether it leads students to plan more studying time and to perform better on an actual exam a week later.

### Study 3: Academic Engagement Over Time

In Study 3 we operationalized academic engagement as academic intention and effort. We aimed to conceptually replicate Study 1 using a more ecologically valid measure of academic intention. In Study 1 students reported their interest in academic support services, but they were not asked to make concrete plans for studying or to negotiate coursework with nonacademic activities competing for their limited time (e.g., socializing). Thus, in Study 3 we recruited participants the week before final exams and asked them to make a schedule for the upcoming weekend, indicating the number of hours they intended to devote to coursework as well as nonacademic activities.

We also tested whether a journey-framed academic PI increases academic effort over time. We measured students' performance on a final exam that took place a week following the priming manipulation.<sup>5</sup>

We modified our priming procedure and materials to address a potential confound. The image used thus far in the container-metaphoric framing condition (see Figure 1, right panel) depicts the senior year in a position that may appear closer to the viewer than in the journey-metaphoric framing image (see Figure 1, left panel). Though, if anything, by making the future appear closer, this potential confound should strengthen the container framing's effect. Still, we modified the procedure and images so that the senior year appeared in the same position and at the same apparent distance across conditions.

**Method.** One week prior to their course's final exam, 90 KU undergraduates were invited to participate in an online survey for extra credit. Volunteers ( $N = 50$ ; 64% female, 90% White; 64% freshmen and sophomores, 16% juniors, 20% seniors)<sup>6</sup> completed the materials prior to the weekend referred to in the study time allotment measure described below.

Participants were randomly assigned to frame their academic PI using either the journey metaphor or the container metaphor. The

priming procedure involved a sequential visualization task simulated in Figure 2. Participants in the journey-framing condition (left panel) viewed a path image initially labeled only with "Freshman Year." Underneath were instructions to form a mental image of the self in that year. The next two screens prompted participants to imagine themselves in their sophomore and junior years, respectively. On the fourth screen, labeled only with "Senior Year," a response box appeared underneath the image that contained the same academic PI writing prompt used in Studies 1 and 2.

A parallel visualization task was used in the container-framing condition (right panel). The four screens depicted individual trunks labeled successively with the college years. The college year labels appeared in the same position and font size as they appeared in the journey-framing condition (decreasing in size from freshman to senior year). The academic PI writing prompt appeared underneath the "Senior Year" trunk.

**Academic intention (allotted study time).** Next, participants received a purported survey of student life in which they were asked to fill out a planner representing the upcoming weekend before finals week. Specifically, participants were given a range of 1-hr time slots from 9 a.m. to 1 a.m. for Saturday and Sunday. For each time slot, participants were given three response options to indicate what they would primarily spend that hour doing: coursework, socializing with others, or solitary leisure time. Participants also had the option to leave a time slot blank if they were uncertain of their plans.

We created three composite scores by summing the total number of hours participants allotted to each of the three activities. Because number of hours is a count variable, we used Poisson regression analysis to regress those scores onto priming condition (dummy coded: journey-framed academic PI = 1, container-framed academic PI = 0).

**Academic effort (exam performance).** Finally, students left a student ID number in the survey that could be traced to an exam score. The instructor who graded final exams for the class was blind to priming condition.

**Results.** We found significant effects of priming condition on the number of hours students planned to study during the weekend ( $b = .21$ ,  $SE = .09$ ,  $z = 4.9$ ,  $p = .02$ ) as well as the number of

<sup>4</sup> In Study 2 attempted problems and correct responses are highly redundant ( $r = .96$ ). Analyzing the number of problems attempted revealed the same pattern of results observed for correct responses: Participants primed with a journey-framed academic PI attempted more problems than participants in the comparison conditions,  $F_{\text{omnibus}}(3, 67) = 3.12$ ,  $p = .03$ ,  $\eta_p^2 = .12$ , with pairwise comparisons (least significant difference) significant at  $p < .05$ .

<sup>5</sup> We consider allotted study time and exam performance to be separate measures of academic engagement. Studying and exam performance are generally weakly correlated because students often fail to use effective study methods (Plant, Ericsson, Hill, & Asberg, 2005). More importantly for this study, students were asked about studying for their final exams in general, and not about studying for the particular exam we obtained grades for. Accordingly, in our sample these measures ( $z$  transformed) were weakly correlated ( $r = .09$ ,  $p = .55$ ).

<sup>6</sup> This is the only current study using student samples that included some upperclassmen (evenly distributed across the groups;  $t$  test by condition,  $p = .83$ ). Importantly, including class year as a covariate in our analysis did not significantly change the priming condition effects (for exam performance,  $p = .05$ ; coursework hours,  $p = .03$ ; social hours,  $p = .006$ ). Priming condition did not interact with class year for any of our dependent measures.





Figure 2. Images used in the journey-metaphoric (left) and container-metaphoric (right; Study 3) framing conditions.

hours they planned to socialize ( $b = -.26$ ,  $SE = .08$ ,  $z = 8.06$ ,  $p = .005$ ). For each hour that container-primed participants planned to dedicate to coursework, journey-primed participants planned to dedicate 1.23 ( $e^{0.21}$ ) hours. Yet, for each hour that container-primed participants planned to socialize, journey-framed participants planned to socialize only 0.77 ( $e^{-0.26}$ ) hours. Priming condition did not affect the number of hours students allotted to solitary leisure time ( $b = .02$ ,  $SE = .10$ ,  $z = 0.05$ ,  $p = .82$ ).

We also found a significant effect of priming condition on exam performance a week later,  $F(1, 48) = 3.93$ ,  $p = .05$ ,  $\eta_p^2 = .08$ . Participants primed with a journey-framed academic PI outperformed participants primed with a container-framed academic PI ( $M = 92.08$ ,  $SD = 4.73$  vs.  $M = 88.6$ ,  $SD = 7.34$ ).<sup>7</sup>

**Discussion.** When students were asked to commit to a schedule for the upcoming weekend, those who had just framed their academic PI using the journey metaphor reserved more hours for coursework, even though that meant sacrificing desirable socializing time. Moreover, they were more effective test takers a week later, outperforming those who framed their academic PI using the container metaphor.

