

Running head: LOCOMOTION, PERCEIVED GOAL MOVEMENT, AND SUPPORT

Preprint version: *Accepted at Personal Relationships. Please do not distribute without permission.*

Zee, K. S., & Kumashiro, M (in press). Investigating mechanisms of social support effectiveness: The case of locomotion motivation. *Personal Relationships*.

Investigating mechanisms of social support effectiveness:

The case of locomotion motivation

Katherine S. Zee

Columbia University

Madoka Kumashiro

Goldsmiths, University of London

Correspondence: Katherine S. Zee, Department of Psychology, Columbia University, 1190 Amsterdam Ave. MC 5501, New York, NY 10027. Email: [kzee@psych.columbia.edu](mailto:kzee@psych.columbia.edu)

#### Author Note

Preparation of this manuscript was supported by a National Science Foundation Graduate Research Fellowship (DGE-11-44155) awarded to the first author. Study 1 was supported by funding from the Fetzer Institute, and Study 2 was supported by funding by National Science Foundation Grant BCS-0132398 (awarded to Caryl E. Rusbult). We thank Justin V. Cavallo for his helpful comments on an earlier version of this paper.

### Abstract

Although social support can entail costs, individuals with a higher locomotion orientation, who are motivated to move and take action, benefit from support. In two dyadic studies, we tested whether perceived movement towards important goals would mediate the effect of recipients' locomotion motivation on positive outcomes in support contexts. In Study 1, couples completed a 10-day diary and then recalled support interactions with their partner after the diary period. In Study 2, couples engaged in laboratory support interactions for important goals. Perceived goal movement mediated the effect of higher (vs. lower) locomotion on self-reported ratings and coder ratings of support outcomes. Higher locomotion recipients may benefit in support contexts because they perceive they can move smoothly towards their goals.

*Keywords: social support, goal support, motivation, close relationships, locomotion*

Pursuing goals is often a social activity (Fitzsimons, Finkel, & VanDellen, 2015). Even when people have individual goals—such as performing well on an important task, coping with a stressful event, or reaching a career milestone—goal pursuit efforts are commonly influenced by close others, and social support is one key way that this occurs. Indeed, current theoretical and empirical directions have recognized that social support is essential for helping individuals to thrive and pursue opportunities for exploration and advancement (e.g., Feeney & Collins, 2015).

However, receiving social support can also introduce the potential for unintended negative consequences, such as compromising recipients' self-efficacy (Bolger & Amarel, 2007), failing to assuage distress (Bolger, Zuckerman, & Kessler, 2000), or weakening goal efforts (Fitzsimons & Finkel, 2011; but also see Briskin, Kopetz, Fitzsimons, & Slatcher, 2017). These detrimental outcomes are typically more prevalent in cases of *received* or *enacted* social support (when practical assistance or emotional comfort is actually given) than when social support is perceived to be available but no actual support attempts are made (Rafaeli & Gleason, 2009). Social support may be precisely what is needed in some contexts (Girme, Overall, & Simpson, 2013), but people may not be willing to receive it, especially when pursuing challenging goals (Righetti, Kumashiro, & Campbell, 2014).

Despite these potential pitfalls of support, individuals with a strong *locomotion* motivation, whose primary concern is to initiate action and move swiftly to a new state (Kruglanski et al., 2000), welcome and benefit from support interactions. Higher locomotion people are very receptive to affirmation support—support provided in ways that are compatible with and help recipients to move closer to becoming their “ideal self”—for long-term, important goals (Kumashiro, Rusbult, Finkenauer, & Stocker, 2007). Beyond support receptivity, recipients with a predominant locomotion motivation benefit from overt support attempts. While recipients

often experience more distress when they receive direct ('visible') support compared to indirect ('invisible') support (Bolger & Amarel, 2007), recipients higher on locomotion benefit more from direct support (Zee, Cavallo, Flores, Bolger, & Higgins, 2018).

These findings invite further questions regarding why people higher (vs. lower) on locomotion benefit in social support interaction contexts. One possibility is that in support contexts, higher locomotion individuals perceive that they are able to move towards their goals, thus addressing their primary motivational need. This paper examined whether perceived goal movement would mediate the effect of locomotion on positive outcomes in this context.

### **Effective social support interactions and addressing recipients' needs**

Contemporary theorizing has proposed that social support interactions serve important functions in times of adversity and beyond. In particular, support that boosts thriving in the absence of adversity (termed *relational catalyst support*) plays a vital role in helping individuals engage in opportunities for personal growth (Feeney & Collins, 2015). A critical component of these support interactions, as well as those that help individuals cope with adversity, is how well they address support recipients' needs (Cavallo, Zee, & Higgins, 2016; Cutrona, 1990; Feeney & Collins, 2015; Maisel & Gable, 2009).

The importance of addressing recipients' needs in support contexts likely also involves addressing recipients' *motivational* needs. For example, receiving support that addressed recipients' motivation to feel effective subsequently improved their mood (Cavallo et al., 2016). Another investigation showed that support that addressed people's autonomy motivation (i.e., their motivation to freely express themselves) was associated with lower cardiovascular stress (Weinstein, Legate, Kumashiro, & Ryan, 2015).

### **Regulatory Mode Theory**

Motivational needs may be especially relevant to social support for goals. In particular, prior work has revealed the importance of regulatory mode motivations in support contexts (Cavallo et al., 2016; Kumashiro et al., 2007; Zee et al., 2018). Regulatory Mode Theory proposes two motivational orientations that regulate people's goal pursuit strategies (Higgins, Kruglanski, & Pierro, 2003; Kruglanski et al., 2000). *Locomotion* motivation entails taking action and moving smoothly from one state to a new state, and *assessment* motivation entails thinking analytically and critically comparing options. Locomotion and assessment function as stable individual differences in goal pursuit tendencies, but they can also be psychological states that are temporarily induced by the demands of a particular situation (Avnet & Higgins, 2003). For details about how regulatory mode differs from other constructs (e.g., regulatory focus, action-state orientation), see work by Higgins, Kruglanski, et al. (Higgins, 2012; Higgins et al., 2003; Kruglanski, Orehek, Higgins, Pierro, & Shalev, 2010; Kruglanski et al., 2000).

**Locomotion.** Individuals with a strong locomotion motivation are primarily concerned with moving as efficiently as possible towards a new state. This is reflected in their tendency to take swift action once they set a goal, such as quickly implementing a behavior change (Scholer & Higgins, 2012). In their efforts to continue moving to this new state, people higher on locomotion welcome any input that might assist their movement. They appreciate directive instructions about how to manage their plans of action, as evidenced by their preference for leaders who give explicit, unambiguous instructions for immediate actions over leaders who take an advisory approach that does not prioritize action (Kruglanski, Pierro, & Higgins, 2007). This preference also extends to explicit social support (Zee et al., 2018).

**Assessment.** Although not the primary focus of this paper, assessment entails different motivational concerns. People higher (vs. lower) on assessment are careful to “look before they

leap” and tend to think analytically about various options in order to select the right one (Kruglanski et al., 2010). They are indifferent to the concerns about action and movement that characterize locomotion motivation, and moving smoothly to a new state is not their priority. Taking action may even interfere with their ability to exhaustively evaluate their options.

**Locomotion in close relationships.** Locomotion motivation is also relevant to interpersonal relationships and support contexts. Higher (vs. lower) locomotion motivation is associated with welcoming social support from others. For instance, higher locomotion individuals were receptive to support from a romantic partner while pursuing important long-term personal goals, whereas higher assessment individuals were not receptive to such support (Kumashiro et al., 2007). Although people generally favor relationship partners who are instrumental to their current goal pursuit, this preference weakens once the goal has been attained or once that person’s instrumentality to the goal diminishes (Fitzsimons & Shah, 2008). However, for higher locomotion people, the preference for goal instrumental others is augmented (Fitzsimons, Friesen, Orehek, & Kruglanski, 2009), suggesting that support from these people might be viewed as crucial for helping them move smoothly towards their goals.

Indeed, a previous investigation found that higher locomotion was associated with partners engaging in behaviors that are likely to promote movement toward their goals, such as celebrating one’s success, offering unconditional support, and being motivated to help, as well as being less likely to enact behaviors that might undermine goal movement, such as being doubtful or unavailable to help (Kumashiro et al., 2007). Such support behaviors are likely to feed into higher locomotion people’s perceptions that they can move toward their goals.

Thus, these findings speak to the importance of considering motivational needs in social support interactions. Mediating pathways through which support benefits arise may differ

depending on the motivational orientation of the recipient. The present research aimed to investigate this possibility and examined mediators linking recipient locomotion with positive outcomes in support contexts. As prior research has found that higher (vs. lower) assessment individuals do not tend to benefit from overt support (Kumashiro et al., 2007; Zee et al., 2018), assessment motivation was not a focus of the present investigation.

### **Why do higher locomotion recipients experience positive support outcomes?**

Although it has been shown that recipients higher on locomotion tend to experience beneficial support outcomes, little is known about *why* this is the case. This is an important question to consider, given that receiving support is not always beneficial (Rafaeli & Gleason, 2009). Understanding how and why higher locomotion people benefit in support contexts could help reveal components of effective support broadly.

**Perceived goal movement.** One possibility is that, in social support interactions, higher locomotion recipients perceive that their need to move swiftly towards their goals has been addressed and this, in turn, leads them to experience positive outcomes. This is consistent with work proposing that addressing recipients' needs is critical to making enacted support effective (Cutrona, 1990) and with work indicating that support that is attuned to recipients' needs is a mediator underlying positive support outcomes (Bar-Kalifa & Rafaeli, 2013).

