

RESEARCH ARTICLE

Goal projection in public places

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<http://dx.doi.org/10.1002/ejsp.2112>**Keywords:** goal projection, goal commitment, goal attainment, everyday life, perceived similarity**Abstract**

Three studies investigated the phenomenon of goal projection in everyday life considering three moderators: goal commitment, the perceived similarity of the target person, and goal attainment. Moviegoers' (Study 1) highly committed to see a particular movie projected this goal onto other movie patrons. Commuters (Study 2) highly committed to catch a certain train projected this goal onto other commuters, given that these commuters were perceived as similar. Shoppers (Study 3) projected buying a particular item when both their goal commitment and the perceived similarity of another shopper were high, and the goal was not yet attained. The results imply that goal projection is part of our everyday life and is fostered by high-goal commitment, perceiving others as similar, and ongoing goal striving.

Imagine that you are on your way to your favorite coffee place and notice another individual walking in the same direction. Immediately you think, 'That person must be going to my coffee place!' In such situations where individuals have very little information about another person, people tend to assume that others have the same goal as they do.

Previous research has established goal projection in the lab and showed that people readily project their goals onto a target person (Kawada, Oettingen, Gollwitzer, & Bargh, 2004; Oettingen, Ahn, Gollwitzer, Kappes, & Kawada, 2014; Palomares, 2012). For instance, when people were asked to name the goals of a target person engaged in an interaction, people projected their goals onto this target person, assuming the goal-directed behaviors of the target person to be in line with their own goals (Studies 2 and 3 of Kawada et al., 2004). In addition, goal projection was observed to have interpersonal consequences. For example, when people were asked to advise a target person who was described as being in need of help (i.e., a middle school student working on complex anagrams or a student entering college), goal projection predicted the extent to which participants helped this person in terms of the quantity and quality of advice given (Oettingen et al., 2014).

The present research tests whether goal projection generalizes to naturalistic, everyday life events (versus controlled lab environments) while identifying relevant moderators. Palomares (2012) observed that goal projection occurs between strangers interacting in the lab and that levels of goal projection were moderated by the applicability of an individual's goal to the social context (i.e., projection increased when there was a stronger association between the individual's goal and the social context) and the congruency or match between an individual's and a target person's goal (such that greater correspondence between the two is associated with increased projection). We contribute to existing findings by testing whether goal projection is a phenomenon that people have to reckon with when traversing through everyday life. Whereas in the studies by Palomares (2012), participants in the lab engaged in conversation and presumably may have had time to infer the other person's goals, we argue that goal projection should even occur where people encounter target persons for only a brief moment. To test this notion, we conducted a series of three field studies. We observed people pursuing mundane activities (e.g., attending a movie theater, commuting on a train, or shopping at a grocery store) and assessed the degree to which participants projected their goals onto target persons whom they had never interacted with but were in close physical proximity.

SOCIAL PROJECTION: BACKGROUND

The strategy of inferring other people's goals or intentions based on one's own action-related experiences starts early in life. Developmental psychologists emphasize that infants understand others as 'like me,' such that infants use their own intentional actions as a framework for inferring other people's behavioral intentions (Meltzoff, 2007; Meltzoff & Gopnik, 1993; Meltzoff & Moore, 1995). The 'like me' hypothesis rests on the assumption that personal experience is highly valued and gives infants the foundation to build and develop their understanding of other people's mental states. According to Erikson (1968), infants seek opportunities to develop their autonomy by learning how to successfully achieve their plans through a process of trial and error. Thus, when an infant sees another person acting in the same way (i.e., engaging in various trial and error actions), this infant's own experience suggests that there is an intention behind the behavior of that target person (i.e., the person is 'like me'; Meltzoff, 2007).

Viewing others as like me does not cease as infants grow older. In the absence of detailed information about others, adults also infer others' internal states by *projecting* their own personal attributes and characteristics (Krueger, 2000, 2007; Ross, Greene, & House, 1977). For instance, in one of the earlier studies on social projection¹, Katz and Allport (1931) noticed that the more students indicated that they had cheated on an exam, the more they believed that other students had cheated, too. Researchers reasoned that projection occurs because people only have access to their own internal states. Specifically, individuals tend to recall their own inclinations, tendencies, and preferences, as these are cognitively available when inferring other people's internal states (Ames, 2004a, 2004b; Dawes, 1990; Kelley & Jacoby, 1996; Krueger, 2007; Ross, Greene, & House, 1977; Van Boven & Loewenstein, 2003). Additionally, constructs that are easily accessible tend to be applied when judging others (Andersen & Chen, 2002; Higgins, King, & Mavin, 1982; Marks & Miller, 1987; Markus, Smith, & Moreland, 1985), and thereby readily projected onto others (Bornstein, 1993; Erdelyi, 1985; Newman, Duff, & Baumeister, 1997).

The degree of similarity or dissimilarity with the target person has been found to moderate social projection effects. For instance, projection levels increased for in-group members but decreased for out-group members (Krueger & Zeiger, 1993; Robbins & Krueger, 2005). Thus, the social categorization of group membership

matters in moderating projection effects. Relatedly, Ames (2004a, 2004b) demonstrated that the perceived similarity with the target person, as defined by 'an idiosyncratic and subjective sense that one is similar to a target group/person' plays an important role when inferring another person's internal state. For example, how would one infer the intentions of a man at a party who is talking to an attractive woman? Is he engaging in a conversation to get to know her better, or is he more interested in a sexual conquest? Ames' research suggests that when the target person is viewed as dissimilar from oneself, people are more inclined to stereotype that person, whereas when the target person is viewed as similar to oneself, people are more likely to engage in projection.