Taken together, the results of Studies 1–3 support our hypothesis that framing an accessible academic PI using the journey metaphor uniquely increases academic engagement. We found converging effects across two operational definitions of academic engagement (academic intention and effort), and we found that the effort-inducing effect persists up to a week later. We also found evidence that this effect is due specifically to using the journey metaphor to frame an academic PI. Students who framed their academic PI using a different metaphor for time or who were not provided a metaphor did not show increased academic engagement. In addition, a primed journey metaphor did not increase engagement when used to frame a different PI (“me as socially accomplished college graduate”) or a past academic achievement. In the second set of studies, we take a closer look at the cognitive processes underlying this effect.

## Part 2: The Journey Metaphor Transfers Procedural Confidence, Increasing Possible Identity Connection and Engagement

How does a journey-metaphoric framing of a possible identity increase engagement with that identity? Generally, priming makes

knowledge temporarily accessible and thus available for perception and judgment (for a review, see Förster & Liberman, 2007). An accessible metaphor is posited to be unique in that it transfers knowledge of a source concept to help people understand and process a target concept, despite the two concepts’ surface differences (Kövecses, 2010; Lakoff & Johnson, 1980). The results of prior studies imply, but do not test, the proposition that priming a metaphorical framing is an effective means of triggering metaphorical transfer, because it leads recipients to interpret the target (e.g., stock market trends, crime) consistent with their source knowledge (e.g., intentional agents, disease; Morris et al., 2007; Thibodeau & Boroditsky, 2011). Going further, we directly test the prediction that priming a journey-metaphoric framing of a goal cues observers to transfer their knowledge of physical journeys to interpret that goal. But what do people know about journeys?

We focus on the *procedural knowledge* people have about physical journeys. A procedure is a sequence of actions required to attain a goal (Wyer, Shen, Hao, & Xu, 2013). Throughout the life span people routinely move forward along paths toward desired locations. They toddle across rooms to reach toys, walk down streets and sidewalks toward buildings and gatherings, and run across parking lots to get to work on time. From these recurring embodied experiences, people acquire confident knowledge that, on a journey, the path in front of them designates a sequence of individual steps that they must take to move from “here” (current location) to “there” (destination). Using the journey metaphor to conceptualize a goal transfers this procedural confidence, helping people to concretely grasp how their current activities fit into a sequence of actions necessary to achieve (or “get to”) that goal (Gibbs, 1994; Lakoff, 1993; Lakoff & Johnson, 1980).

On the basis of this theorizing, we hypothesized that priming a journey-metaphoric framing of a possible identity would bolster procedural confidence about that identity, and that this procedural confidence would increase felt connection between current and possible identities. Increasing people’s confidence that they know how to attain a possible identity should increase their sense that it is a realistic goal and thus a meaningful part of their current identity rather than an abstract and remote possibility. Consistent

<sup>7</sup> The generally high exam averages are most likely due to selection bias with respect to who volunteered for the study.

with this hypothesis is evidence that students report feeling more connected to an academic possible identity if they are additionally prompted to delineate strategies for achieving that goal (Oyserman, Johnson, & James, 2011). Yet this work did not examine whether metaphor use can increase procedural confidence and hence identity connection. We test whether the journey-metaphoric framing's effect on identity connection is mediated by procedural confidence in Study 4.

Our second theoretically guided hypothesis was that priming a journey-metaphoric framing of a possible identity increases engagement by means of increasing identity connection. This hypothesis follows from the integration of two prior findings: perceived identity connection is a key antecedent of engagement with a possible identity (Oyserman & Destin, 2010), and using the journey metaphor to frame temporally remote aspects of one's identity increases their perceived connection to one's current identity (Keefer et al., 2011). Studies 5 and 6 test this hypothesis, in Study 5 with a sample of college freshmen focused on their academic possible identity and in Study 6 with a sample of adults focused on a desired possible identity 4 years in the future. In Study 7 we applied our integrative model to examine how individual differences moderate the journey metaphor's motivating effect. If this metaphor spurs engagement by strengthening identity connection, as we hypothesize, it should be particularly beneficial for individuals who perceive a weak connection to their possible identity.

### Pilot Study

Our first process-related hypothesis—that using the journey metaphor to frame a possible identity will transfer procedural confidence about that identity—rests on the assumption that people possess more confident procedural knowledge of physical journeys than of possible identity attainment. A pilot study tested this assumption. Mechanical Turk workers ( $N = 71$ ; 51% female, 74% White;  $M_{\text{age}} = 30.77$  years) rated their agreement with three items assessing confidence in procedural knowledge of traveling along a physical path: “I can clearly see what steps I need to take to reach my destination”; “I am unclear about the steps required to reach the destination” (reverse scored); “I am aware of everything I have to do to reach the destination” (1 = *strongly disagree*, 7 = *strongly agree*;  $\alpha = .90$ ). Then they were asked to imagine a successful future self in a personally valued domain (using a slightly modified version of the academic and social PI writing prompts used thus far) and then rate how confidently they know the procedure necessary to attain that possible identity: “I have a clear idea of how to achieve my goal”; “I am not sure what exactly I need to do to achieve my goal” (reverse scored); “I understand the smaller goals I'll need to achieve to accomplish my goal” ( $\alpha = .82$ ). A dependent samples  $t$  test revealed, as expected, that participants felt more confident in their procedural knowledge of physical journeys ( $M = 5.75$ ,  $SD = 0.99$ ) than of how to attain a possible identity ( $M = 5.22$ ,  $SD = 1.35$ ),  $t(70) = 3.32$ ,  $p = .001$ ,  $d = 0.45$ .

### Study 4: Transfer of Procedural Confidence and Identity Connection

Study 4 tests the first process in our model. We hypothesized that priming a journey-framed academic PI would transfer proce-

dural knowledge of physical journeys to understand PI pursuit, increasing participants' confidence that they understand the procedure required to attain that PI. This procedural confidence in turn should increase identity connection.