The notion that benefits arise when people's motivational needs are addressed is also suggested by research on Regulatory Fit Theory. Regulatory Fit refers to the psychological state of experiencing congruence of one's motivational orientation and manner of goal pursuit (Higgins, 2005). Although frequently examined in regards to the motivational orientations of promotion and prevention, Regulatory Fit broadly applies to any circumstance in which there is congruence between one's motivational orientation and goal pursuit strategy (Higgins, 2005).

Experiencing regulatory fit, in turn, leads people to feel more engaged with their goals, perceive greater value in them, and even perform better (Higgins, 2006). While the aim of the present research was not to test for regulatory fit effects per se, this theory nevertheless provides a useful framework for understanding how fulfillment of motivational needs might have downstream implications for individuals' goal pursuit and perceptions in support contexts.

Drawing together findings from the social support and motivation literatures, higher (vs. lower) locomotion recipients may benefit in support contexts because they perceive that they are able to move towards their goals. For example, if a higher locomotion person has the goal of losing weight, support interactions for the goal—whether they involve practical help (e.g., advice about how to make time to exercise), emotional help (e.g., confidence-boosting), or both—may reinforce their 'just do it' approach and help them move towards their goal. Support interactions may also benefit higher locomotion people by fostering contexts for them to experience broader supportive behaviors that are vital to helping people thrive—for example, self-disclosing to their partner and receiving capitalization support (Feeney & Collins, 2015).

In line with this possibility, Kumashiro et al. (2007) also found that locomotion motivation was associated with choosing goals that were more likely to be achieved and that were beneficial for both recipients themselves and their partner. Recipient locomotion also predicted higher perceptions that their partner behaved in a supportive manner in response to their goals. Based on past support interactions, higher locomotion people may infer that support interactions can help them and might therefore be more likely to benefit in support contexts.

Thus, recipients higher (vs. lower) on locomotion should perceive support interactions more favorably and feel more engaged with the goal they are pursuing. Furthermore, the association between recipients' higher locomotion and beneficial outcomes in support contexts



should be mediated by perceptions that they have moved towards their goals—reflecting perceived fulfillment of their primary motivational need.

Prior findings regarding locomotion motivation in the context of social support are consistent with this notion. Even though direct (‘visible’) support is often detrimental for recipients (Bolger & Amarel, 2007), recipients with a predominant locomotion motivation benefitted from ‘visible’ enacted support, and this effect was found for both practical support and emotional support (Zee et al., 2018). This suggests that it is the explicit nature of visible support that fulfills their motivational needs, rather than the type (practical vs. emotional) of support given. It has been proposed that visible support’s ability to provide explicit feedback about recipients’ capabilities to move smoothly ahead might explain why higher locomotion recipients found it effective (Zee et al., 2018).

As mentioned previously, although perceived goal movement may be a mediator linking recipient locomotion and beneficial support outcomes, this is unlikely to be relevant to assessment motivation. While beyond the goals of the present work, recipients higher on assessment are not motivated to initiate action (Kruglanski et al., 2010, 2000); therefore, perceived movement would not address their motivational need to engage in critical evaluation.

### **Hypotheses & Present Research**

In sum, this paper aimed to investigate why recipients higher (vs. lower) on locomotion experience beneficial outcomes in social support contexts. Support interactions may be a good means of addressing their concerns with initiating action and smooth movement. By providing clear information (e.g., advice) or emotional resources (e.g., esteem boosting), they may allow higher (vs. lower) locomotion individuals to perceive that they are moving towards their goals.

To test this possibility, we examined whether perceptions of movement mediate the association between recipients' locomotion motivation and the benefits they experience in support contexts.

We hypothesized that recipients higher (vs. lower) on locomotion would report higher perceptions of goal movement in the context of social support interactions. We also hypothesized that individuals higher on locomotion would report more positive perceptions of the support and stronger engagement with their goals, given that congruence between motivational orientations and means of goal pursuit engenders both greater perceived value and engagement (Higgins, 2005). We further hypothesized that perceptions of movement towards an important goal would mediate this association (see Figure 1). We anticipated these effects would be specific to locomotion and would not apply to assessment.

We investigated these hypotheses in two dyadic studies. Study 1 tested whether perceptions of movement towards an important goal mediated the effect of higher (vs. lower) recipient locomotion on beneficial outcomes using a daily diary design and a follow-up laboratory visit; the diary and laboratory visit took place during a period when participants were actively pursuing an important goal for which they anticipated receiving support from their romantic partner. In Study 2, romantic couples discussed their goals in laboratory support interactions, which is a widely used way of examining effects of social support receipt.

### **Study 1**

Study 1 tested whether locomotion motivation predicted perceived goal movement following support interactions in daily life and whether this perceived goal movement mediated the relationship between locomotion and positive support outcomes.

### **Method**

**Participants and procedure.** Romantic couples ( $N = 97$  dyads) were recruited to participate together. Data were drawn from an existing dataset<sup>1</sup>, so sample size was not computed specifically for the present hypotheses. Participants were either recruited from a participant pool (where they received course credits and their partner received payment of up to \$60) or from the community (payment of up to \$120 per couple). Recruitment methods included notices posted in university halls and around the community. In an exit questionnaire, five couples revealed that they were not involved in a genuine romantic relationship (i.e., they were friends, rather than romantic partners) and were therefore excluded.

The final sample consisted of 92 couples (91 heterosexual couples, 1 lesbian couple). The majority of the sample consisted of students (77%). Most of the couples were dating (90.5%) or engaged (6.5%), and most were cohabiting (68% living together). Participants were predominantly White (72%), and the mean age was 22.0 years (range: 18-42). Couples attended a laboratory session together to complete some questionnaires. Next, they completed a 10-day daily diary and then returned for a second laboratory visit when the diary period concluded. There were 87 couples and two individuals who returned for the second visit. Upon completion of the second laboratory session, each partner received \$30 or course credit as compensation.

During the first laboratory session, participants identified their “most important” top six personal goals that they would be actively pursuing during the next 10 days and for which they anticipated receiving support from their partner. Each day during the diary period, they were asked to think about their goals and then report on whether they discussed their goals with their partner and how their partner helped them with their goals. They were also informed that they could mention other important goals relevant to the top six goals that they ended up pursuing that day. Participants were asked to submit diary sheets via mail every few days using pre-paid

postage and envelopes. The median number of diary days completed was 10 out of 10 ( $M = 8.41$ ,  $SD = 3.05$ ). During the second laboratory visit, participants responded to questions about their personality and relationship and questions assessing perceptions of their interactions with their partner during the ten previous days.

All measures and results described come exclusively from the diary phase and second laboratory visit; measures from the first visit will not be discussed further.

### **Diary Measures**

***Perceived goal movement***<sup>2</sup>. Each day, perceptions of goal movement were indexed by having participants indicate the extent to which they felt close to achieving their goals (1 item), “*I feel close to attaining my goals*” (1 = *Do not agree at all*; 5 = *Agree completely*)<sup>3</sup>.

***Daily goal engagement***. Participants’ daily goal engagement was measured with one item: “*I feel willing to put effort into achieving my goals*” (1 = *Do not agree at all*; 5 = *Agree completely*). Daily goal engagement and daily perceptions of goal movement were moderately correlated within-subject,  $r_{\text{within}} = .31$ .

***Daily perceptions of partner responsiveness to goal pursuit***. Participants also indicated their perceptions of their partner’s responsiveness to their goal pursuit each day using four items, such as “*My partner showed that he/she understands me and my goal pursuits*” and “*My partner showed that he/she really wanted me to achieve my goals*” (1 = *Do not agree at all*; 5 = *Agree completely*). Reliabilities for these four items justified combining them into a single composite of responsiveness (Cranford et al., 2006): within-subject reliability = .83; between-subject reliability (time nested within-subject) = .88; and reliability of change = .86. Daily perceptions of responsiveness and perceived goal movement were moderately correlated within-subject,  $r_{\text{within}} = .31$ , as were daily perceptions of responsiveness and daily goal engagement,  $r_{\text{within}} = .24$ .

### **Laboratory Measures**

**Regulatory Mode Questionnaire.** Participants' chronic locomotion and assessment motivations were measured using the Regulatory Mode Questionnaire (Kruglanski et al., 2000) during the second laboratory visit. Although Regulatory Mode was measured after the diary period, this questionnaire is a validated measure of stable individual differences (Kruglanski et al., 2000). Twelve items measured locomotion motivation ( $\alpha = .82$ ), including "*I enjoy actively doing things, more than just watching and observing.*" Twelve items measured assessment motivation ( $\alpha = .80$ ), including "*I spend a great deal of time taking inventory of my positive and negative characteristics.*" Participants responded to each item using a scale ranging from 0 (*Do not agree at all*) to 8 (*Agree completely*).

**Perceived goal movement<sup>4</sup>.** Participants were instructed to think about the most important goal they ended up pursuing during the diary period. They then reported on their interactions with their partner over the preceding ten days and indicated, overall, how much they perceived that these interactions enabled them to move towards their goal. This was measured with one item asked specifically in regards to the most important goal participants identified: "*I became closer to attaining this goal*" (1 = *Do not agree at all*; 5 = *Agree completely*).

**Goal engagement.** During the laboratory session, participants indicated how engaged they felt with the goals they ended up pursuing during the diary period. Goal engagement was measured with three items ( $\alpha = .86$ ), the first of which was similar to the item used in the diary period: "*I became more willing to put effort into achieving this goal,*" "*...more determined to achieve this goal,*" and "*...more excited about pursuing this goal*" (1 = *Do not agree at all*; 5 = *Agree completely*).