GOAL PROJECTION

More recently, researchers have turned to analyzing the projection of goals (Kawada *et al.*, 2004; Palomares, 2012; Oettingen *et al.*, 2014) as a distinct phenomenon within social projection that has primarily examined the projection of traits, attitudes, and the like. Although goals are structurally similar to traits in that goals are also mentally represented in associative networks (Bargh, 1990; Bargh & Gollwitzer, 1994; Shah & Kruglanski, 2000; Wegner & Vallacher, 1986), a property of goals that is different from traits is that goals can vary in terms of how strongly one intends to achieve them. Research on identity goals (e.g., Brunstein & Gollwitzer, 1996; Ledgerwood, Liviatan, & Carnevale 2007; Longoni, Gollwitzer, & Oettingen, 2014; Wicklund & Gollwitzer, 1982), goal accessibility (e.g., Förster, Liberman, & Higgins, 2005; Marsh, Hicks, & Bink, 1998), and goal progress (Carver & Scheier, 1998; Fishbach & Dhar, 2005; Higgins, 1987; Locke & Latham, 1990; Miller, Galanter, & Pribram, 1960) consistently demonstrates that goal strength is affected by providing positive versus negative feedback on goal completion or attainment. More specifically, goal strength is weakened when positive feedback is received, indicating that the goal is attained, but goal strength is heightened when negative feedback is received, indicating that the goal still needs to be striven for.

Consequently, goal projection research demonstrated that modifying goal strength via performance feedback, indicating goal attainment (or lack thereof), affects subsequent goal projection effects (e.g., Study 3 of Kawada *et al.*, 2004; Study 3 of Oettingen *et al.*, 2014). For instance, in Study 3 of Oettingen *et al.*, (2014), participants' main task was to advise an incoming freshman (Tom) on transitioning to college life. They were either primed with an achievement goal or not primed with any such goal. Participants in both conditions were then

¹Social projection serves as an umbrella term for the various forms of perceived consensus of traits, attitudes, beliefs, and personal characteristics (Krueger, 1998, 2000, 2008).

given information about Tom such as his gender, his birthday, and most importantly, that Tom's goal as a freshman entering college was unknown or unavailable. Then, in an ostensibly unrelated task, participants had to demonstrate analytical skills relevant to academic achievement, and upon completion of this task, they received either success or failure feedback. The strength of the mental association between 'Tom' and the goal 'to achieve' was assessed in a primed lexical decision task. Failure feedback strengthened the target person–goal association in the goal priming condition, thereby confirming that these participants projected the activated academic achievement goal onto the target person. In contrast, success feedback attenuated this mental association, thereby confirming these participants did not engage in goal projection. These findings demonstrate that goals primed outside of awareness that were not attained tended to be projected as opposed to goals that were attained.

Additionally, Palomares (2012) observed that goal projection increased when there was a stronger association between a goal and the social context. For instance, in Study 1 of Palomares (2012), participants were told that they would meet someone in the study and have an interaction with her 'as if at an informal setting like a party.' One of the participants in the dyad was randomly assigned to be either the perceiver or the target person. The perceiver was then randomly given a specific goal ('to find out about the partner's political or religious affiliations'), a midlevel goal ('to find out about the partner's views on politics or religion'), or an abstract goal ('to find out as much as you can about the partner'). Then, the perceiver and the target person interacted for about 5 min and filled out questionnaires separately. Results showed that perceivers tended to project an abstract goal rather than a specific goal. This finding indicates that projection is more pronounced when the perceiver's goal (to find out general information about the partner) is cognitively linked and applicable to the social context (a casual environment) as compared with when the goal and context were weakly associated (to find out private details about the partner in a casual environment).

Still, the described research on the moderation of goal projection does not yet address other relevant moderators that are typically related to goal properties: the person's initial commitment to the goal (i.e., the degree of determination to reach the goal; Locke & Latham, 1990; Wicklund & Gollwitzer, 1982) and actual goal attainment. Because goal commitment has important implications for behavior and performance, the role of commitment on goal projection effects should be examined. Additionally, the actual attainment of a goal has

implications for subsequent goal striving, which we suspect should also affect goal projection. Thus, we want to identify moderators of goal projection by examining various goal properties.

Separately, the perceived similarity of the target person has been shown to moderate social projection, but it has never been examined whether it would also be relevant for goal projection. Here, we define perceived similarity according to Ames (2004a, 2004b) as a general belief about one's global similarity to a target group/person. Social projection and goal projection, though different, are conceptually similar, and thus we hypothesize that the perceived similarity of the target person should matter for goal projection as well. Next to the moderation of goal projection by goal commitment and goal attainment, the present line of research thus also analyzes the perceived similarity of the target person as a further potential moderator.

THE PRESENT RESEARCH

In three studies, we examine whether goal projection occurs in public places. In Study 1, at a movie theater, we measure movie-goers' commitment to the goal to watch a certain movie. In Study 2, at a popular train station, we assess both commuters' commitment to the goal to travel to their destination and the perceived similarity of a target person (i.e., another commuter). Finally, in Study 3, at a supermarket, we assess participants' commitment to purchase a certain item and the perceived similarity of a target person (i.e., another shopper) either before or after the purchase of the critical item (i.e., the goal is attained or not). We hypothesized that goal projection would occur given that both participants' goal commitment and the perceived similarity of the target person are high, and the goal is not attained yet. Finding that people in their everyday life project their goals onto others will ultimately help us better understand interpersonal interactions. Consider again the opening example—projecting one's goal to go to one's favorite coffee place might prompt one to quickly bypass the other person on the street—or, perhaps, lead one to behave in a prosocial manner such as offering advice on where to find the entrance to the coffee place (Ahn, Oettingen, & Gollwitzer, 2015; Oettingen *et al.*, 2014).

STUDY 1: GOING TO WATCH A MOVIE

Study 1 tests our hypothesis that people project their goals onto people they encounter in everyday social situations at a movie theater. We chose a movie theater because moviegoers have an active goal to watch the

movie of their choice. To measure goal commitment, we assessed how badly moviegoers wanted to see the chosen movie. We expected that the more moviegoers wanted to watch the movie of their choice (i.e., the stronger participants' goal commitment), the more likely they should project their goal onto a target person who is physically present (a person standing in line to purchase a movie ticket).

Method

Participants and Design

Ninety moviegoers (age and gender were not recorded) volunteered to participate in this study. This study used a correlational design to examine whether goal commitment (how badly moviegoers wanted to watch a chosen movie) and goal projection (assuming that others are going to watch the same movie) are positively related.

Procedure and Materials

After receiving permission to survey movie patrons at a popular movie theater close to a university campus, we approached moviegoers in the main lobby of this movie theater to participate in a short survey called 'All about Movies!' At the time of data collection, there were a total of 10 movies playing at this theater, meaning there was a 10% (1 out of 10) chance that a given individual would watch the same movie as participants would.