To provide a strong test of this hypothesis, we compared two conditions framing an academic PI using critically different journey metaphors: an active and a passive (passenger) journey metaphor. The active journey condition framed the self as walking along a path representing the college career, which requires awareness of the path and steps necessary to reach the destination. The passive journey condition, in contrast, framed the self as carried along that path in a vehicle following a predetermined route, which implies that one inevitably reaches the destination without considering the path or steps necessary to get there. We predicted that the active (vs. passive) journey framing would strengthen PI procedural confidence and, consequently, increase identity connection.

**Method.** KU freshmen ( $N = 56$ ; 67% female, 70% White) first completed the academic PI prime used in the previous studies and were then instructed to think about that identity as the destination at the end of a blank image of a path. Next, they completed a guided visualization task in which they imagined themselves as a student at three stages of their college career traveling toward that final, accomplished self. The stages were labeled “Current School Activities,” “Junior or Sophomore Year,” and “1st Semester Senior.” They were arranged chronologically beginning with current activities on the nearest part of the path and advancing along the path with each stage.

We manipulated how the college journey was framed. In the active journey framing, the representation of the stages depicted a figure (gender and ethnicity neutral) actively walking forward (see Figure 3, left panel). Written instructions bolstered this image's suggestion of self-directed motion along a path (e.g., “Imagine yourself on the road walking toward your goal”). In the passive journey condition, the active figure was replaced with an image of a train car traveling toward the academic possible self (see Figure 3, right panel), and instructions bolstered the implication of passive transport (e.g., “Imagine yourself aboard this train riding toward your goal”). We used a simpler, line-drawn path image rather than the photographic path images used in the previous studies so as to convincingly depict it as either a footpath or part of a rail line, depending on condition.

**Procedural confidence.** After imagining themselves at each of the three stages, participants completed three items assessing how confidently they understood the procedure necessary at that stage to attain their academic PI. We used the same items from the pilot study but modified them to refer to a given stage and the academic domain: “At this stage I have a clear idea of how to become an accomplished student”; “At this stage I am not sure what exactly I need to do to become an accomplished student” (reverse scored); “At this stage I understand the smaller goals I'll need to achieve to become an accomplished student” (1 = *strongly disagree*, 7 = *strongly agree*). Because our hypothesis concerned overall procedural confidence, we averaged responses to the nine items ( $M_{\text{grand}} = 5.55$ ,  $SD = 0.89$ ,  $\alpha = .81$ ).

**Identity connection.** Because current/possible identity connection may be an unfamiliar concept for participants, we used detailed instructions to help them assess it. We asked them to bring back to mind the academic PI that they described earlier and mentally label it “Graduate Me.” We then asked them to think

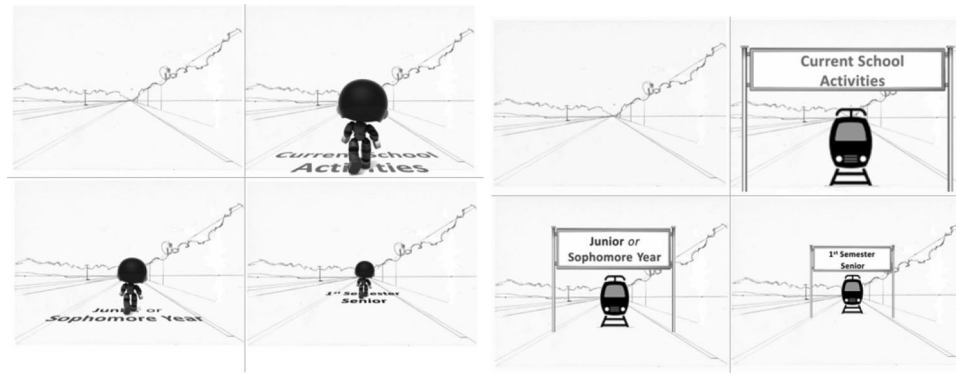


Figure 3. Images used in the active journey (right; Studies 4 and 6) and the passive journey framing condition (right; Study 4) framing conditions.

about the student that they are today (e.g., how they feel about school and their current courses) and label that “Today Me.” Next, they rated their agreement with five statements assessing identity connection: “Becoming Graduate Me begins with Today Me”; “I do not feel a strong connection between Today Me and Graduate Me” (reverse scored); “Graduate Me feels like a natural part of Today Me”; “I feel a strong connection between Today Me and Graduate Me”; “I can easily see how Today Me can become Graduate Me” (1 = *strongly disagree*, 7 = *strongly agree*). Responses were averaged ( $M_{\text{grand}} = 5.00$ ,  $SD = 1.24$ ,  $\alpha = .89$ ).

**Results.** An ANOVA revealed that participants primed with an active journey-framed academic PI reported more confident procedural knowledge of how to work on their academic PI ( $M = 5.79$ ,  $SD = 0.83$ ) than those primed with a passive journey-framed academic PI ( $M = 5.28$ ,  $SD = 0.91$ ),  $F(1, 54) = 4.67$ ,  $p = .03$ ,  $\eta_p^2 = .09$ . They also perceived a stronger connection between their academic PI and their current identity ( $M = 5.40$ ,  $SD = 1.08$  vs.  $M = 4.55$ ,  $SD = 1.29$ ),  $F(1, 54) = 7.17$ ,  $p = .01$ ,  $\eta_p^2 = .13$ .

We tested our mediational hypothesis that the active journey framing would strengthen identity connection by means of bolstering PI procedural confidence.<sup>8</sup> As expected, procedural confidence was highly predictive of perceived identity connection,  $\beta = .42$ ,  $t(54) = 3.36$ ,  $SE = 0.17$ ,  $p = .001$ . Using a bootstrapping procedure (Preacher & Hayes, 2008) with 5,000 resamples, we entered procedural confidence as the proposed mediator of the priming condition effect on identity connection. The resulting confidence interval did not include 0 (.04, .67), providing evidence at  $\alpha < .05$  that the effect of the active journey framing on identity connection was due to procedural confidence. Figure 4 depicts the mediation model.