**Partner responsiveness to goal pursuit.** Participants' perceptions of their partner's responsiveness to their (recipients') self-nominated goals were measured with four items ( $\alpha = .85$ ), such as "*My partner understands why I care about my goals*" and "*My partner supports me in whatever goals I choose to pursue*" (0 = *Do not agree at all*; 8 = *Agree completely*).

**Covariates.** To test the effects of locomotion over and above potentially related constructs, self-esteem and relationship satisfaction were also measured. We measured self-esteem using Rosenberg's (1965) 10-item measure ( $\alpha = .88$ ), as locomotion is often positively correlated with self-esteem (Kruglanski et al., 2000). Relationship satisfaction was measured with the satisfaction subscale of the Dyadic Adjustment Scale (9 items;  $\alpha = .78$ ; Spanier, 1976).

## Diary Results

**Analytic approach.** The aims of our analyses were (a) to establish links between locomotion and perceived goal movement and other outcomes and (b) to test whether perceived goal movement mediated the association between locomotion and support outcomes.

We note that the study was set up in such a way that participants were broadly expected to receive at least some support during the diary period. Although we do not compare support receipt vs. no support receipt specifically, this study nevertheless offered an appropriate context to test the hypothesized effects of locomotion in support interaction contexts. To confirm that this diary period could be considered a support interaction context, we first assessed the frequency of support days. Each day, participants indicated their agreement with the item, "*My partner and I spent a lot of time directly or indirectly addressing my goal*" (1 = *Do not agree at all*, 5 = *Agree completely*). Participants indicated a response to this item on 1326 diary days. We counted support interaction days as days on which participants reported a 2 or higher on this item (81% of diary days), and only included these days in our analysis<sup>5</sup>. This approach provided an

appropriate test for our hypothesis, as effects of locomotion here are analogous to simple main effects of locomotion within the context of support interactions.

We used multilevel modeling, treating the dyad as the unit of analysis. Locomotion, assessment, and diary day (time) were entered as fixed effect predictors, allowing for subject-specific intercepts and random slopes of time. We did not have specific predictions regarding interactive effects of locomotion and assessment, nor were there clear patterns of interactions across studies, so interaction terms of locomotion and assessment were not included.

We first estimated effects for the typical male partner and the typical female partner and allowed for random intercepts for each dyad member and random slopes of time for each dyad member where possible<sup>6</sup>. This is the recommended approach when working with diary data of distinguishable dyads (Bolger & Laurenceau, 2013). Unlike a model with three levels of nesting, a two-intercept model with two levels of nesting (observations nested within couples, with effects modeled separately for each dyad member) does not assume that variability is random at the person-level (pp. 147-148; Bolger & Laurenceau, 2013). For simplicity, results presented include the one lesbian couple, with one partner arbitrarily coded as male for the diary analyses<sup>7</sup>.

We next compared the fit of the distinguishable model described above to the fit of a model that pooled across partners. For all outcome variables, test statistics indicated that the distinguishable model provided a better fit for the data,  $\chi^2_s = 57.34-113.14$ ,  $ps < .001$ . To facilitate comparison to results from the laboratory session in Study 1 and results from Study 2, which did not reveal different effects by gender, we present diary results in two ways: (1) with effects modeled separately for male partners and female partners (Table 1A), and (2) with effects pooling across dyad members (Table 1B).

Analyses were performed with the *lme4* and *lmerTest* packages for R (Bates, Maechler, Bolker, & Walker, 2015; Kuznetsova, Brockhoff, & Christensen, 2014) using maximum likelihood estimation. Unstandardized coefficients, standard errors, *p*-values, and 95% confidence intervals are displayed in Tables 1A and 1B. Effect sizes for fixed effect estimates of locomotion are also presented as *r*, defined as  $r = \sqrt{t^2 / (t^2 + df)}$  (Rosenthal & Rosnow, 1985) using Satterthwaite degrees of freedom<sup>8</sup>.

**Perceived goal movement.** As predicted, recipient locomotion predicted perceived goal movement for both the typical male partner and the typical female partner. Those higher (vs. lower) on locomotion reported higher perceptions of goal movement. See Tables 1A and 1B.

**Daily goal engagement.** The model predicting daily goal engagement would not converge when random slopes for time for the male partner and the female partner were included. Therefore, these random slopes were removed from the model predicting daily goal engagement to allow convergence; the model pooling across dyad members was able to converge with a random slope for time included, as shown in Table 1B. Results indicated that there was a main effect of locomotion on goal engagement for both the typical male partner and the typical female partner. As people's locomotion increased, so too did their daily goal engagement. There was also a marginally significant main effect of assessment for the typical female partner.

**Daily perceptions of partner responsiveness to goal pursuit.** We also found a main effect of locomotion on participants' daily perceptions of their partner's responsiveness to their goal pursuit for both the typical male partner and the typical female partner. As recipients' locomotion increased, so too did their perceptions of their partner's responsiveness. There was also a marginally significant main effect of assessment for the typical female partner.



**Alternative explanations.** We also sought to rule out alternative explanations for these findings. Given prior work on provider regulatory mode (e.g., Cavallo et al., 2016), we reran our analyses controlling for provider locomotion and assessment. Main effects of recipient locomotion held above and beyond the inclusion of provider regulatory mode (see Supplemental Materials). We also repeated the primary set of analyses controlling for other potentially relevant constructs: self-esteem and relationship satisfaction. When adjusting separately for each of these variables, the effects of recipient locomotion remained essentially the same.

**Mediation.** To test for the hypothesized mediation, we performed a 2-1-1 mediation analysis, which assesses whether the effect of a Level-2  $X$  variable (in this case, locomotion) on a Level-1  $Y$  variable (daily goal engagement, daily responsiveness) is transmitted through a Level-1 mediator (daily perceived goal movement) (Krull & MacKinnon, 2001). For the sake of parsimony, we pooled data across dyad members in this analysis<sup>9</sup>.

We entered recipient locomotion as the predictor variable, perceived goal movement as the mediating variable, and daily goal engagement as the outcome variable. Fixed effects of assessment and time were included as covariates. The model allowed for random intercepts and random slopes of perceived goal movement.

Because grand mean centering the mediator can yield confounded mediation estimates in multilevel analyses (Zhang, Zyphur, and Preacher, 2009), we separated within-subject and between-subject components of perceived goal movement. There are different perspectives regarding which effect—within- or between-subject—to use when computing indirect effects in 2-1-1 mediation models. Some work has recommended using the between-subject component (Zhang et al., 2009), whereby the indirect effect is the product of the  $X \rightarrow M$  path ( $a$  path) and the between-subject  $M \rightarrow Y$  path ( $b_{\text{Between}}$  path). However, other work has used the within-subject

component (Bolger & Schilling, 1991; Bolger & Zuckerman, 1995), whereby the indirect effect is the product of the  $X \rightarrow M$  path ( $a$  path) and the within-subject  $M \rightarrow Y$  path ( $b_{Within}$  path). We present estimates for indirect effects using both approaches.

We first tested for an effect of locomotion on goal engagement via perceptions of goal movement. The model would not converge with random slopes for time included, so they were omitted in this analysis. As predicted, we found indirect effects of locomotion motivation on daily goal engagement via daily perceptions of goal movement,  $a^* b_{Between}$  effect:  $b = .06$ , Monte Carlo 95% CI [.03, .10];  $a^* b_{Within}$  effect:  $b = .05$ , Monte Carlo 95% CI [.03, .07]. The main effect of locomotion on daily goal engagement held after accounting for perceived goal movement,  $b = .15$ ,  $SE = .03$ ,  $p < .001$ , 95% CI [.09, .20].

We then examined perceptions of responsiveness to goal pursuit. The model was able to converge with random slopes for time included, so they were retained in this analysis. There were indirect effects of locomotion on perceived responsiveness via daily perceptions of goal movement,  $a^* b_{Between}$  effect:  $b = .05$ , Monte Carlo 95% CI [.02, .08];  $a^* b_{Within}$  effect:  $b = .05$ , Monte Carlo 95% CI [.03, .07]. The main effect of locomotion on responsiveness held after accounting for perceived goal movement,  $b = .08$ ,  $SE = .03$ ,  $p = .008$ , 95% CI [.02, .14].

## Laboratory Results

**Analytic Approach.** As the first step in our analysis of the laboratory results, we verified that participants had had support interactions for their goals with their partner during the preceding 10 days. We used a procedure comparable to the one we used to identify support days in the diary analyses. The occurrence of support interactions was assessed using an item that was identical to the one administered in the diary portion, but asked in regards to the preceding 10 days as a whole: “*My partner and I spent a lot of time directly or indirectly addressing my goal*”

(1 = *Do not agree at all*, 5 = *Agree completely*). On average, participants agreed that support interactions with their partner had occurred ( $M = 3.55$ ,  $SD = 1.05$ ), and this level of agreement significantly exceeded the mid-point of the scale (which corresponded to a value of 3),  $t(172) = 6.86$ ,  $p < .001$ . There were only seven participants who reported that they did not have support interactions with their partner, operationalized as a rating of 1 (*Do not agree at all*) as their response to this item. However, results were similar regardless of whether these participants were included in the analysis. Thus, the results reported below draw on data from all participants.