Participants first indicated the name of the movie they came to watch by verbally answering the question: 'Which movie did you come to watch?' Then, participants indicated their goal commitment by answering the item: 'How badly do you want to watch this movie?' using a 1 (*not at all*) to 5 (*extremely*) scale.

At this point, the experimenter identified a target person who was the first person standing in line to purchase a ticket. After identifying this person, participants indicated the goal of that person by naming the movie that they thought that person came to watch. We operationalized goal projection dichotomously, as a match (versus a mismatch) between these two questions. For instance, if the person said they came to watch movie 'A' and they indicated that the target person also came to watch movie 'A,' this was taken as an indication of goal projection.

As covariates, participants indicated the frequency of their visits to movie theaters: 'How often do you attend the theaters?' using a 1 (*never*) to 5 (*all the time*) scale, and the perceived popularity of the film: 'How popular do you think that movie is?' using a 1 (*not at all*) to 5 (*extremely*) scale. We reasoned that those who visit

movie theaters frequently may have more experience at judging others' movie choices (intentions to see one or another movie) more accurately. Similarly, those who believe that the movie they want to watch is especially popular may be relying on the sheer fact that the movie is actually very popular, and can correctly assume that many people came to watch this very movie. In sum, we hypothesized that above and beyond participants' frequency in visiting theaters and the perception of the movie's popularity, goal projection should still prevail. After participants had answered all the questions we asked, they were debriefed and thanked.

Results and Discussion

Using a logistic regression analysis, we entered all the relevant variables: participants' commitment to the goal to watch the movie of their choice predicting whether the target person had the goal to watch the same movie, adjusted for the frequency of cinema visits, and perception of the movie's popularity (means and standard deviations are provided in Table 1). Of the 90 participants, 33 participants (36.7%) believed that the target person came to watch the same movie. Among these participants, we observed that the stronger participants' goal commitment, the higher the probability of inferring that the target person has the goal to watch the same movie, $b=0.45$, $\exp(b)=1.56$, $SE=0.24$, $Wald\ X^2=3.59$, $p=0.058$. The same pattern of results also emerged without adjusting for the two covariates, $p=0.047$.

The results of this first study suggest that goal projection is a phenomenon that occurs in everyday social situations, such as attending a movie theater. Participants (i.e., moviegoers at a local theater) who strongly wanted to watch the movie of their choice showed a higher

Table 1. Study 1: means, standard deviations, and correlations among key variables

Variables	Mean	SD	1	2	3	4
(1) Movie choice	—	—		0.21*	-0.10	0.15
(2) Goal commitment	3.68	1.55			0.12	0.21*
(3) Frequency of visits	3.14	1.34				0.33**
(4) Movie popularity	3.81	1.16				

Note. Movie choice was assessed as a dichotomous variable (a match between the participant's response and the predicted response of the target person). Goal commitment was the participant's indication of his/her commitment to watch the chosen movie (indicated by how badly he/she wanted to watch the movie). Frequency of visits was the participant's indication of his/her frequency of visiting movie theaters. Movie popularity was the participant's indication of the chosen movie's popularity. These latter three variables were indicated on 5-point Likert scales.

* $p < 0.05$

** $p < 0.01$

probability of projecting this very goal onto a person standing in line to purchase a ticket. This effect evinced with or without adjusting for other variables like the frequency of visiting movie theaters and perception of the chosen movie's popularity.

Although the current study provides initial evidence that people project goals to which they feel committed onto others who are physically present while engaged in a real-life activity (i.e., going to watch a movie), it does not provide evidence for potential boundary conditions of this phenomenon. For instance, one might suspect that projecting onto real people is hampered when those others appear to be very different from oneself (i.e., perceived dissimilarity of the target person is high). Because participants in this study had a very short time in which they could visually assess the target person as being similar or dissimilar, the next study provided a better opportunity to assess the target person's similarity or dissimilarity.

STUDY 2: COMMUTING

In Study 2, we test whether goal projection would extend to goal pursuits in a different public setting—the travel goals of commuters at a popular train station. Study 2 also explored whether the perceived similarity of the target person plays a moderating role in goal projection. Research by Ames (2004a, 2004b) demonstrated that social projection is enhanced when a perceiver views a target person as similar. We defined perceived similarity as a general belief about one's global similarity to the target person. Thus, we expected goal projection effects to be most pronounced in those commuters who report strong goal commitment and also perceive the target person to be highly similar.

Method

Participants and Design

A total of 43 commuters participated (14 females; $M_{age} = 34.50$, $SD_{age} = 12.37$) at a busy train station. We analyzed whether perceived similarity would moderate the relationship between goal commitment and goal projection.

Procedure and Materials

We recruited commuters to participate in a short survey about 'Commuting in the City' in the waiting area of a popular train station. Experimenters approached participants who were standing, looking up at a time table

waiting for their track number to appear. They first named the destination they intended to reach by verbally answering the question: 'What is your destination?' Second, they indicated their goal commitment by answering two questions: 'How frustrated would you be if you missed your train?' and 'How rushed are you to get to your destination?' both items using a 1 (*not at all*) to 7 (*extremely*) scale ($\alpha = 0.65$).

At this point, the experimenter singled out a target person who was waiting in the closest vicinity to them and was easily observable (i.e., was visually accessible). Participants first indicated how similar to themselves they perceived the target person: 'In general, how similar do you think that person is to you?' using a 1 (*not at all*) to 7 (*extremely*) scale. Finally, goal projection was assessed via the perceived likelihood that the target person would have the goal of reaching the same desired destination: 'How likely is that person going to the same destination?' using a 1 (*not likely*) to 7 (*very likely*) scale.

As in the previous study, we considered the frequency of commuting as a potential covariate because those who commute regularly may have a different impression of others' traveling intentions based on their extensive commuting experiences: 'How often do you commute?' We also considered the perception of a destination's popularity as another covariate because those who believe that their destination is especially popular may be relying on the actual fact that the destination is indeed popular, thus facilitating more accurate judgments: 'How popular do you think your destination is?' both items using a 1 (*not at all*) to 7 (*extremely*) scale. Thus, beyond the effects of these two covariates (frequency in commuting and popularity of the destination), we hypothesized people would project their goal on similar others. When all questions had been answered, participants were debriefed and thanked for their participation.