**Discussion.** Students primed to think about themselves as actively moving along a path toward their academic PI were more confident that they knew the actions necessary to attain that PI compared to students who thought about themselves as passengers being transported along the same path. Because the passive journey framing implies no necessary personal effort to envision how one will reach a destination, it does not prompt an analogous awareness of how current actions fit into a procedure for attaining a PI many years in the future.

The active journey framing also led participants to perceive their academic PI as strongly connected to their current identity, and this

effect was mediated by PI procedural confidence. This mediation pattern provides evidence for the knowledge transfer process hypothesized to follow activation of the journey metaphor.

The observed difference between active and passive journey framings casts doubt on the alternative possibility that any framing using the journey metaphor is interpreted simply as a cliché reminder of a goal’s importance or the value of effort. It also shows that the journey-metaphoric framing used in the current studies does not simply prime forward motion.

The results of Study 4 begin to explain the processes through which a journey-framed academic PI increased academic engagement in Studies 1–3. In those studies, the images used in the journey framing conditions depict a footpath, which parallels the active journey framing in Study 4. As we see, this active journey framing bolstered students’ confidence that they know what actions are necessary to attain an academic PI and, as a result, they perceived that identity as strongly connected to their current identity. According to identity-based motivation theory, perceived identity connection is the key antecedent of PI engagement. The next step in assessing our model, then, is to test whether identity connection mediates the journey framing’s effect on PI engagement.

### Study 5: Identity Connection and Academic Engagement

Study 5 tests the second process in our model. We hypothesized that priming a journey-framed PI would lead participants to feel more connected to that PI, which would mediate the prime’s effect on PI engagement (operationalized as academic intention). We tested the specific effect of the journey-framed academic PI prime

<sup>8</sup> In this and subsequent mediation analyses, we used a Monte Carlo approach to empirically determine observed power to detect an indirect effect (see Fritz & MacKinnon, 2007; Thoemmes, MacKinnon, & Reiser, 2010). In 20,000 simulations based on the parameters of Study 4, the indirect effect was significant in 48% of samples (observed power = .48). This is somewhat below the standard guideline of .80 (Cohen, 1988). In a simulation of 20,000 samples based on the parameters of Study 5, the indirect effect was significant in 89% of cases (observed power = .89). Finally, in 20,000 simulations based on the parameters of Study 6, 70% of samples returned a significant indirect effect (observed power = .70).

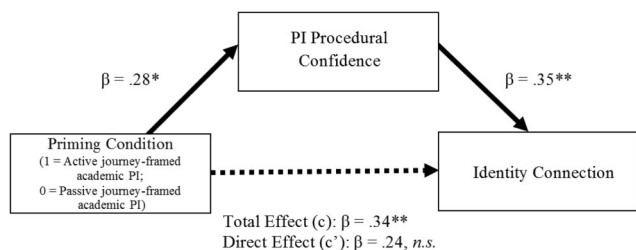


Figure 4. Mediation of the effect of the active journey framing on identity connection by procedural confidence (Study 4). “PI” refers to possible identity prime. All path coefficients represent standardized regression weights. The direct effect coefficient represents the effect of the independent variable after controlling for the effect of the proposed mediator. Total adjusted  $R^2$  for the model = .23,  $F(2, 53) = 7.82$ ,  $p < .001$ . \*  $p < .05$ . \*\*  $p < .01$ .

by comparing it to conditions differing in framing (nonmetaphoric academic PI) and target PI (journey-framed social PI).

Participants in the prior studies were explicitly instructed to frame their academic PI using the journey metaphor. This raises the possibility, mentioned earlier, that our observed effects are due to demand characteristics, perhaps because participants felt that they were being asked to dwell on a socially prescribed cliché for motivation. We further address this possibility by using a subtle priming procedure. We evaluate this alternative explanation more completely in the General Discussion.

**Method.** Participants were 78 KU freshmen randomly assigned to one of three priming conditions: journey-framed academic PI, nonmetaphoric academic PI, and journey-framed social PI. The academic and social PI prompts were identical to those used in the previous studies, and were positioned in a box at the top of the page. In the journey-framing conditions, the rest of the page depicted an image of a path extending forward from the viewer’s vantage and labeled progressively with the four college years (see Figure 5). In the nonmetaphoric framing condition, this image was absent.

We excluded the data of two participants who failed to respond to the PI writing prompt, which resulted in a final sample of 76 (55% female).<sup>9</sup>

**Identity connection.** On the next page, participants rated five statements about their perceived connection to their academic PI. We modeled these statements after those used in Study 4, but modified them to remove the need for lengthy instructions: “My academic success in the future begins in the present”; “I have a hard time seeing myself as an academically successful senior” (reverse scored); “My image of myself as an excellent student in my senior year feels like a natural part of who I am now”; “I feel connected to my image of myself as a successful senior at KU”; “I can easily see myself being an academically successful senior” (1 = *strongly disagree*, 7 = *strongly agree*). Responses were averaged ( $M_{\text{grand}} = 5.55$ ,  $SD = 1.09$ ,  $\alpha = .82$ ).

**Academic intention.** Finally, participants rated six statements about their intention to prioritize their coursework: “It is very important to me that I do well in school this semester”; “I don’t really care how well I do in classes this semester” (reverse scored); “I plan to work as hard as I can this semester”; “I am okay with ‘coasting through’ this semester” (reverse scored); “Schoolwork

should be my top priority right now”; “I plan to spend many hours per week studying for my current classes” (1 = *not at all true for me*, 7 = *absolutely true for me*). Responses were averaged ( $M_{\text{grand}} = 6.08$ ,  $SD = 0.80$ ,  $\alpha = .77$ ).

**Results.** As predicted, students primed with a journey-framed academic PI reported a stronger connection to their academic PI ( $M = 6.01$ ,  $SD = 0.82$ ) than those primed with a nonmetaphoric academic PI ( $M = 5.35$ ,  $SD = 1.21$ ;  $p = .03$ ) and a journey-framed social PI ( $M = 5.27$ ,  $SD = 1.09$ ;  $p = .01$ ),  $F_{\text{omnibus}}(2,73) = 3.83$ ,  $p = .03$ ,  $\eta_p^2 = .10$ . The latter two conditions did not differ ( $p = .79$ ).