Analyses were conducted with partners grouped within dyads. Recipients' locomotion and assessment scores were entered into a multilevel model as simultaneous predictors using maximum likelihood estimation, with random intercepts of dyad<sup>10</sup>. There were no effects of gender, nor did gender moderate our findings. Moreover, given that effects of locomotion were similar for the typical male and female partners in the diary phase, the laboratory analyses pooled across dyad members; fit statistics supported this decision. Unless otherwise noted, there were no significant effects of assessment. Correlations among variables are displayed in Table 2. Results are summarized in Table 3.

**Perceived goal movement.** Consistent with results from the diary phase, higher (vs. lower) locomotion predicted higher perceptions of goal movement. The higher on locomotion participants were, the more they perceived that they had moved closer to attaining their goals.

**Goal engagement.** In line with our hypotheses, higher (vs. lower) locomotion also predicted higher goal engagement. The higher participants' locomotion, the more engaged with their goal pursuit they reported being.

**Partner responsiveness to goal pursuit.** Results were similar for participants' perceptions of their partner's general responsiveness to their goals, such that higher (vs. lower) locomotion predicted higher perceptions of responsiveness.

**Alternative explanations.** We next tested whether these effects held over and above partner regulatory mode and potentially relevant constructs. We repeated the laboratory analyses with providers' locomotion and assessment as additional predictors (see Supplemental Materials). The effects of recipient locomotion on all dependent measures remained significant. Similarly, adjusting separately for self-esteem and relationship satisfaction did not change the effects of recipient locomotion appreciably.

**Mediation.** We next tested whether perceived goal movement mediated the effects of locomotion on support outcomes. We ran mediation analyses focusing on the indirect effect of recipients' locomotion on their support outcomes by way of their perceptions of goal movement. Analyses were performed using the *lavaan* package for R (Rosseel, 2012). The mediation model pooled data across partners, thus yielding the same estimates for both male and female partners. Alternative versions of the mediation analyses modeling effects separately for male partners and female partners were also performed. However, across Study 1 (laboratory session) and Study 2, the fit of these models did not differ significantly. Results pooling data across partners are presented for simplicity and consistency with the other analyses. Due to listwise deletion of missing data, mediation analyses drew on data from 83 couples.

Locomotion was entered as the main predictor, perceived goal movement was entered as the mediator, goal engagement was entered as the outcome, and assessment was entered as a covariate. Although this ordering of variables is supported by theory, due to the correlational nature of these data we are unable to rule out the possibility of different sequences; for example,

it is possible that higher locomotion recipients' feelings of goal engagement explain their perceptions of goal movement rather than the other way around. Alternative mediation models are presented in the Supplemental Materials for the interested reader, although some current guidelines suggest caution when comparing correlational mediation models (Thoemmes, 2015).

Table 4 shows the mediation results for the Study 1 laboratory visit. There was an indirect effect of locomotion on goal engagement via perceived goal movement, which accounted for 65% of the total effect. The direct effect of locomotion was no longer significant. We then repeated this analysis with perceived responsiveness as the outcome. There was a significant indirect effect via perceived goal movement, which accounted for 39% of the total effect. The direct effect of locomotion was reduced and became marginally significant.

Given that prior work has revealed the role of perceived responsiveness in making support interactions effective (e.g., Maisel & Gable, 2009), it seemed important to establish that the role of our proposed mediator, perceived goal movement, was not redundant with perceived responsiveness. As a first step, we found that responsiveness and perceptions of goal movement were moderately correlated,  $r = .35, p < .001$ . It is plausible that perceived responsiveness could be an important mediator for people higher on locomotion, as validation, a component of responsiveness, might play a role in determining how engaged they feel with their goal.

To help clarify the role of perceived goal movement as our mediator, we conducted a multiple mediation analysis. This analysis examined the effect of locomotion on goal engagement and included both perceived responsiveness and perceived goal movement as mediators; assessment was included as a covariate. There was a marginally significant indirect effect of locomotion on goal engagement via perceived responsiveness,  $b = .03, z = 1.92, p = .055, 95\% \text{ CI } [-.001, .06]$ , as well as a significant indirect effect via perceived goal movement,  $b$

= .13,  $z = 3.34$ ,  $p = .001$ , 95% CI [.06, .21]. The indirect effect via perceived responsiveness accounted for 14% of the total effect, whereas the indirect effect via perceived goal movement accounted for 60% of the total effect. Thus, even when accounting for the potential mediating role of responsiveness, we still obtained evidence for mediation via perceptions of goal movement. The direct effect was attenuated,  $b = .06$ ,  $z = 1.02$ ,  $p = .31$ , 95% CI [-.05, .17].

## **Discussion**

Study 1 extended existing work by showing that, in support interaction contexts with one's romantic partner, higher locomotion predicted perceptions of goal movement, goal engagement, and perceptions of responsiveness to one's goals, both at the daily level and when recalling support interactions during a follow-up laboratory session. Findings held over and above the effect of providers' regulatory mode, relationship satisfaction, and self-esteem. As hypothesized, perceptions of goal movement mediated the effect of locomotion on beneficial outcomes. Results also held even when accounting for perceptions of responsiveness as an alternative mediator. However, a limitation was that the mediating variables and outcome variables in this study were measured concurrently, so alternative patterns of mediation cannot be ruled out based on this study. We return to this point in the general discussion.

## **Study 2**

To conceptually replicate and extend Study 1, Study 2 tested whether perceptions of goal movement mediate the effects of locomotion using a laboratory support interaction paradigm, in which the support setting could be better controlled. Study 2 also examined whether these findings extended to providers' and third-party coders' perceptions of those support interactions. Participants discussed an important goal in the lab with their romantic partner, which is a widely used method of prompting dyads to engage in social support in a laboratory setting. We again

predicted that recipients higher on locomotion would report positive outcomes—as rated by recipients themselves, providers, and objective coders—following the support interaction, and that this association would be mediated by perceptions that they had moved towards their goal.

## **Method**

**Participants.** Participants were drawn from the UNC Chapel Hill community as part of a larger, multi-wave study designed to examine multiple hypotheses related to relationship processes and the pursuit of important long-term goals<sup>11</sup>. Thus, sample size was based on available data. Participants were recruited via notices posted to community boards and in university buildings and via ads placed in local newspapers. Participants were eligible if they and their partner had made a new commitment (begun cohabiting, become engaged, or married) within the past 12 months. Couples were recruited as part of a five-wave longitudinal study, but only measures from the final wave were examined for this paper. Ninety-six couples (all heterosexual) participated in Wave 5, which consisted of questionnaires completed remotely and a laboratory visit. For two couples, data were only available for one partner, and these couples were removed from the sample. Twelve couples did not attend the Wave 5 visit, leaving a final sample of 82 couples. The mean age was 27.7 years ( $SD = 4.61$ ), and the mean relationship length at Wave 5 was 5.4 years. Couples received \$110 for participating in this session.

**Procedure and materials.** Couples attended the Wave 5 laboratory session together. They first completed a battery of questionnaires, including the Regulatory Mode Questionnaire and other measures not examined in this paper. Couples engaged in two video-recorded conversations lasting up to seven minutes each in which they were instructed to discuss a long-term, personal goal for each partner (1 minute to introduce the goal, and 6 minutes for the

support discussion). One partner was randomly assigned to discuss their goal during the first conversation, and the other partner discussed their goal during the second conversation.

Partners independently viewed the videotapes in 2-minute segments, reported on their perceptions of the support conversations for each segment, and provided global ratings about their goal progress. Unless otherwise noted, items were rated according to a 0 (*Do not agree at all*) to 8 (*Agree completely*) scale. Participants were then compensated, debriefed, and thanked.

***Regulatory Mode Questionnaire.*** Participants' chronic locomotion and assessment motivations were measured using the same Regulatory Mode Questionnaire (Kruglanski et al., 2000) used in Study 1 (locomotion:  $\alpha = .84$ ; assessment:  $\alpha = .76$ ).

***Perceived goal movement.*** One item captured perceptions of goal movement resulting from the support conversation, "*I moved closer to attaining my goal.*" This item was similar to the perceived goal movement items used in Study 1.

***Perceived interaction quality.*** We also examined perceptions of the quality of the support conversations obtained from both recipients and providers. There were three items, including "*I felt happy about our interaction with one another.*" Participants responded to each item for three segments of the conversation (beginning, middle, end). For consistency with other outcomes in this study, ratings from these three segments were averaged to capture perceived interaction quality across the conversation as a whole (recipients:  $\alpha = .92$ ; providers:  $\alpha = .92$ ).

***Objective interaction quality.*** Video recordings of the support conversations were viewed and rated by two independent coders. Video data were not available for two dyads, so analyses based on coder ratings used data from 80 dyads. Given that participants from this sample were, on average, highly satisfied and would therefore be likely to behave positively toward each other during a videotaped conversation, we focused on ineffective support behaviors to better capture



variability in interaction quality. Coders were instructed to make global ratings of the overall quality of the support interaction using an index consisting of two items: “[Recipient] exhibited negative behavior regarding goal and goal attainment,” and “Process seemed to be negative for partners (didn’t help them address [recipient’s] goal, created conflict)” (Spearman-Brown  $\rho = .75$ ). Examples of negative goal behaviors included expressing excessive doubt, negative feelings about attaining the goal, and defensiveness. Perceptions of interaction negativity included partners expressing negative feelings about the conversation. Coders were instructed to rate the degree to which these behaviors were evident in the interaction (1 = *Not at all true*, 5 = *Clearly true*). Inter-rater reliability for the composite of these two items was sufficient ( $ICC = .69$ ), so coder ratings were averaged. For ease of comparison with other outcomes used in this study, we reverse-scored this composite so that higher numbers indicated better quality interactions.