Results and Discussion

To test the effect of goal commitment on the perceived likelihood that the target person has the same goal and whether this effect would be enhanced for participants who view the target person as similar, we used generalized linear model in predicting perceived likelihood that the target person would go to the same destination from participant's goal commitment, perceived similarity of the target person, and their interaction, adjusted for experience in commuting and perceived popularity of the destination (means and standard deviations provided in Table 2). We observed the predicted interaction effect of

Table 2. Study 2: means, standard deviations, and correlations among key variables

Variables	Mean	SD	1	2	3	4	5
(1) Travel destination	2.78	1.72		0.23	0.30*	0.25	0.15
(2) Goal commitment	4.92	1.84			0.01	0.15	-0.01
(3) Perceived similarity	3.35	2.04				0.13	0.13
(4) Frequency of commute	5.02	2.44					0.33*
(5) Destination popularity	5.08	1.80					

Note. Travel destination was the predicted likelihood that the target person had the same destination. Goal commitment was the participant's indication of her commitment to travel to the intended destination (indicated by her frustration and how rushed he/she felt). Perceived similarity was the participant's indication of how similar he/she perceived the target person to himself/herself. Frequency of commute was the participant's indication of his/her experience in commuting. Destination popularity was the participant's indication of the intended destination's popularity. All variables were indicated on 7-point Likert scales.

* $p < 0.05$

** $p < 0.01$

goal commitment and perceived similarity, $b = 0.13$, $t(37) = 2.09$, $p = 0.036^2$, $R^2_{adj} = 6.6\%$.

As depicted in Figure 1, participants with strong goal commitment were more likely to believe the target person would go to the same destination the more that person was perceived to be similar, $b = .50$, $t(37) = 2.82$, $p = 0.005$, $R^2_{adj} = 14.0\%$, which was not true of participants with weak goal commitment, $b = -0.03$, $t(37) = 0.15$, $p = 0.88$.

Study 2 examined whether people project their goals onto a target person who they encountered at a popular train station. We observed that the perceived similarity of the target person plays a moderating role on goal projection effects given that goal commitment is strong. In other words, we found that those who strongly wanted to reach their destination and also viewed the target person to be similar projected this destination goal more than those with strong goal commitment who did not view the target person to be similar. On the other hand, we found that perceived similarity of the target person did not play a moderating role for those with weak goal commitment; participants with weak goal commitment showed low levels of goal projection regardless of whether the target person was judged to be similar or not.

STUDY 3: SHOPPING

So far, the first two studies demonstrated that goals are projected onto other people encountered in everyday situations when goal commitment is high and the target person is perceived as similar. In the next study, we examined whether varying goal attainment affects the

²The same pattern of results emerged when we did not adjust for the two covariates—frequency of commuting and perceived popularity of the destination—the interaction term then showed a p -level of 0.059.

observed interaction between goal commitment and the perceived similarity of the target person. We hypothesized that goals that are attained should diminish goal projection effects as pursuit of these goals should cease, whereas goals that have not been attained should increase goal projection effects as pursuit of these goals should resume.

Accordingly, as the setting for the study, we chose a supermarket because it provides the opportunity of approaching people who did not yet attain their goal (i.e., they have the goal to purchase an item but did not yet purchase it) versus those who already attained it (i.e., they had the goal to purchase an item and did purchase it). We first assessed participants' goal commitment to purchase a certain item and then approached participants who did not yet purchase this item versus those who did. Then, we assessed whether people would project their goal onto a target person they encountered (i.e., another person at the supermarket) and whose perceived similarity had been measured. We expected goal projection to be most pronounced in those with a strong goal commitment who perceived the target person to be highly similar, but only when the goal had not been attained yet.

Method

Participants and Design

Thirty-nine participants (21 females; $M_{age} = 36.72$, $SD_{age} = 16.13$) volunteered their time to participate in this study at a local supermarket in New York City. In this study, we assessed participants' commitment to the goal to purchase a certain item at the supermarket, and the perceived similarity to the target person as within-subjects factors. The between-subjects factor was goal attainment: participants who were approached

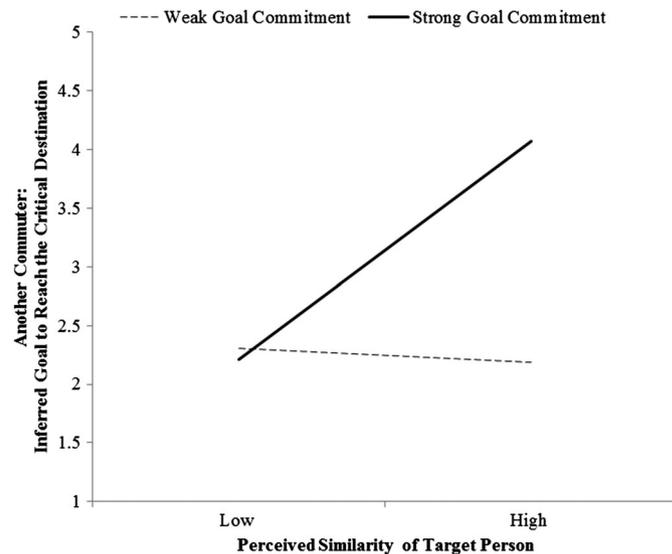


Fig. 1: Another commuter at the train station: inferred goal to reach the critical destination as a function of goal commitment (i.e., to a travel goal) and perceived similarity of the target person, adjusted for frequency of commuting (Study 2)

before shopping (i.e., they have the goal to purchase an item but did not yet purchase it) were considered to be in the goal unattained condition ($n = 18$), whereas participants who were approached after shopping (i.e., they had the goal to purchase an item and did purchase it) were considered to be in the goal attained condition ($n = 21$).

Procedure and Materials

The experimenter stood either by the entrance or the exit of the supermarket (which were separate but close to each other) and thus approached shoppers who were entering the market ready to make their purchase (the goal unattained condition) or exiting the market having made their purchase (the goal attained condition), respectively. All participants, whether approached before or after shopping, were asked the same questions (contextualized appropriately in the present or past tense).