The same pattern was found for academic intention, which was higher in the journey-framed academic PI condition ( $M = 6.44$ ,  $SD = 0.48$ ) than in the nonmetaphoric academic PI condition ( $M = 5.99$ ,  $SD = 0.88$ ;  $p = .04$ ) and the journey-framed social PI condition ( $M = 5.81$ ,  $SD = 0.88$ ;  $p = .004$ ),  $F_{\text{omnibus}}(2,73) = 4.55$ ,  $p = .01$ ,  $\eta_p^2 = .11$ . The latter two conditions did not differ ( $p = .41$ ).

Next, we tested whether the academic engagement effect was mediated by identity connection. Using Preacher and Hayes’s (2008) procedure with 5,000 resamples, we regressed academic intention onto priming condition (dummy coded: journey-framed academic PI = 1, nonmetaphoric academic PI = 0, journey-framed social PI = 0), with perceived identity connection entered as the proposed mediating variable. The 95% confidence interval did not contain 0 (.07, .53). Figure 6 depicts the mediation model.

**Discussion.** Students primed to frame their academic PI using the journey metaphor perceived that PI to be more connected to their current identity, replicating Study 4’s results with additional comparison conditions varying in framing and target PI. Furthermore, as would be expected on the basis of identity-based motivation theory, this increased identity connection mediated the key priming condition’s effect on academic engagement. Because the priming procedure was quite subtle, the results are unlikely to be due to demand characteristics.

## Study 6: Identity Connection and PI Engagement Across Domains

Although the studies have thus far focused on engagement with an academic PI, our model suggests that framing any desired PI as a destination on a journey will increase PI engagement and that this effect will be due to increased perceived connection to that PI. To test this, we designed Study 6 to replicate and extend Study 5 using broad measures of identity connection and engagement capable of accommodating PIs in a range of domains. Again, we operationalized engagement as intention to prioritize activities necessary to attain the target PI.

Study 6 also addresses a potential limitation of the container framing procedure used in Studies 1–3. In those studies we used images of trunks (see Figures 1 and 2, right panels) to represent the years during which participants imagined pursuing a PI. Yet participants are unlikely to have everyday experience moving in and out of containers like these, and the trunk images may even carry

<sup>9</sup> Due to an oversight, in Study 5 the experimenter recorded participant gender separately from the other data and did not record race–ethnicity data. Consequently, we could not test for possible interactions involving these variables.





Figure 7. Images used in the container-metaphoric framing condition (Study 6).

predicted increased PI engagement. The house images used in the container framing condition render it unlikely that between-condition differences are simply due to differences in ease of metaphoric mapping.

### Study 7: Individual Difference Moderation

Given the demonstrable benefit of the journey metaphor as an intervention for spurring PI engagement, it is practically important to know which individuals stand to benefit most from this intervention. On the basis of our process model, we hypothesized and found in Studies 5 and 6 that a journey-framed PI increased engagement by means of strengthening the PI's perceived connection to one's current identity. This suggests that individuals who previously report a weak connection to their PI will benefit the most from this framing. In contrast, individuals who already perceive a strong connection to their PI should exhibit high levels of engagement regardless of how that PI is framed. We tested this moderation hypothesis by measuring students' perceived connection to their academic PI prior to priming them with either a journey-metaphoric or nonmetaphoric framing of that PI.

**Method.** KU undergraduates ( $N = 80$ ; 51% female, 84% White; 89% freshmen and 11% sophomores) completed the five-item measure of identity connection described in Study 5 (again, these items closely match the five items used in Studies 4 and 6 but refer specifically to an academic PI;  $M_{\text{grand}} = 5.70$ ,  $SD = 0.92$ ,  $\alpha = .78$ ). Next, they were randomly assigned to represent their academic PI with or without a journey-metaphoric framing (the

materials and procedure were the same as in Study 1). Finally, they responded to the same five items used in Study 1 to assess academic intention, operationalized as students' interest in a workshop offering exam assistance (the workshop description was updated with that semester's scheduling details;  $M_{\text{grand}} = 4.48$ ,  $SD = 1.36$ ,  $\alpha = .88$ ).

**Results.** Preliminary analyses revealed a main effect of gender,  $F(1, 76) = 4.12$ ,  $p = .046$ . Men expressed less interest in the workshop ( $M = 4.12$ ,  $SD = 1.26$ ) than women ( $M = 4.83$ ,  $SD = 1.38$ ).

We tested the effects of our predictor variables on workshop interest using hierarchical linear regression analyses. In Step 1 we entered priming condition (dummy coded: journey-framed academic PI = 1, nonmetaphoric academic PI = 0) and composite identity connection scores (continuous and centered). In Step 2 we entered their interaction.

We observed a main effect of priming condition,  $\beta = .24$ ,  $SE = .30$ ,  $t(77) = 2.21$ ,  $p = .03$ , replicating the pattern of means found in Study 1. We did not observe a main effect of identity connection,  $t(77) = 1.39$ ,  $p = .17$ .

The inclusion of the interaction in Step 2 contributed significantly to our ability to account for the variance in workshop interest,  $\Delta R^2 = .06$ ,  $F(1, 76) = 5.50$ ,  $p = .02$ . We plotted the interaction,  $\beta = -.34$ ,  $SE = .32$ ,  $t(76) = 2.34$ ,  $p = .02$ , in Figure 9 using 1 standard deviation above and below the centered identity connection mean as recommended by Aiken and West (1991).