**Covariates.** Covariates were the same measures as those used in Study 1: self-esteem ( $\alpha = .92$ ) and relationship satisfaction ( $\alpha = .79$ ).

## Results

**Analytic Approach.** Similar to Study 1, Study 2 used a paradigm that created a support interaction context. As such, effects of locomotion in this study can again be considered similar to simple main effects of locomotion following support interactions. Analytic procedures were the same as those used for the laboratory session in Study 1. Correlations among variables are shown in Table 5. Unstandardized coefficients,  $t$ -values,  $p$ -values, Satterthwaite degrees of freedom, 95% confidence intervals, and effect size estimates are displayed in Table 6. There were no significant main effects of gender or assessment. As with the previous study, there was no consistent pattern of interactive effects of locomotion and assessment.

**Perceived goal movement.** Replicating Study 1, there was a main effect of locomotion on perceived goal movement, such that recipients higher (vs. lower) on locomotion reported greater perceptions of goal movement.

**Perceived interaction quality.** We next gauged the extent to which recipients' locomotion was related to their perceptions of the quality of the support conversation. Consistent with our predictions, higher (vs. lower) recipient locomotion significantly predicted more positive perceptions of the quality of the support conversation. In line with recipients' own reports of interaction quality, recipient locomotion also marginally predicted the extent to which providers and third-party coders viewed the support conversation positively (see Table 6).

**Alternative explanations.** We conducted additional analyses to verify whether the effects of locomotion held above and beyond other potentially relevant constructs. Including providers' locomotion and assessment did not change the results appreciably (see Supplemental Materials). Main effects of locomotion on perceived goal movement remained significant or marginal when controlling separately for self-esteem and relationship satisfaction. Main effects of locomotion on the remaining outcomes became nonsignificant when controlling for these variables. However, when controlling for covariates plus perceived goal movement, there were significant effects of perceived goal movement for all variables, indicating that the locomotion-perceived goal movement link and the perceived goal movement-support outcomes links held.

**Mediation.** Using the same analytic approach outlined in Study 1, we then tested whether perceived goal movement again mediated the effects of locomotion on outcomes of the laboratory support conversations (see Table 7). Results from alternative mediation models are presented in the Supplemental Materials for the interested reader.

Replicating our earlier findings, we found an indirect effect of locomotion on recipients' perceptions of support interaction quality. There was an indirect effect via perceived goal movement, which accounted for 35% of the overall effect; the direct effect of locomotion became marginally significant. Indirect effects of locomotion via perceived goal movement were also found for providers' and coders' perceptions of the quality of the support interaction.

### **Discussion**

Study 2 extended our initial findings to actual support conversations. Perceived goal movement mediated the relationship between recipients' locomotion motivation and perceptions of the quality of the support interaction. Similar, albeit weaker, effects were also found for providers' and coders' perceptions of interaction quality.

One caveat, however, concerns the cross-sectional and correlational nature of the findings. Due to the study design, a clear, definitive temporal ordering of perceived goal movement and support outcomes could not be established. Although treating perceived goal movement as the mediator seemed theoretically justified based on research on regulatory fit and support mechanisms, alternative mediation patterns cannot be fully ruled out based on these results alone. We return to this point in the general discussion.

### **General Discussion**

Prior work has shown that people higher on locomotion benefit from social support interactions (Kumashiro et al., 2007; Zee et al., 2018). The present work extends knowledge of locomotion and support by revealing that perceived movement towards their goals mediates the association between recipient locomotion and beneficial outcomes in support contexts. Results showed a consistent pattern of effects in daily life and in laboratory conversations. Results

indicated that, in the context of support interactions, higher (vs. lower) locomotion recipients perceive movement towards their goals, which might explain why they benefit from support.

### **Contributions**

This work integrates research from multiple literatures. Findings from the close relationships literature have suggested that receiving support has mixed implications for recipients (Gleason, Iida, Shrout, & Bolger, 2008; Rafaeli & Gleason, 2009). The present research advances current knowledge of support's costs and benefits by demonstrating the role of addressing recipients' *motivational* needs and how this might shape support perceptions and outcomes.

Relatively few investigations have adopted a motivational perspective to examine the social support process (but see Cavallo et al., 2016; Kumashiro et al., 2007; Molden, Lucas, Finkel, Kumashiro, & Rusbult, 2009; Winterheld & Simpson, 2016). While some work has examined locomotion and assessment in this context, such studies have primarily focused on how these motivations are related to support *provision* (Cavallo et al., 2016; Kumashiro et al., 2007). The present work takes a step forward by shedding light on why receiving support is related to positive outcomes for people higher on locomotion and by helping explain prior results. This research, for instance, helps clarify why such individuals benefit more from direct 'visible' support compared to subtle 'invisible' support (Zee et al., 2018): These benefits may be due to visible support's role in facilitating perceived movement towards a desired end state.

### **Limitations**

Despite a consistent pattern of results across studies, one limitation was the correlational nature of all results, especially the mediation results. Because mediating variables and outcome variables were measured concurrently in both studies, alternative directions cannot be completely

ruled out based on these results alone. For example, it is possible that higher locomotion people's goal engagement explains their perceptions of goal movement rather than the other way around, or there may be bidirectional links between perceived goal movement and goal engagement.

Future research using experimental approaches to confirm this pattern of mediation would further strengthen this line of inquiry (Spencer, Zanna, & Fong, 2005).

### **Open questions and future directions**

These findings leave interesting questions open for further study. First, our investigations focused on support for important goals. This emphasis is congruent with current directions in the field regarding the importance of social support in the absence of hardship (Feeney & Collins, 2015; Gable & Reis, 2010). However, social support has traditionally been examined in stressful contexts. While additional work would help elucidate whether stress is a boundary condition, it seems likely that perceived movement might also mediate the effects of locomotion motivation when support is given for stressful events. Other findings, for instance, showed that recipients with a predominant locomotion motivation coped better (e.g., their stress reactivity and distress were lower) when they received experimentally-manipulated visible (explicit) support for a stressful speech (Zee et al., 2018). Although perceived movement was not measured, the manipulations used in this research contained tangible information about how the participant was coping with the stressor. Thus, this support might have helped recipients to progress in their preparations for the speech, which then led to benefits of such support.

Another point is that the social support context used in the present studies, which concerned support for goals, might have been more relevant to locomotion motivation than to assessment motivation. This could help account for why there were generally not significant associations between assessment and the support variables examined. Future research could

examine regulatory mode in support contexts that might be assessment-relevant. For example, this could include social support interactions occurring during an important decision-making process to help recipients discern the ‘right’ choice. While beyond the aims of the present research, these results also invite additional work on the mechanisms underlying assessment-oriented people’s reluctance to receive support. Such work could provide a foundation for subsequent research directly testing regulatory fit hypotheses in the context of support.

An additional question concerns support type. Social support behaviors are commonly classified as emotional support, which focuses on lifting the recipient’s negative mood, or practical support, which focuses on addressing the recipient’s problem. Prior research has shown that recipients with a predominant locomotion motivation benefit from both explicit emotional support and explicit practical support (Zee et al., 2018), but the present work did not directly examine whether perceptions of goal movement might differ by support type. Similarly, our studies were not designed to cleanly differentiate between practical support and emotional support. Thus, it was not possible, nor was it central to the goals of this paper, to investigate the role of support type. However, future work could examine whether practical support might promote goal movement for higher locomotion people more so than emotional support.

An additional open question concerns possible gender differences in these patterns of results. Although results indicated that findings were generally similar for both male and female partners, some differences did emerge for the diary findings. It is possible that women higher (vs. lower) on locomotion actively sought more support from their partners in daily life and might have been more explicit about the type of support they wanted or needed. This in turn could have enabled them to benefit more from it. Research examining the intersection of gender, social support, and motivation would offer an interesting future direction.

By design, our investigation focused on *perceived* goal movement as a mediator. However, it is unknown whether higher locomotion recipients actually experience more goal movement in support contexts, and it is possible that their perceptions might not be accurate. Although it may be sufficient for them to merely *perceive* that they have moved closer to their goals, future work could benefit from the inclusion of objective indicators of goal movement.

Finally, the studies presented in this paper only examined romantic partners. It is therefore unclear whether these findings would generalize to social support given between other relationship partners (e.g., friends, coworkers). Additional research testing for similar effects in other relationship contexts would be a useful next step.

### **Conclusions**

Prior research suggests that for individuals higher on locomotion, receiving enacted social support is associated with more benefits than costs. The present work suggests that social support interactions may address higher locomotion people's motivational need for movement, and that perceptions of movement towards their goals may explain their beneficial support outcomes. This could help providers better tune their support to recipients' motivational needs, thereby enhancing the benefits of support for goal pursuit and well-being.