Participants were told the purpose of the study was to survey people's shopping habits. They first named the main item they came to purchase (or just purchased): 'Name the main item you came to purchase today/[Name the main item you just purchased today].' Participants named items such as milk, orange juice, lettuce, etc. Then, participants indicated their goal commitment to purchase that item: 'How committed are you to purchasing this item today?/[How committed were you to purchase this item today?]' We used a 1 (*not at all*) to 7 (*extremely*) scale.

At this point, the experimenter chose a target person as someone who was just about to enter the

supermarket at that given moment for both types of shoppers alike (i.e., shoppers who were going to shop and shoppers who just shopped). If there was more than one person entering (or leaving) the supermarket at that time, the experimenter chose the person who was in closest proximity. Participants indicated how similar to themselves they viewed the target person using the same 7-point scale: 'How similar do you think that person is to you?' Then, as an indication of goal projection, participants answered the following item: 'Please indicate the probability (from 1–100%) that the other shopper is committed to purchasing the same [critical] item.' As the study variables were indicated on different response scales (e.g., 1–7 or 1–100), we standardized all variables to z-scores (see Tables 3 and 4 for unstandardized means and standard deviations for the respective conditions).

Results and Discussion

As expected, participants projected their goal onto another shopper (as selected by the experimenter) when goal commitment was strong and the target person was viewed to be similar, as long as the goal had not been attained yet. Applying a robust estimator,³ we

³A robust estimator is an estimation technique designed to circumvent limitations of traditional parametric methods, making it insensitive to small departures from the idealized assumptions which have been used to optimize the algorithm. Thus, when regression models are vulnerable to outliers and not particularly robust to suspicions of heteroscedasticity (i.e., particularly for small sample sizes), a robust model is appropriate (Cohen, Cohen, West, & Aiken, 2003).

Table 3. Study 3: means, standard deviations, and correlations among key variables for goal unattained condition

Variables for goal unattained condition	Mean	SD	1	2	3
(1) Percentage of same goal	23.40	26.26		-0.05	0.28
(2) Goal commitment	5.50	2.14			0.09
(3) Perceived similarity	3.81	1.76			

Note Percentage of same goal was the participant's indication of the likelihood that the target person entering the supermarket would purchase the same critical item. Goal commitment was the participant's indication of his/her commitment to purchase the critical item he/she intends to purchase. Perceived similarity was the participant's indication of the target person's similarity to himself/herself.

Table 4. Study 3: means, standard deviations, and correlations among key variables for goal attained condition

Variables for goal unattained condition	Mean	SD	1	2	3
(1) Percentage of same goal	31.50	28.69		0.30	0.34
(2) Goal commitment	6.06	1.73			0.36
(3) Perceived similarity	4.25	2.13			

Note. Percentage of same goal was the participant's indication of the likelihood that the target person entering the supermarket would purchase the same critical item. Goal commitment was the participant's indication of his/her commitment to purchase the critical item he/she already purchased. Perceived similarity was the participant's indication of the target person's similarity to himself/herself.

found that this three-way interaction was significant, $b = 0.61$, $t(31) = 2.44$, $p = 0.015$, $R^2_{adj} = 4.0\%$. To further clarify it, we analyzed the interaction of participants' goal commitment and perceived similarity separately for the goal unattained and the goal attained conditions.

Goal Unattained Condition

In a generalized linear model, we entered participants' goal commitment (to purchase the critical item), the perceived similarity of the target person, and the interaction term to predict participants' estimate of the target person's goal to purchase the critical item. Most important to our predictions, there was a significant interaction effect, $b = 0.30$, $t(14) = 2.47$, $p = 0.014$, $R^2_{adj} = 4.5\%$. As shown in Figure 2 (right side), participants who had a strong goal commitment were more likely to think that the target person had the goal to purchase the critical item the more similar they perceived that person to be, $b = 0.32$, $t(14) = 2.47$, $p = 0.01$, $R^2_{adj} = 5.8\%$. No such relation between perceived similarity and projection was observed for those with weak goal commitment, $b = -0.11$, $t(14) = 0.79$, $p = 0.43$.

Goal Attained Condition

We applied the same analysis used for the goal attained condition and did not observe an interaction effect for goal commitment and perceived similarity, $b = -0.30$, $t(17) = 1.40$, $p = 0.16$ (Figure 2, left side). Although the interaction effect was not significant, we followed up with simple slope analyses. We observed no relation between perceived similarity and participants' estimates of the target person's goal for those with strong a priori goal commitment, $b = -0.14$, $t(17) = 0.71$, $p > 0.48$. However, there was a trend for participants with weak goal commitment such that they were more likely to think that the target person had the goal to purchase the critical item the more similar they perceived that person to be, $b = 0.49$, $t(17) = 1.56$, $p = 0.12$.

The results of this final study provide further evidence that goals are projected onto people encountered in everyday life situations, given that goal commitment is

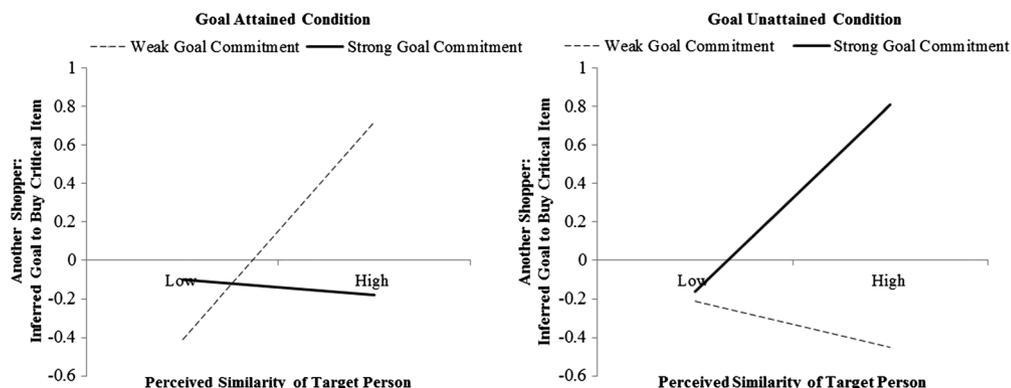


Fig. 2: Another shopper in the supermarket: inferred goal to buy the critical item as a function of goal commitment (i.e., to purchase a certain item) and perceived similarity of the target person by goal attainment condition (Study 3)

high, the target person is perceived as similar, and the goal has not been attained yet. We observed shoppers at a local supermarket who had the goal to purchase a certain item. New in the present study, we varied goal attainment by approaching shoppers either before they shopped (goal unattained) or after they had shopped (goal attained). We replicated our findings from Study 2 that goal projection is moderated by perceived similarity of the target person for participants with strong goal commitment, given that they had not yet attained their goal. Participants who had strong goal commitment were more likely to think that the target person had the same goal the more similar they perceived that person to be.