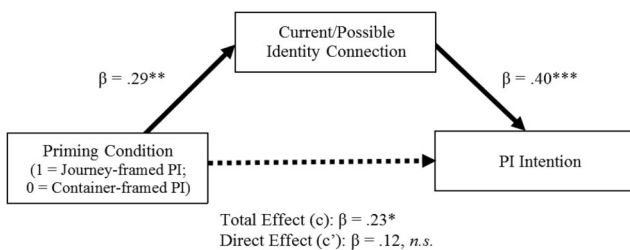


Figure 8. Mediation of the effect of priming condition on PI intention by identity connection (Study 6). "PI" refers to possible identity prime. All path coefficients represent standardized regression weights. The direct effect coefficient represents the effect of the independent variable after controlling for the effect of the proposed mediator. Total adjusted  $R^2$  for the model = .20,  $F(2, 69) = 8.53$ ,  $p < .001$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

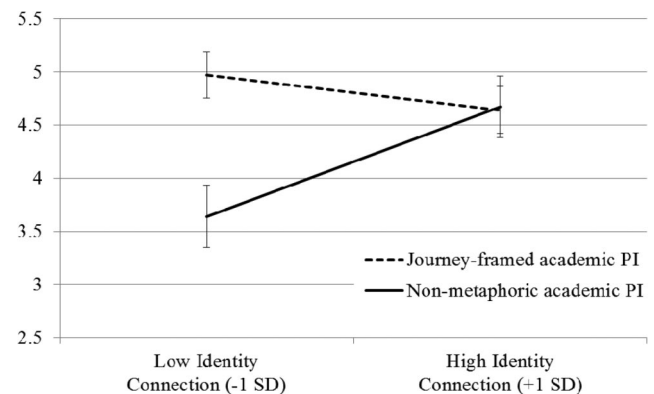


Figure 9. Academic intention (interest in academic resources) as a function of priming condition and preexisting identity connection (Study 7). PI = possible identity.

As predicted, the main effect was primarily due to participants below the mean in identity connection. Specifically, comparison of the predicted means at 1 standard deviation below the centered mean showed that low-connection participants reported more workshop interest in the journey-framed academic PI condition than in the nonmetaphoric academic PI condition,  $\beta = .49$ ,  $SE = .41$ ,  $t(76) = 3.27$ ,  $p = .002$ . Comparison of the predicted means for high-connection participants revealed no simple effect of priming condition,  $\beta = -.01$ ,  $SE = .41$ ,  $t(76) = 0.09$ ,  $p > .9$ .

Also supporting predictions, simple slopes analyses revealed that identity connection was significantly positively associated with workshop interest in the nonmetaphoric academic PI condition,  $\beta = .38$ ,  $SE = .21$ ,  $t(76) = 2.63$ ,  $p = .01$ , but did not predict workshop interest in the journey-framed academic PI condition,  $\beta = -.13$ ,  $SE = .24$ ,  $t(76) = 0.78$ ,  $p = .44$ .

**Discussion.** As in the previous studies, students primed to frame their academic PI using the journey metaphor showed increased academic intention compared to students who thought about their academic PI without a metaphoric frame being provided.

Furthermore, Study 7 shows that this effect was moderated by individual differences in students' perceived connection to their academic PI prior to the manipulation. Participants who felt weakly connected to their academic PI responded to the journey framing with increased academic intention. By contrast, participants who perceived a stronger connection to their academic PI reported high academic intention regardless of how that PI was framed. These findings show that framing a PI using the journey metaphor is most likely to improve motivation among individuals who lack a concrete grasp on how their current and future identities are linked.

## General Discussion

A series of studies utilizing a range of methods shows that priming people to frame a possible identity metaphorically as a destination on a journey leads them to feel more connected to that possible identity and to engage more with actions necessary to attain it. This effect emerged across four journey framing priming procedures: an interactive path image (Studies 1, 2, and 7), a sequential visualization task designed to eliminate between-condition differences in spatial position (Study 3), an active versus passive motion visualization task (Studies 4 and 6), and a subtle path image (Study 5). Hence, the effects found in any given study are unlikely to be due to idiosyncratic features of its priming procedure.

Furthermore, the motivating effect of a journey-framed possible identity generalized across a range of outcomes. Predicted effects emerged on two indices of engagement—intention to prioritize possible identity-relevant activities (Studies 1, 3, 5–7) and effort on those activities (Studies 2 and 3)—using various operationalizations of each outcome. Also, the effect generalized across engagement with an academic possible identity (Studies 1–5, 7) as well as desired possible identities in other domains (Study 6). The practical significance of this effect is attested to by its ability to predict actual exam performance up to a week after the priming manipulation (Study 3).

The current studies establish internal validity by demonstrating the specific effect of priming an academic possible identity framed

using the (active) journey metaphor. This condition increased engagement compared to conditions differing solely on framing (using either a different metaphor for time, goal-as-contained-entity, or no provided metaphor), possible identity content (academic vs. social), and time frame (possible vs. past academic identity). We refined the container-metaphoric framing condition to rule out between-condition differences in spatial positioning (Study 3) and ease of conceptual mapping (Study 6). In this way, the results provide strong evidence that the primary predicted effect results from use of the journey metaphor in particular, and not simply any metaphor. Including comparison conditions priming journey-framed social and past academic identities increases our confidence that the primary predicted effect is not merely due to using the journey metaphor to frame any desirable identity, even when that identity is relevant to academic success. Study 4 tested the role of a specific aspect of the journey metaphor—the self-as-traveler's active movement along a path—to unpack which aspects of physical journeys specifically increase people's connection to, and ultimately their engagement with, a possible identity.

In addition to demonstrating the robustness and specificity of the effect, the current studies programmatically explore the cognitive processes through which a journey-metaphoric framing increases possible identity engagement. As predicted on the basis of our process model, priming an active journey-framed possible identity increased participants' confidence that they understood the procedure, or action sequence, necessary to attain that identity; in turn, procedural confidence predicted participants' perception that their possible identity is meaningfully connected to their current identity (Study 4). In accord with prior research on identity-based motivation (Oyserman, 2013), increased identity connection predicted engagement with possible identities in academic and other personally valued domains (Studies 5 and 6). Also supporting our process model, a journey framing increased engagement particularly among individuals who previously perceived a weak connection to their possible identity (Study 7). In sum, our process model integrates identity-based motivation theory and conceptual metaphor theory to yield novel hypotheses about identity connection's roles as an outcome of the journey metaphor, a mediator of this metaphor's effect on possible identity engagement, and an individual difference moderator of the journey metaphor's motivating effect.