## References

- Avnet, T., & Higgins, E. T. (2003). Locomotion, assessment, and regulatory fit: Value transfer from “how” to “what.” *Journal of Experimental Social Psychology*, *39*(5), 525–530.  
[https://doi.org/10.1016/S0022-1031\(03\)00027-1](https://doi.org/10.1016/S0022-1031(03)00027-1)
- Bar-Kalifa, E., & Rafaeli, E. (2013). Disappointment’s sting is greater than help’s balm: Quasi-signal detection of daily support matching. *Journal of Family Psychology*, *27*(6), 956–967.  
<https://doi.org/10.1037/a0034905>
- Bolger, N., & Amarel, D. (2007). Effects of social support visibility on adjustment to stress: Experimental evidence. *Journal of Personality and Social Psychology*, *92*(3), 458–475.  
<https://doi.org/10.1037/0022-3514.92.3.458>
- Bolger, N., & Laurenceau, J. P. (2013). *Intensive Longitudinal Methods*. New York: The Guildford Press.
- Bolger, N., & Schilling, E. A. (1991). Personality and the Problems of Everyday Life: The Role of Neuroticism In Exposure and Reactivity to Daily Stressors. *Journal of Personality*, *59*(3), 355–386. <https://doi.org/10.1111/j.1467-6494.1991.tb00253.x>
- Bolger, N., & Zuckerman, A. (1995). Personality Processes and individual differences. A framework for studying personality in the stress process. *Journal of Personality and Social Psychology*, *69*(5), 890–902.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology*, *79*(6), 953–961.  
<https://doi.org/10.1037//0022-3514.79.6.953>
- Briskin, J. L., Kopetz, C. E., Fitzsimons, G. M., & Slatcher, R. B. (2017). For Better or for Worse? Outsourcing Self-Regulation and Goal Pursuit. *Social Psychological and*



*Personality Science*. <https://doi.org/10.1177/1948550617736112>

- Cavallo, J. V., Zee, K. S., & Higgins, E. T. (2016). Giving the help that is needed: How Regulatory Mode impacts tailoring social support provision. *Personality and Social Psychology Bulletin*, *42*(8), 1111–1128. <https://doi.org/10.1177/0146167216651852>
- Cranford, J. A., Shrout, P. E., Iida, M., Rafaeli, E., Yip, T., & Bolger, N. (2006). A procedure for evaluating sensitivity to within-person change: can mood measures in diary studies detect change reliably? *Personality & Social Psychology Bulletin*, *32*(7), 917–929. <https://doi.org/10.1177/0146167206287721>
- Cutrona, C. E. (1990). Stress and social support: In search of optimal matching. *Journal of Social and Clinical Psychology*, *9*(1), 3–14.
- Feeney, B. C., & Collins, N. L. (2015). A new look at social support: A theoretical perspective on thriving through relationships. *Personality and Social Psychology Review*, *19*(2), 113–147. <https://doi.org/10.1177/1088868314544222>
- Fitzsimons, G. M., & Finkel, E. J. (2011). Outsourcing self-regulation. *Psychological Science*, *22*(3), 369–375. <https://doi.org/10.1177/0956797610397955>
- Fitzsimons, G. M., Finkel, E. J., & VanDellen, M. R. (2015). Transactive goal dynamics. *Psychological Review*, *122*(4), 648–673. <https://doi.org/http://dx.doi.org/10.1037/a0039654>
- Fitzsimons, G. M., Friesen, J., Orehek, E., & Kruglanski, A. W. (2009). Progress-induced goal shifting as a self-regulatory strategy. In J. P. Forgas, R. F. Baumeister, & D. M. Tice (Eds.), *Psychology of Self-Regulation: Cognitive, Affective, and Motivational Processes* (pp. 183–196). New York: Taylor & Francis Group.
- Fitzsimons, G. M., & Shah, J. Y. (2008). How goal instrumentality shapes relationship evaluations. *Journal of Personality and Social Psychology*, *95*(2), 319–337.

<https://doi.org/10.1037/0022-3514.95.2.319>

- Girme, Y. U., Overall, N. C., & Simpson, J. A. (2013). When visibility matters: Short-term versus long-term costs and benefits of visible and invisible support. *Personality and Social Psychology Bulletin*, *39*(11), 1441–1454. <https://doi.org/10.1177/0146167213497802>
- Girme, Y. U., Overall, N. C., Simpson, J. A., & Fletcher, G. J. O. (2015). “All or nothing”: Attachment avoidance and the curvilinear effects of partner support. *Journal of Personality and Social Psychology*, *108*(3), 450–475. <https://doi.org/10.1037/a0038866>
- Gleason, M. E. J., Iida, M., Shrout, P. E., & Bolger, N. (2008). Receiving support as a mixed blessing: Evidence for dual effects of support on psychological outcomes. *Journal of Personality and Social Psychology*, *94*(5), 824–838. <https://doi.org/10.1037/0022-3514.94.5.824>
- Higgins, E. T. (2005). Value From Regulatory Fit. *Current Directions in Psychological Science*, *14*(4), 209–213. <https://doi.org/10.1111/j.0963-7214.2005.00366.x>
- Higgins, E. T. (2006). Value from hedonic experience and engagement. *Psychological Review*, *113*(3), 439–460. <https://doi.org/10.1037/0033-295X.113.3.439>
- Higgins, E. T. (2012). *Beyond pleasure and pain: How motivation works*. Oxford University Press.
- Higgins, E. T., Kruglanski, A. W., & Pierro, A. (2003). Regulatory mode: Locomotion and assessment as distinct orientations. In *Advances in Experimental Social Psychology* (Vol. 35, pp. 293–344). Elsevier Science. [https://doi.org/10.1016/S0065-2601\(03\)01005-0](https://doi.org/10.1016/S0065-2601(03)01005-0)
- Hui, C. M., Finkel, E. J., Fitzsimons, G. M., Kumashiro, M., & Hofmann, W. (2014). The Manhattan effect: When relationship commitment fails to promote support for partners’ interests. *Journal of Personality and Social Psychology*, *106*(4), 546–570.

<https://doi.org/10.1037/a0035493>

- Kruglanski, A. W., Orehek, E., Higgins, E. T., Pierro, A., & Shalev, I. (2010). Modes of self-regulation: Assessment and locomotion as independent determinants in goal pursuit. In R. Hoyle (Ed.), *Handbook of Personality and Self-Regulation* (pp. 375–401). Blackwell Publishing Ltd. <https://doi.org/10.1002/9781444318111.ch17>
- Kruglanski, A. W., Pierro, A., & Higgins, E. T. (2007). Regulatory mode and preferred leadership styles: How fit increases job satisfaction. *Basic and Applied Social Psychology*, 29(2), 137–149. <https://doi.org/10.1080/01973530701331700>
- Kruglanski, A. W., Thompson, E. P., Higgins, E. T., Atash, M. N., Pierro, A., Shah, J. Y., & Spiegel, S. (2000). To “do the right thing” or to “just do it”: Locomotion and assessment as distinct self-regulatory imperatives. *Journal of Personality and Social Psychology*, 79(5), 793–815. <https://doi.org/10.1037/0022-3514.79.5.793>
- Kumashiro, M., Rusbult, C. E., & Finkel, E. J. (2008). Navigating personal and relational concerns: The quest for equilibrium. *Journal of Personality and Social Psychology*, 95(1), 94–110. <https://doi.org/10.1037/0022-3514.95.1.94>
- Kumashiro, M., Rusbult, C. E., Finkenauer, C., & Stocker, S. L. (2007). To think or to do: The impact of assessment and locomotion orientation on the Michelangelo phenomenon. *Journal of Social and Personal Relationships*, 24(4), 591–611. <https://doi.org/10.1177/0265407507079261>
- Maisel, N. C., & Gable, S. L. (2009). The paradox of received social support: The importance of responsiveness. *Psychological Science*, 20(8), 928–932. <https://doi.org/10.1111/j.1467-9280.2009.02388.x>
- Molden, D. C., Lucas, G. M., Finkel, E. J., Kumashiro, M., & Rusbult, C. E. (2009). Perceived

support for promotion-focused and prevention-focused goals: Associations with well-being in unmarried and married couples. *Psychological Science*, 20(7), 787–793.

<https://doi.org/10.1111/j.1467-9280.2009.02362.x>

Rafaeli, E., & Gleason, M. E. J. (2009). Skilled support within intimate relationships. *Journal of Family Theory and Review*, 1(3), 20–37. <https://doi.org/10.1111/j.1756-2589.2009.00003.x>

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. Aron (Eds.), *Handbook of Closeness and Intimacy* (pp. 201–225). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Righetti, F., & Kumashiro, M. (2012). Interpersonal goal support in achieving ideals and oughts: The role of dispositional regulatory focus. *Personality and Individual Differences*, 53(5),

650–654. <https://doi.org/10.1016/j.paid.2012.05.019>

Righetti, F., Kumashiro, M., & Campbell, S. B. (2014). Goal difficulty and openness to interpersonal goal support. *Personality & Social Psychology Bulletin*.

<https://doi.org/10.1177/0146167214535954>

Rosenthal, R., & Rosnow, R. L. (1985). *Contrast Analysis: Focused Comparisons in the Analysis of Variance*. New York, NY: Cambridge University Press.

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2), 1–36. <https://doi.org/10.18637/jss.v048.i02>

Scholer, A. A., & Higgins, E. T. (2012). Commitment to change from locomotion motivation during deliberation. *Motivation and Emotion*, 36(2), 114–129.

<https://doi.org/10.1007/s11031-011-9239-4>

Spanier, G. B. (1976). Measuring Dyadic Adjustment: New scales for assessing the quality of

marriage and similar dyads. *Journal of Marriage and the Family*, 38(1), 15–28.

<https://doi.org/10.2307/350547>

Thoemmes, F. (2015). Reversing Arrows in Mediation Models Does Not Distinguish Plausible Models. *Basic and Applied Social Psychology*, 37(4), 226–234.

<https://doi.org/10.1080/01973533.2015.1049351>

Weinstein, N., Legate, N., Kumashiro, M., & Ryan, R. M. (2015). Autonomy support and diastolic blood pressure: Long term effects and conflict navigation in romantic relationships. *Motivation and Emotion*, 40(2), 212–225. <https://doi.org/10.1007/s11031-015-9526-6>

Winterheld, H. A., & Simpson, J. A. (2016). Regulatory focus and the interpersonal dynamics of romantic partners' personal goal discussions. *Journal of Personality*, 84(3), 277–290.

