

Task Affordances Affect Partner Preferences

Tiffany Matej Hrkalovic
Aria Li
Magnus Bopp
Yinling Li
Daniel Balliet

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Author Note

Correspondence concerning this article should be addressed to Tiffany Matej Hrkalovic.
E-mail: t.matej.hrkalovic@tue.nl. This research was funded by an NWO grant from Daniel Balliet and Hybrid Intelligence.

Abstract

People frequently participate in interdependent tasks (i.e., tasks in which the outcome of one person is reliant on the other person's actions), in which people can behave in ways that benefit others (i.e., cooperate) to achieve mutually beneficial outcomes in daily life. The ability to select appropriate cooperative partners for these tasks is essential to achieve successful outcomes. Yet, little is known about individual partner preferences for interdependent tasks and whether these preferences change in response to situational affordances of the task (i.e., which traits can affect task outcomes). Here, we report four studies ($N = 1021$) that investigate the relationship between partner preference, person perceptions, and partner selection in interdependent tasks that afford the expression of warmth- or competence-related traits to affect outcomes. Over four studies, participants were randomly assigned to an interdependent task affording for warmth- or competence-related traits, then rated the most important traits in a partner (Study 1-4), evaluated potential partners' warmth and competence (Study 3-4), and selected partners (Study 3-4). Overall, participants strongly prefer warmth-related traits in a partner, but partner preferences also vary depending on task affordance. Specifically, people demonstrated a stronger preference for partner trustworthiness in tasks affording warmth-related traits and preferred highly competent partners in tasks affording competence-related traits. Additionally, preferences for partner traits strengthened the relationship between the perceived partner trait afforded by the situation and partner selection. We discuss these findings in relation to theories of partner selection and cooperation, as well as the implications of these results to develop tools and interventions to help people optimize their partner selections.

Keywords: partner preferences, affordance, partner selection, cooperation

Introduction

People actively participate in various cooperative endeavors across social, professional, and personal spheres to navigate and succeed within society. In environments where people are free to choose their collaborative partners, selecting suitable partners is a recurring challenge. This selection process enables people to preferentially identify and engage with people who exhibit the willingness and the capability to cooperate effectively, thereby achieving mutually beneficial outcomes (Barclay, 2013; Barclay, 2016). Here, preferences for partners to possess certain traits and characteristics (i.e., partner preferences) can provide a basis for assessing partner suitability. In turn, these preferences can guide people to select partners who align with their desired criteria, thereby playing a crucial role in the selection process. Yet, while a plethora of literature focused on studying partner preferences for (romantic or friend) relationships (Conroy-Beam, Goetz & Buss, 2016; Huang, Ledgerwood & Eastwick, 2019; Li, Bailey, Kenrick & Linsenmeier, 2002; Sparks et al., 2020) little is known about partner preferences within different cooperative situations and the impact of partner preferences on partner selection. Thus, this paper examines the role of partner preferences in partner selection for different cooperative undertakings.

In social interactions, people evaluate others along two dimensions, that is, their willingness (warmth) and ability (competence) to benefit others (Fiske, Cuddy & Glick, 2007). Despite the importance of both dimensions in social interactions, people have a stronger preference for partners with a higher willingness to benefit others, regardless of their actual ability to do so (Cottrell et al., 2007; Eisenbruch & Roney, 2017; Fiske et al., 2007; Raihani & Barclay, 2016). However, prioritizing a partner's willingness to benefit others may lead to suboptimal partner choices when other traits are afforded to influence the outcomes of a

collaborative undertaking. For example, a partner suitable for situations requiring care and concern for others' welfare (e.g., mediating a conflict between colleagues) may not be as effective in situations necessitating expertise or technical skills (e.g., a complex coding task).

Given the advantages of finding suitable partners for diverse tasks, evolutionary theory posits that people evolved capabilities to monitor changes in their environment to select better partners. Such changes can lead to adjustments in decision criteria, such as partner preferences and more optimal partner choices (Hammerstein & Noe, 2016). Previous research, such as the study by Clark, Green, and Simons (2019), has demonstrated that partner preferences vary depending on whether the task is cooperative (e.g., collaborating with another team) or competitive (e.g., completing a task against another team). However, there is a lack of research that systematically tests hypotheses regarding whether partner preferences vary based on whether tasks afford the expression of warmth-related traits or competence-related traits. This will inform an understanding of how task affordances impact partner preferences and, ultimately, partner selection.