These findings cast doubt on the alternative interpretation that priming a journey-metaphoric framing of a possible identity increases engagement because of mere demand—that is, because participants felt pressure to adjust their behavior in light of a cliché symbol of motivation. Although plausible, this explanation cannot account for the fact that an active (vs. passive) journey framing bolstered procedural confidence of a possible identity, which in turn predicted strengthened identity connection (Study 4). The journey cliché does not distinguish between active and passive journey framings, but instead refers generally to forward motion along a path. In contrast, this distinction follows from our process model, which specifies that the concept of an active physical journey is associated with confident procedural knowledge about the steps necessary to reach a destination.

Several other findings challenge the demand interpretation. The effects were quite specific to the fit between the cued possible identity and the academic dependent variables. Participants who used the journey metaphor to imagine themselves as socially

accomplished college graduates—which might be expected to trigger a college-as-a-journey cliché—did not show increased academic effort (Study 2) or intention (Study 5). The effect was robust to use of very subtle primes. Study 5 replicated the motivating effect of a journey-framed academic possible identity using a subtle priming procedure whereby participants were not explicitly asked to think about their possible academic identity as though it were a destination along a path. Also, Studies 5 and 6 provide converging evidence that the journey framing's effect on engagement is mediated by strengthened identity connection. The journey-as-cliché interpretation would not predict and cannot account for this mediation. Finally, if a journey prime merely cues engagement, we would not expect its effects to be moderated by prior levels of identity connection (Study 7).

### Advancing Research on Conceptual Metaphor

The current research makes five substantive contributions to the growing body of metaphor research in social psychology (for a review, see Landau, Meier, & Keefer, 2010; Landau, Robinson, & Meier, 2013). First, the current studies are the first (to our knowledge) to experimentally test the effect of using metaphor to construe the person one may become in the future and how that future self relates to the person one is now. In this way, these studies connect metaphor research to the broad literature on the cognitive underpinnings of the self. The mainstream view is that the self-concept contains abstract pieces of knowledge about personal characteristics and experience (e.g., Markus & Wurf, 1987). Despite its intuitive appeal, this account may be incomplete. The current findings, combined with other evidence that metaphor use affects self-perceptions (Keefer et al., 2011; Meier et al., 2012), suggest that representations of the self can be systematically structured around knowledge of superficially unrelated concepts derived from routine embodied experience.

Second, the current studies are the first to examine how metaphor use paired with cued identities affects motivational outcomes. Conceptual metaphor theory posits that accessible metaphors systematically structure how people think about and process target concepts. Prior studies have begun to substantiate this claim by demonstrating metaphoric influences on a range of social cognitive outcomes, including person perception, memory, and problem solving (Landau et al., 2013). However, this prior work sheds little light on the consequences of metaphor for deliberate action and personal goal striving. The current findings begin to broaden the empirical scope of metaphor research to study engagement and related psychological processes.

Third, the current research goes beyond prior work to directly examine the knowledge transfer process theorized to mediate metaphoric framing effects. As noted in the introduction, prior studies utilizing the metaphoric framing procedure manipulate exposure to a metaphoric framing and measure whether target perceptions change in the direction of what is presumed to be commonplace knowledge of the source. For example, Morris et al. (2007) presupposed that study participants know that living agents normally move purposively along a trajectory. Similarly, Thibodeau and Boroditsky (2011) assumed that people know that treating disease requires identifying root causes. While the results of these prior studies are consistent with expectations about how metaphors shape cognition, they do not show that exposure to metaphoric

framing prompts any source-to-target knowledge transfer. The current research fills this gap by showing that a journey-metaphoric framing of a possible identity prompted recipients to transfer confident procedural knowledge of physical journeys to construct that identity and the downstream consequences of this process.

Fourth, we took multiple steps to show that the active journey-metaphoric framing in particular increases engagement. Very few studies on conceptual metaphor have attempted such a thorough examination of the discriminant validity of a metaphoric framing effect. We know of only three prior studies comparing metaphoric and nonmetaphoric framings of a given target (Keefer et al., 2011; Landau, Sullivan, & Greenberg, 2009; Ottati, Rhoads, & Graesser, 1999), yet none of these tested process models to explore why specifically these conditions differ, as we did in Study 5. We know of only two studies comparing alternative metaphoric framings of the same target (Morris et al., 2007; Thibodeau & Boroditsky, 2011), yet these did not attempt to unpack the processes involved, as we did in Study 6. In addition to testing the specific processes through which the journey metaphoric framing influences engagement, we provided the first study (Study 4) comparing different versions of the same metaphor to show which aspects of the source specifically affected our outcome measures.

While these tests isolate the unique effect of the active journey metaphoric framing, our studies also show that the observed effects are specific to using this framing to construe the relevant target concept. To our knowledge, no prior study has compared a metaphoric framing of a particular target to conditions priming the same metaphor but used to frame alternative targets. As a result, we cannot conclusively say whether prior metaphoric framing effects are specific to using the metaphor to represent the target of interest (e.g., conceptualizing the stock market in particular as a living agent) or simply because of the salience of the source (e.g., living agents) or the metaphor itself (e.g., conceptualizing any complex system as a living agent). Our findings offer the first challenge to these alternatives. We compared our key priming condition to conditions priming a journey-metaphoric framing of a possible identity in another domain (social relationships; Studies 2 and 5) or past academic achievements (Study 2). Neither of these comparison conditions increased academic engagement, suggesting that the motivating effect of a journey-framed academic possible identity is not merely due to the salience of physical journeys or the use of the journey metaphor to construe any target concept.

Finally, Study 7 advances metaphor research by examining how individual difference factors moderate the effect of experimentally primed metaphors on perception. Individual differences in metaphoric cognition have received relatively little empirical attention (Robinson & Fetterman, 2013), yet they are critical to understand if we are to have a full picture of metaphor's role in social cognition.

### Advancing Research on Identity-Based Motivation

As we reviewed in the introduction, prior studies testing the effect of accessible possible identities on motivation have found only mixed evidence in favor of their benefits. The current research builds on identity-based motivation theory, which claims that perceived identity connection is a necessary bridge between an accessible possible identity and engagement with that identity in



the present. We provided additional support for this claim by demonstrating the mediating role of identity connection in engagement.