In the goal attained condition (i.e., the critical item has been purchased), we observed that participants with strong goal commitment no longer projected their goal. Interestingly, we observed a trend for participants with weak goal commitment that when the target person was perceived to be similar, participants' goal projection was enhanced. It is possible that these participants, having already purchased the critical item, start to value it more than originally thought (e.g., based on a process of dissonance reduction; Brehm, 1956). As a consequence, the increase in value may in turn could have led to an increase in goal commitment that is then reflected in heightened goal projection.

In sum, Study 3 provides a stricter test of goal projection in everyday life. Whereas at a movie theater and at a popular train station, there are rather few alternatives that people can choose from (i.e., there is a limited number of movies people can watch and a limited number of trains people can take), at a supermarket, there are a host of items a person can potentially buy. Accordingly, the actual likelihood that the target person would buy the same exact item is quite small. Still, participants in Study 3 projected their goals to buy a specific item when goal commitment was high, the target person was perceived as similar, and the goal had not been attained yet.

GENERAL DISCUSSION

In three studies, we observed that moderate levels of goal projection occurred in everyday life in public places—showing that goal projection effects can be assumed with different types of goals and in different types of situational contexts. Moviegoers with a strong goal commitment to watch a certain movie were more likely to project this goal onto other moviegoers (Study 1). Commuters with a strong commitment to catch a certain train were more likely to project this goal onto other commuters whom they perceived to be similar (Study 2). And shoppers on their way into the supermarket who were strongly committed to buy a certain

item were more likely to project their goal onto similar others in their vicinity (Study 3).

Apparently, strong goal commitment and perceived similarity are powerful moderators of goal projection. Across these three studies, no goal projection effects were observed for participants with weak goal commitment, and in Studies 2 and 3 where we measured perceived similarity, projection effects were not observed for dissimilar others. Finally, in Study 3, where we varied goal attainment by looking at participants' who still wanted to reach their goal versus those who had already attained it, we observed that participants project their goals when both goal commitment and perceived similarity of the target person are high, but only when the goal in question is not yet attained.

Although we observed that goal commitment, goal attainment, and the perceived similarity of target persons moderate goal projection effects in naturalistic environments, it could be argued that our findings are due to order effects. In all studies, we assessed goal projection last in the order of variables (as opposed to first), which may or may not have influenced participants' responses. However, the order of questions has been varied in previous research on social projection (see Ames 2004a) and the results consistently indicated that projection occurred. Thus, whether goal projection was assessed first or last should not alter the obtained results.

Additionally, our results indicated that the perceived similarity of target persons matters in moderating goal projection. However, we do not know which features of the target person were inferred as similar. Work by Palomares (2012) suggests that a 'fit' between a goal's applicability and the social context at hand might make certain features of the target person more salient (and perhaps appear more similar), and thereby may facilitate projection effects. Future research might want to disentangle which aspects of perceived similarity moderate goal projection effects.

Goal Projection and Accuracy

An important question in research on goal projection is how it relates to accuracy. Specifically, how accurate is the projector in assuming that the target person (e.g., the moviegoer, the commuter, the shopper) pursues a goal that she herself is currently pursuing? In social projection research, it is assumed that people who are considered to be most typical of a population tend to fare better at making accurate estimates about others' behavioral tendencies and attitudes (e.g., Dawes, 1990; Hoch, 1987). For example, Hoch (1987) asked research participants to complete a survey about their own consumer preferences and then asked them to predict the

responses of one of three different groups (the average American consumer, the average student peer, or their own spouse). He observed that whenever participants engaged in more projection (i.e., relied on their personal estimates), their accuracy in making these estimates *improved*. Hoch concluded: 'It may be that one's own position is the best or only valid cue accessible to subjects about the target's position, in which case if subjects were to project less, predictive accuracy could actually decrease' (p. 222). Work by Krueger and colleagues is in line with this view, showing that a more egocentric approach to social dilemma games improved the chances of cooperation (i.e., when people believed others would respond to the situation as they themselves would; Acevedo & Krueger, 2005; Krueger, 2013; Krueger, DiDonato, & Freestone, 2012; Krueger, Massey, & DiDonato, 2008).

The current research does not emphasize accuracy but focuses on the subjective process of inferring others' goals via goal projection. However, considering the findings reported in the previous paragraph, we speculate that projecting goals onto others may lead to more accurate perceptions of other people's goals. Palomares's work (2008, 2009a, 2009b) on detecting other people's goals accurately in social interactions identified the following moderators: the specificity of the goal (i.e., how specific and detailed a person sets a goal) and the determination of the person's goal pursuit (i.e., the level of exerted effort and persistence with which a goal is pursued). For example, in Palomares (2009a), he observed that the more determined a person pursued a goal that was highly specified, the better a perceiver was able to accurately detect the person's goal. In contrast, when a person pursued a goal that was non-specific or abstract, then goal determination and the perceiver's ability to infer the pursuer's goal was no longer related. Future research may explore the extent to which these two moderators also apply to goal projection as it occurs in everyday life.