<https://doi.org/10.1111/jopy.12158>

Zee, K. S., Cavallo, J. V., Flores, A. J., Bolger, N., & Higgins, E. T. (2018). Motivation moderates the effects of social support visibility. *Journal of Personality and Social Psychology*, 114(5), 735–765. <https://doi.org/10.1037/pspi0000119>

Zhang, Z., Zyphur, M. J., & Preacher, K. J. (2009). Testing multilevel mediation using hierarchical linear models: Problems and solutions. *Organizational Research Methods*,

12(4), 695–719. <https://doi.org/10.5465/AMBPP.2008.33716518>

---

<sup>1</sup> Portions of this dataset were used in prior publications by Kumashiro and colleagues (Hui, Finkel, Fitzsimons, Kumashiro, & Hofmann, 2014; Kumashiro, Rusbult, & Finkel, 2008; Molden et al., 2009; Righetti & Kumashiro, 2012). However, none of these prior publications examined regulatory mode. The hypotheses investigated here are unique to this paper.

<sup>2</sup> The diary period also included another item that could be construed as measuring perceptions of goal movement: “*My partner said and did things that helped me move closer to my goals.*” However, we were concerned that this item confounded support and goal movement. Nevertheless, when we repeated our analyses using this item as our mediator, we found the same pattern of results for main effects of locomotion and mediating effects by way of this variable.

<sup>3</sup> This item was phrased to capture to day-to-day feelings, without having participants think about their answers in regards to other days or standards. The equivalent item measured during the laboratory session used the word “closer” to account for changes experienced across the diary period as a whole. To help demonstrate the suitability of this item for capturing perceived goal movement, we ran a follow-up analysis in which we looked at *changes* in feeling close to one’s goal by adding lagged perceived goal movement as a predictor in our model examining goal movement (pooling across dyad members). The main effect of locomotion remained essentially the same,  $b = .20$ ,  $SE = .03$ ,  $p < .001$ , suggesting that locomotion is associated with daily perceived goal *movement*. Because results did not differ appreciably with and without the lagged predictor, we present results without the lagged predictor for simplicity.

<sup>4</sup> Like the diary period, the laboratory assessment included the same alternative perceived goal movement item: “*My partner said and did things that helped me move closer to my goals.*” Again, to avoid confounding support and goal movement, we were hesitant to use this as our perceived goal movement measure in our primary analysis. Nevertheless, when we repeated our analyses using this item, we found the same pattern of results for main effects of locomotion and mediating effects by way of this variable.

<sup>5</sup> We also tested whether support receipt would interact with locomotion. We suspected that such an interaction would not be found, perhaps due to the paucity of no-support days generated by the study design and due to a lack of theoretical rationale for expecting *quantity* of support to interact with locomotion. Indeed, we did not find evidence in favor of support receipt (when treated both as a binary variable and a continuous variable) by locomotion interactions. Across outcomes, coefficients for these interaction terms ranged from  $-.03$  to  $.03$  (continuous) and from  $.006$  to  $.11$  (binary), and  $p$ -values ranged from  $.22$  to  $.97$  (continuous) and from  $.19$  to  $.94$  (binary).

<sup>6</sup> We also performed additional versions of these analyses: one in which we allowed for autocorrelated residuals using an AR(1) error structure, and another in which we allowed for correlated errors for partners within a dyad; in the latter case, several models failed to converge with random slopes of time included. However, for both additional versions, results were very

---

similar to those obtained from the main analyses and did not change our conclusions regarding effects of locomotion.

<sup>7</sup> In follow-up analyses, neither excluding this couple nor switching the male/female coding of the dyad members changed our results appreciably.

<sup>8</sup> Note that measures of effect size provided in the tables draw on degrees of freedom. Because different models had different numbers of degrees of freedom (e.g., degrees of freedom for effects from the distinguishable diary analyses and the pooled diary analyses were different), measures of effects size may not be directly comparable across results.

<sup>9</sup> Supporting this decision, the main effects of locomotion on all variables were significant and positive for both male partners and female partners. Furthermore, subsequent mediation analyses in this paper suggested the mediating effect of perceived goal movement did not differ by gender. Thus, pooling data across dyad members was also done to facilitate comparison of results across studies.

<sup>10</sup> In additional versions of these analyses and Study 2 analyses, we also allowed for correlated errors for partners within a dyad. Results from these follow-up analyses yielded results that were very similar to those obtained from the main analyses and did not change our conclusions regarding effects of locomotion.

<sup>11</sup> Several publications have used data from multiple time points in this large-scale study, including a paper by Kumashiro et al. (2007). Their paper also examined locomotion and assessment motivations, but only locomotion and assessment measured at Wave 4 were used as predictor variables in their analyses. The focal Wave 5 dependent variables regarding goal conversations discussed in this paper have not been used in prior published work, nor have the Wave 5 measures of locomotion and assessment been used as focal predictor variables. The hypotheses regarding mediation are unique to this paper.





Table 1A

Summary of Results with Unstandardized Coefficients, Study 1 Diary Period (Distinguishable Model)

Fixed Effects	Perceived Goal Movement					Goal Engagement					Responsiveness to Goal Pursuit				
	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	ES	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	ES	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	ES
M Intercept	3.45	.12	< .001	3.21 3.68		4.48	.07	< .001	4.35 4.61		3.83	.09	< .001	3.63 4.01	
F Intercept	3.31	.09	< .001	3.13 3.48		4.26	.07	< .001	4.13 4.39		4.04	.08	< .001	3.88 4.19	
<b>M Locomotion</b>	<b>.18</b>	<b>.05</b>	<b>&lt; .001</b>	<b>.07 .28</b>	<b>.38</b>	<b>.18</b>	<b>.05</b>	<b>&lt; .001</b>	<b>.09 .28</b>	<b>.41</b>	<b>.14</b>	<b>.06</b>	<b>.016</b>	<b>.02 .27</b>	<b>.28</b>
M Assessment	.02	.05	.72	-.09 .13		-.07	.05	.14	-.16 .02		-.01	.06	.88	-.13 .11	
M Day	-.06	.02	.001	-.09 -.02		.013	.01	.16	-.01 .03		.00	.01	.99	-.03 .03	
<b>F Locomotion</b>	<b>.30</b>	<b>.06</b>	<b>&lt; .001</b>	<b>.19 .42</b>	<b>.54</b>	<b>.37</b>	<b>.05</b>	<b>&lt; .001</b>	<b>.26 .48</b>	<b>.62</b>	<b>.21</b>	<b>.06</b>	<b>&lt; .001</b>	<b>.09 .33</b>	<b>.40</b>
F Assessment	-.002	.05	.97	-.10 .10		.08	.05	.077	-.01 .17		.08	.05	.098	-.02 .19	
F Day	-.06	.01	< .001	-.09 -.03		-.003	.01	.76	-.02 .01		.02	.01	.078	-.003 .05	
Random Effects															
M Intercept	.85	-	-	.77 1.06		.37	-	-	.30 .46		.63	-	-	.48 .82	
F Intercept	.63	-	-	.51 .80		.42	-	-	.34 .51		.49	-	-	.35 .66	
M Day Slope	.10	-	-	.08 .14		-	-	-	- -		.07	-	-	.05 .10	
F Day Slope	.08	-	-	.05 .11		-	-	-	- -		.07	-	-	.07 .08	
M-F Int. Cor.	.27	-	-	-.06 .57		-.02	-	-	-.35 .33		.44	-	-	.24 .78	
M Slope-M Int. Cor.	.90	-	-	.78 .96		-	-	-	- -		.46	-	-	.16 .72	
F Slope-F Int. Cor.	.66	-	-	.35 .93		-	-	-	- -		.19	-	-	-.73 .56	
M-F Day Slope Cor.	.21	-	-	-.27 .96		-	-	-	- -		.89	-	-	.14 1.00	
M Int.-F Slope Cor.	-.01	-	-	-.40 .39		-	-	-	- -		.01	-	-	-.09 1.00	
F Int.-M Slope Cor.	.29	-	-	-.09 .58		-	-	-	- -		.32	-	-	-.14 .34	
Residual	.65	-	-	.62 .68		.57	-	-	.55 .60		.64	-	-	.61 .67	

Note. The *lme4* and *lmerTest* packages used do not provide *t*-test statistics or *p*-values for random effects. M = male partner, F = female partner, Int. = Intercept, Cor. = correlation. Effect size is indicated as ES and is reported in units of *r*, where  $r = \sqrt{t^2 / (t^2 + df)}$ . The model predicting goal engagement would not converge when random slopes of day were included, the results reported above for this outcome only include random intercepts.