More generally, conceptual metaphor theory lends to the identity-based motivation perspective the insight that people may have difficulty conceptualizing a connection between the person they are today and a possible identity. The sheer abstractness of this connection makes it difficult to appreciate that current actions are relevant to becoming a better version of the self in the distant future. Metaphor—and in particular the journey metaphor—may be one particularly powerful cognitive device for gaining a clear and confident grasp of how temporally remote identities relate to one another. In this way, metaphor use can be potent means of fostering identity connection and thus engagement with possible identities.

Our process model also specifies the conditions under which people are likely to feel connection. We found in Study 4 that this connection is increased specifically by feeling more confident of what actions one needs to take to attain a possible identity (similar findings are reported in Oyserman et al., 2011). This same increase in procedural confidence can be accomplished in many ways without metaphor, such as by forming detailed implementation intentions for future goals (Bayuk, Janiszewski, & LeBoeuf, 2010; Gollwitzer & Sheeran, 2006). On the basis of the results of our studies, we expect that such practices may be beneficial for much the same reasons as the journey-metaphoric framing: by concretely visualizing the links between present and future, connection and engagement increase.

While we provided detailed tests of the processes through which a journey-framed possible identity increases engagement, we have not compared its effect to other tested possible identity interventions (e.g., Oyserman, Terry, & Bybee, 2002). As it stands, we know that its motivating effect extends up to a week (Study 3), but it will be important to compare its efficacy and duration to other validated interventions.

### Limitations and Future Directions

The current studies raise a number of questions that deserve attention. For one, we utilized relatively explicit priming procedures. Study 5 begins to address this limitation by using a subtler priming procedure, but participants were nevertheless consciously aware of the metaphoric imagery. It remains an open question whether implicit primes of a metaphoric framing have parallel effects. Future studies could examine, for example, the effect of subliminally presented sentences comparing goal pursuit to physical journeys (e.g., “You’re on the right path”). At the same time, we believe that the ecological validity of our priming procedures—which resemble the metaphoric imagery commonly used in educational, health-related, and political communications (Charteris-Black, 2011)—is a strength of the current research.

Because our studies focused primarily on college-aged (and older) participants, it is possible that the motivating effect of the journey metaphor does not extend to younger samples. Research shows that metaphor processing ability develops steadily over the elementary school years, but that metaphor comprehension also varies a great deal by the concepts employed in a metaphor (Keil, 1986). It may be that journeys are a well-known source even for children, so they may still be able to understand temporally remote

aspects of identity in journey-metaphoric terms. Alternatively, because concepts for time also must be sufficiently developed to allow association with the journey source concept, it is possible that insufficient cognitive development may prevent mappings between the source and target. Future research should explore whether the motivating effect of the journey metaphor (or any metaphor) is constrained by developmental factors.

We acknowledge that procedural confidence only partially accounted for the effect of journey framing on identity connection. This leaves open the possibility that there are other aspects of journeys that we could have measured and that may play a significant mediating role. For example, the active journey metaphor may have cued the importance of perseverance, made a goal feel more meaningful by integrating it into a broader understanding of life, or made participants more aware of the contingent nature of goal attainment (i.e., that future goals depend on current success). Future research is necessary to examine whether and how knowledge of other journey features influences identity connection (and hence engagement).

In examining how individual difference variables moderate metaphoric influences on perception, our guiding analysis led us to focus on preexisting perceptions of current/possible identity connection. Future studies should explore the moderating role of other relevant factors. One promising direction is to examine variability in knowledge about physical journeys. Although some aspects of movement along a path may be experienced universally, there are certainly important cultural and individual differences in people’s journey knowledge. For example, individuals raised in rural settings, in which residences are located far apart, may be more likely than their urban-raised counterparts to expect journeys to require sustained effort, while urban individuals may expect journeys to be relatively more dangerous or unpleasant. Aside from physical ecology, experience with transportation technology likely changes how journeys are understood. Individuals with ready access to cars, trains, and airplanes may view journeys as relatively common.

The upshot of this variability is that when people are prompted to transfer journey knowledge to make sense of goal pursuit, they may exhibit different patterns of belief, attitudes, and behavior, despite using the “same” metaphor. For example, we might expect that among students primed to view a class assignment as a journey, those raised in rural settings will prepare to put significant effort into the assignment, and to spend a long time on it, while their peers from the big city will anticipate completing the assignment quickly, but not without significant stress.

### Implications for Practice and Intervention

The foregoing qualifications aside, we believe that the current studies make a strong empirical case that a journey-metaphoric framing of a possible identity has a practically significant impact on motivation. An obvious implication of this discovery is that colleges should continue to include journey-metaphoric framings in their orientation materials, particularly early in the college career when an image of the self as an accomplished college graduate seems most abstract and removed from the practical realities of day-to-day life. Sports teams, health communicators, and corporations could similarly employ journey-framed communications to encourage goal-directed action. The current research

also points to parameters of this effect. For instance, the results of Study 4 suggest that people are unlikely to be motivated in response to a journey-framed communication that depicts them as passively being transported along a predetermined path toward a goal.

Of course, a number of other interventions have been shown to increase academic engagement and student success, both in the present and throughout the school career (Oyserman et al., 2002). For instance, in the School-to-Jobs program developed by Oyserman et al. (2002), a timeline was used to encourage students to see the connections between present actions and their goals. It is possible, however, that the journey metaphor is a more vivid and effective method of accomplishing this same task. By encouraging students to see the steps necessary for achieving their future success, the metaphor may be a uniquely beneficial tool for motivating student success.

A further implication is that individuals and groups may want to guard themselves against the power of journey-framed communications encouraging them to pursue goals that, though initially attractive, are not ultimately in their best personal or collective interest. While leaders like Martin Luther King Jr. employed the journey metaphor to motivate collective action for civil rights, this metaphor has been used just as effectively to increase support for eugenic policies framed as unpleasant yet necessary “steps” on the way to a glorious future (Rash, 2006). To the extent that individuals recognize the motivating effects of the journey metaphor, they may be able to reap its benefits while avoiding potential pitfalls.

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