Implications for Close Relationships

The findings of the present research imply that goal projection is a ubiquitous phenomenon relevant to people engaging in different activities in different settings (e.g., moviegoers at a theater, commuters at a train station, and shoppers at a supermarket). However, the current research only examined whether people project their goals onto strangers they physically encountered (i.e., another moviegoer, commuter, or shopper), but not whether they project their goals onto individuals they personally know and have a long-standing relationship with. Research on social projection finds that people do in fact project onto close partners and that

doing so has profound consequences for their relationship. For instance, projection of attitudes, values, judgments, or views about interpersonal relationships leads to beneficial outcomes for social interactions such as higher feelings of acceptance and mutual satisfaction between partners (Horowitz, Lyons, & Perlmutter, 1951; Lemay & Clark, 2008; Lemay, Clark, & Feeney, 2007; Murray *et al.*, 2002; Precker, 1952; Smith, 1957), increased liking and intimacy (Fiedler, Warrington, & Blaisdell, 1952; Reis & Shaver, 1988), and even lowered conflict (Preston, Peltz, Mudd, & Froscher, 1952). In addition, manipulating perceptions of similarity improved interactions in cross-race dyads and racially diverse task groups (West, Magee, Gordon, & Gullet, 2014).

Still, such research has not closely investigated whether and how goal projection between couples occurs dynamically, within ongoing interactions. Based on the present research findings, which people project their goals onto people who are present in the moment, goal projection should also occur between intimate partners during their interactions. Indeed, goal projection within a relationship may help partners to end up with a heightened rate of goal attainment (Oettingen *et al.*, 2014), which in turn might stabilize their relationship. It would be worthwhile to examine goal projection within close relationships in future research.

Conclusion

In three field studies, we observed that people projected their goals onto target persons who were physically present in various contexts—at the movie theater, at a train station, and at a supermarket—as long as the prerequisites of high-goal commitment, high-perceived similarity of the target person, and still ongoing goal striving were met. These findings highlight the ecological validity of goal projection and also suggest that goal projection qualifies as an efficient process as it runs off effectively even in complex everyday life situations.

REFERENCES

- Acevedo, M., & Krueger, J. I. (2005). Evidential reasoning in the prisoner's dilemma. *The American Journal of Psychology*, *118*, 431–457.
- Ahn, J. N., Oettingen, G., & Gollwitzer, P. M. (2015). *The competitive aspects of goal projection*. Unpublished manuscript, New York University.
- Ames, D. R. (2004a). Inside the mind reader's tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology*, *87*, 340–353.

- Ames, D. R. (2004b). Strategies for social inference: A similarity contingency model of projection and stereotyping in attribute prevalence estimates. *Journal of Personality and Social Psychology*, *87*, 573–585.
- Andersen, S. M., & Chen, S. (2002). The relational self: An interpersonal social-cognitive theory. *Psychological Review*, *109*, 619–645.
- Bargh, J. A. (1990). Goal ≠ Intent: Goal-directed thought and behavior are often unintentional. *Psychological Inquiry*, *1*, 248–251.
- Bargh, J. A., & Gollwitzer, P. M. (1994). Environmental control of goal-directed action: Automatic and strategic contingencies between situations and behavior. In W. D. Spaulding (Ed.), *Nebraska symposium on motivation* (Vol. 41, pp. 71–124). Lincoln, NE: University of Nebraska Press.
- Bornstein, R. F. (1993). *The dependent personality*. New York: Guilford Press.
- Brehm, J. (1956). Post-decision changes in desirability of alternatives. *Journal of Abnormal and Social Psychology*, *52*, 384–389.
- Brunstein, J. C., & Gollwitzer, P. M. (1996). Effects of failure on subsequent performance: The importance of self-defining goals. *Journal of Personality and Social Psychology*, *70*, 395–407.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York, NY: Cambridge University Press.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ: Erlbaum.
- Dawes, R. M. (1990). The potential non-falsity of the false consensus effect. In R. M. Hogarth (Ed.), *Insights in decision making: A tribute to Hillel T. Einhorn* (pp. 97–110). Chicago, IL: University of Chicago Press.
- Erdelyi, M. H. (1985). *Psychoanalysis: Freud's cognitive psychology*. New York: Freeman.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York, NY: W. W. Norton.
- Fiedler, F. E., Warrington, W. G., & Blaisdell, F. J. (1952). Unconscious attitudes as correlates of sociometric choice in a social group. *Journal of Abnormal Social Psychology*, *47*, 790–796.
- Fishbach, A., & Dhar, R. (2005). Goals as excuses or guides: The liberating effect of perceived goal progress on choice. *Journal of Consumer Research*, *32*, 370–377.
- Förster, J., Liberman, N., & Higgins, E. T. (2005). Accessibility from active and fulfilled goals. *Journal of Experimental Social Psychology*, *41*, 220–239.
- Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, *94*, 319–340.
- Higgins, E. T., King, G. A., & Mavin, G. H. (1982). Individual construct accessibility and subjective impressions and recall. *Journal of Personality and Social Psychology*, *43*, 35–47.
- Hoch, S. J. (1987). Perceived consensus and predictive accuracy: The pros and cons of projection. *Journal of Personality and Social Psychology*, *53*, 221–234.
- Horowitz, M. W., Lyons, J., & Perlmutter, H. V. (1951). Induction of forces in discussion groups. *Human Relations*, *4*, 57–76.
- Katz, D., & Allport, F. H. (1931). *Student attitudes*. Syracuse, NY: Craftsman Press.
- Kawada, C. L. K., Oettingen, G., Gollwitzer, P. M., & Bargh, J. A. (2004). The projection of implicit and explicit goals. *Journal of Personality and Social Psychology*, *86*, 545–559.
- Kelley, C. M., & Jacoby, L. L. (1996). Adult egocentrism: Subjective experience versus analytic bases for judgment. *Journal of Memory and Language*, *35*, 157–175.
- Krueger, J. I. (1998). On the perception of social consensus. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 163–240). San Diego, CA: Academic Press.
- Krueger, J. I. (2000). The projective perception of the social world: A building block of social comparison processes. In J. Suls, & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 323–351). New York, NY: Plenum/Kluwer.
- Krueger, J. I. (2008). The robust beauty of simple associations. In J. I. Krueger (Ed.), *Rationality and social responsibility: Essays in honor of Robyn M. Dawes* (pp. 111–140). New York, NY: Psychology Press.
- Krueger, J. I. (2013). Social projection as a source of cooperation. *Current Directions in Psychological Science*, *22*, 289–294.
- Krueger, J. I., DiDonato, T. E., & Freestone, D. (2012). Social projection can solve social dilemmas. *Psychological Inquiry*, *23*, 1–27.
- Krueger, J. I., Massey, A. L., & DiDonato, T. E. (2008). A matter of trust: From social preferences to the strategic adherence to social norms. *Negotiation and Conflict Management Research*, *1*, 31–52.
- Krueger, J. I., & Zeiger, J. (1993). Social categorization and the truly false consensus effect. *Journal of Personality and Social Psychology*, *65*, 670–680.
- Ledgerwood, A., Liviatan, I., & Carnevale, P. J. (2007). Group-identity completion and the symbolic value of property. *Psychological Science*, *18*, 873–878.
- Lemay, E. P., & Clark, M. S. (2008). How the head liberates the heart: Projection of communal responsiveness guides relationship promotion. *Journal of Personality and Social Psychology*, *94*, 647–671.
- Lemay, E. P., Clark, M. S., & Feeney, B. C. (2007). Projection of responsiveness to needs and the construction of satisfying communal relationships. *Journal of Personality and Social Psychology*, *92*, 834–853.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Longoni, C., Gollwitzer, P. M., & Oettingen, G. (2014). A green paradox: Validating green choices has ironic effects on behavior, cognition, and perception. *Journal of Experimental Social Psychology*, *50*, 158–165.