Table 1B

Summary of Results with Unstandardized Coefficients, Study 1 Diary Period (pooling across dyad members)

Fixed Effects	Perceived Goal Movement					Goal Engagement					Responsiveness to Goal Pursuit				
	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	ES	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	ES	<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	ES
Intercept	3.37	.08	< .001	3.22 3.52		4.36	.06	< .001	4.25 4.47		3.95	.07	< .001	3.82 4.09	
<b>Locomotion</b>	<b>.19</b>	<b>.03</b>	<b>&lt; .001</b>	<b>.14 .25</b>	<b>.24</b>	<b>.20</b>	<b>.02</b>	<b>&lt; .001</b>	<b>.15 .25</b>	<b>.28</b>	<b>.13</b>	<b>.03</b>	<b>&lt; .001</b>	<b>.08 .19</b>	<b>.15</b>
Assessment	-.01	.03	.60	-.07 .04		-.01	.02	.58	-.06 .03		.05	.03	.074	-.01 .11	
Day	-.06	.01	< .001	-.08 -.04		.002	.01	.80	-.01 .02		.02	.01	.16	-.01 .04	
Random Effects															
Intercept	.58	-	-	.46 .72		.38	-	-	.29 .50		.50	-	-	.38 .64	
Day Slope	.07	-	-	.05 .09		.01	-	-	.00 .04		.07	-	-	.04 .09	
Intercept-Slope Cor.	.74	-	-	.52 .87		.48	-	-	-1.00 .96		.24	-	-	-.30 .57	
Residual	.72	-	-	.69 .75		.63	-	-	.60 .66		.69	-	-	.66 .72	

Note. The *lme4* and *lmerTest* packages used do not provide *t*-test statistics or *p*-values for random effects. M = male partner, F = female partner, Cor. = correlation. Effect size is indicated as ES and is reported in units of *r*, where  $r = \sqrt{t^2 / (t^2 + df)}$ . All models pooling across dyad members converged even when random slopes for time were included.

Table 2

*Correlations Among Variables, Study 1 Laboratory Session*

	Mean (SD)	2	3	4	5
1. Locomotion	5.55 (1.06)	.01	.26***	.24**	.23**
2. Assessment	4.71 (1.19)	-	-.02	.01	-.03
3. Perceived Goal Movement	4.17 (.95)		-	.61***	.35***
4. Goal Engagement	4.03 (.93)			-	.38***
5. Partner Responsiveness to Goal Pursuit	6.07 (1.37)				-

*Note.* \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 3

*Summary of Results of the Effects of Recipient Locomotion and Assessment (Unstandardized Coefficients), Study 1 Laboratory Session*

	<i>b</i>	<i>t</i>	<i>df</i>	<i>p</i>	95% CI		ES
					Lower	Upper	
<b>Perceived Goal Movement</b>							
<b>Locomotion</b>	<b>.22</b>	<b>3.32</b>	<b>169</b>	<b>.001</b>	<b>.09</b>	<b>.36</b>	<b>.25</b>
Assessment	-.03	-.51	167	.61	-.19	.09	
<b>Goal Engagement</b>							
<b>Locomotion</b>	<b>.19</b>	<b>2.92</b>	<b>168</b>	<b>.004</b>	<b>.06</b>	<b>.33</b>	<b>.22</b>
Assessment	-.01	-.10	168	.92	-.12	.11	
<b>Partner Responsiveness to Goal Pursuit</b>							
<b>Locomotion</b>	<b>.26</b>	<b>2.74</b>	<b>165</b>	<b>.007</b>	<b>.07</b>	<b>.45</b>	<b>.21</b>
Assessment	-.05	-.57	173	.57	-.22	.12	

*Note.* Effects of interest are in bold. Effect size is indicated as ES and is reported in units of  $r$ , where  $r = \sqrt{(t^2 / (t^2 + df))}$ .

Table 4

*Summary of Indirect and Direct Effects of Locomotion Motivation on Support Outcomes via Perceptions of Goal Movement, Study 1 Laboratory Session*

	<i>b</i>	<i>z</i>	<i>p</i>	95% CI		% of Total Effect
				Lower	Upper	
<b>Goal Engagement</b>						
Indirect Effect	.14	3.19	.001	.05	.22	65%
Direct Effect	.08	1.35	.18	-.03	.18	
<b>Perceived Responsiveness to Goal Pursuit</b>						
Indirect Effect	.10	2.63	.008	.03	.18	39%
Direct Effect	.16	1.65	.099	-.03	.35	

Table 5

*Correlations Among Variables, Study 2*

	Mean (SD)	2	3	4	5	6
1. Locomotion	5.82 (1.12)	.02	.21**	.24**	.22**	.17*
2. Assessment	4.55 (1.19)	-	-.04	-.12 <sup>+</sup>	-.20**	.06
3. Perceived Goal Movement	4.83 (2.24)		-	.41***	.21**	.17*
4. Perceived Interaction Quality (Recipient)	6.88 (1.21)			-	.49***	.28***
5. Perceived Interaction Quality (Provider)	6.92 (1.16)				-	.03
6. Objective Interaction Quality (Coded)	4.61 (.61)					-

*Note.* <sup>+</sup>  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 6

Summary of the Effects of Recipient Locomotion and Assessment on Support Outcomes (Unstandardized Coefficients), Study 2

	<i>b</i>	<i>t</i>	<i>df</i>	<i>p</i>	95% CI		ES
					Lower	Upper	
<b>Perceived Goal Movement</b>							
<b>Locomotion</b>	<b>.36</b>	<b>2.33</b>	<b>161</b>	<b>.021</b>	<b>.15</b>	<b>.68</b>	<b>.18</b>
Assessment	-.06	-.45	157	.66	-.31	.17	
<b>Perceived Interaction Quality (Recipient)</b>							
<b>Locomotion</b>	<b>.22</b>	<b>2.71</b>	<b>158</b>	<b>.008</b>	<b>.14</b>	<b>.39</b>	<b>.21</b>
Assessment	-.11	-1.46	154	.15	-.26	.04	
<b>Perceived Interaction Quality (Provider)</b>							
<b>Locomotion</b>	<b>.15</b>	<b>1.91</b>	<b>156</b>	<b>.058</b>	<b>-.01</b>	<b>.32</b>	<b>.15</b>
Assessment	.08	1.14	149	.26	-.07	.23	
<b>Objective Interaction Quality (Coded)</b>							
<b>Locomotion</b>	<b>.08</b>	<b>1.88</b>	<b>147</b>	<b>.062</b>	<b>-.004</b>	<b>.16</b>	<b>.15</b>
Assessment	.05	1.29	139	.20	-.03	.12	

Note. Effects of interest are in bold. Effect size is indicated as ES and is reported in units of  $r$ , where  $r = \sqrt{(t^2 / (t^2 + df))}$ .

Table 7

*Summary of Indirect and Direct Effects of Locomotion Motivation on Support Outcomes via Perceptions of Goal Movement, Study 2*

	<i>b</i>	<i>z</i>	<i>p</i>	95% CI		% of Total Effect
				Lower	Upper	
<b>Perceived Interaction Quality (Recipient)</b>						
Indirect Effect	.08	2.33	.020	.01	.15	35%
Direct Effect	.15	1.91	.056	-.004	.30	
<b>Perceived Interaction Quality (Provider)</b>						
Indirect Effect	.05	2.03	.043	.002	.11	35%
Direct Effect	.10	1.28	.20	-.05	.25	
<b>Objective Interaction Quality (Coded)</b>						
Indirect Effect	.03	1.97	.049	.00	.06	34%
Direct Effect	.05	1.21	.23	-.03	.13	



**Figure Captions**

*Figure 1.* Theoretical model depicting the association of recipient locomotion motivation and beneficial outcomes mediated by perceived goal movement within the context of support interactions.

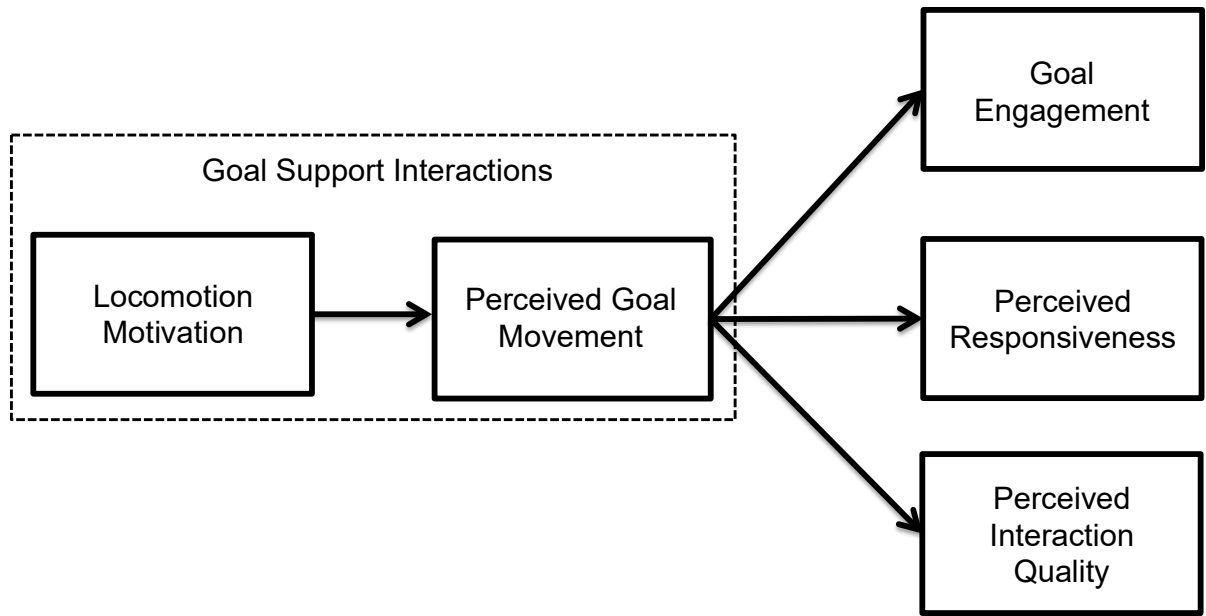


Figure 1