- Marks, G., & Miller, N. (1987). Ten years of research on the false-consensus effect: An empirical and theoretical review. *Psychological Bulletin*, *102*, 72–90.
- Markus, H., Smith, J., & Moreland, R. L. (1985). Role of the self-concept in the perception of others. *Journal of Personality and Social Psychology*, *49*, 1494–1512.
- Marsh, R. L., Hicks, J. L., & Bink, M. L. (1998). Activation of completed, uncompleted, and partially completed intentions. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *24*, 350–361.
- Meltzoff, A. N. (2007). The ‘like me’ framework for recognizing and becoming an intentional agent. *Acta Psychologica*, *124*, 26–43.
- Meltzoff, A. N., & Gopnik, A. (1993). The role of imitation in understanding persons and developing theories of mind. In S. Baron-Cohen & H. Tager-Flusberg (Eds.), *Understanding other minds: Perspectives from autism* (pp. 335–366). Oxford, UK: Oxford University Press.
- Meltzoff, A. N., & Moore, M. K. (1995). Infants’ understanding of people and things: From body imitation to folk psychology. In J. L. Bermudez, A. Marcel, & N. Eilan (Eds.), *The body and the self* (pp. 43–69). Cambridge, MA: MIT Press.
- Miller, G. A., Galanter, F., & Pribram, K. H. (1960). *Plans and the structure of behavior*. New York, NY: Henry Holt & Co..
- Murray, S. L., Holmes, J. G., Bellavia, G., Griffin, D. W., & Dolderman, D. (2002). Kindred spirits? The benefits of egocentrism in close relationships. *Journal of Personality and Social Psychology*, *82*, 563–581.
- Newman, L. S., Duff, K., & Baumeister, R. F. (1997). A new look at defensive projection: Suppression, accessibility, and biased person perception. *Journal of Personality and Social Psychology*, *72*, 980–1001.
- Oettingen, G., Ahn, J. N., Gollwitzer, P. M., Kappes, A., & Kawada, C. L. K. (2014). Goal projection and giving help. *Journal of Experimental Social Psychology*, *54*, 204–214.
- Palomares, N. A. (2008). Toward a theory of goal detection in social interaction: Effects of contextual ambiguity and tactical functionality on goal inferences and inference certainty. *Communication Research*, *35*, 109–148.
- Palomares, N. A. (2009a). Did you see it coming? Effects of the specificity and efficiency of goal pursuit on the accuracy and onset of goal detection in social interaction. *Communication Research*, *36*, 475–509.
- Palomares, N. A. (2009b). It’s not just your goal, but also who you know: How the cognitive associations among goals and relationships influence goal detection in social interaction. *Human Communication Research*, *35*, 534–560.
- Palomares, N. A. (2012). Are you doing what I’m doing?: Goal projection in conversation. *Communication Research*, *39*, 592–613.
- Precker, J. A. (1952). Similarity of valuations as a factor in selection of peers and near-authority figures. *Journal of Abnormal and Social Psychology*, *47*, 406–414.
- Preston, M. G., Peltz, W. L., Mudd, E. H., & Froscher, H. B. (1952). Impressions of personality as a function of marital conflict. *Journal of Abnormal Psychology*, *47*, 326–336.
- Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. Duck, D. F. Hay, S. E. Hobfoll, W. Ickes, & B. M. Montgomery (Eds.), *Handbook of personal relationships: Theory, research and interventions* (pp. 367–389). Oxford, UK: John Wiley & Sons.
- Robbins, J. M., & Krueger, J. I. (2005). Social projection to ingroups and outgroups: A review and meta-analysis. *Personality and Social Psychology Review*, *9*, 32–47.
- Ross, L., Greene, D., & House, P. (1977). The “false consensus effect”: An ego-centric bias in social perception and attribution processes. *Journal of Experimental Social Psychology*, *13*, 279–301.
- Shah, J. Y., & Kruglanski, A. W. (2000). The structure and substance of intrinsic motivation. In C. Sansone, & J. M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 105–127). New York, NY: Academic Press.
- Smith, A. J. (1957). Similarity of values and its relation to acceptance and the projection of similarity. *Journal of Psychology*, *43*, 251–260.
- Van Boven, L., & Loewenstein, G. (2003). Social projection of transient drive states. *Personality and Social Psychology Bulletin*, *29*, 1159–1168.
- Wegner, D. M., & Vallacher, R. R. (1986). Action identification. In R. M. Sorrentino, & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 550–582). New York, NY: Guilford Press.
- West, T. V., Magee, J. C., Gordon, S. H., & Gullett, L. (2014). A little similarity goes a long way: The effects of peripheral but self-revealing similarities on improving and sustaining interracial relationships. *Journal of Personality and Social Psychology*, *107*, 81–100.
- Wicklund, R. A., & Gollwitzer, P. M. (1982). *Symbolic self-completion*. Hillsdale, NJ: Erlbaum.