Thus, to investigate this further, four studies were conducted where participants were asked to either design or choose and evaluate (ideal) partners for cooperative tasks affording the expression of warmth or competence to impact outcomes. This research makes three key contributions by studying (a) how task affordances influence the preferred traits in a partner, (b) whether task affordances play a role in the relationship between perceptions of task-relevant traits (e.g., warmth and competence) and partner selection, and finally, (c) whether partner preferences moderate the relation between person perceptions and partner selection, addressing previous doubts about the predictiveness of partner preferences for partner selection (e.g., in romantic contexts; Huang et al., 2019). The present research tests the hypotheses that individuals

will prefer traits aligned with the task's affordances and that task affordances and partner preferences will moderate the link between perceived traits and partner selection.

Partner Preferences for Interdependent Tasks

To ensure successful interdependent interactions, people need to find, evaluate, and select valuable partners (Barclay, 2013; Barclay, 2016). People who prefer traits indicative of a valuable partner (e.g., willingness and ability to work together) are more likely to select partners who align with their desired criteria for successful cooperation, thereby facilitating future cooperation and mutual success (Bravo, Squazzoni, & Boero, 2012).

Abundant research has found that people evaluate others along two fundamental dimensions: warmth and competence (Fiske et al., 2007; Fiske, 2018). *Warmth-related traits* are representative of people's willingness to engage in behaviors that benefit others. Warmth encompasses traits such as trustworthiness and friendliness. *Competence-related traits*, on the other hand, involve the ability to act on these intentions (Fiske et al., 2007), such as skillfulness, intelligence, and knowledge (Abele, Ellemers, Fiske, Koch & Yzerbyt, 2021). In this framework, warmth-related traits, such as trustworthiness, capture the motivation to cooperate, while competence equates with an ability to cooperate in the context of cooperation. Both traits have been discussed as important for partner selection (Barclay, 2013; Barclay, 2016).

In interdependent tasks where there is a conflict between individual and mutual outcomes (i.e., social dilemmas, Van Lange et al., 2014), people prefer partners with high warmth-related traits, compared to high competence (Cottrell, Neuberg & Li, 2007; Eisenbruch & Roney, 2019; Eisenbruch & Krasnow, 2022; Raihani & Barclay, 2016; Smith & Apicella, 2020). These findings are in line with The Moral Primacy Model (MPC) (Brambilla, Sacchi, Rusconi & Goodwin, 2021), which suggests that moral traits, such as trustworthiness, have a stronger

influence when assessing someone's beneficial or harmful intentions and thus are more valued in a partner. Prior experimental evidence corroborates this conclusion. For example, warmth-related traits, such as trustworthiness and agreeableness, are strongly preferred in partners across diverse relationships (Cottrell et al., 2007). Similarly, people tend to select poor-honest over rich-stingy partners in interdependent tasks involving a conflict of interests (Raihani & Barclay, 2016). This preference even extends to tasks that require both warmth and competence. For example, Eisenbruch and colleagues (2019) studied partner preferences in a task that involved conflicting interests, and in which people's productivity (e.g. competence) influenced the acquisition of mutually beneficial outcomes. However, even in this context, people still displayed a stronger preference for partners possessing high warmth-related traits.

When selecting partners for highly interdependent situations that allow for people to exploit their partner (e.g., social dilemmas), partner trustworthiness can be highly consequential for a person's future outcomes, compared to competence (Balliet & Van Lange, 2013; Brambilla et al., 2021). In these situations, people must trust that their partners are motivated to cooperate to achieve mutual benefit. Thus, in such tasks, trustworthiness is essential for partners to possess, while other traits may be merely luxuries (Li et al., 2004). However, many interdependent situations may not involve conflicting but corresponding interests (see Columbus, Molho, Righetti, & Balliet, 2021), in which trust is irrelevant in predicting mutual success (Balliet & Van Lange, 2013). In situations of corresponding interests, a partner's knowledge and intelligence may be more influential in affecting outcomes (Thomas, DeScioli, Haque, & Pinker, 2014).

Situational Affordances, Partner Preferences, and Partner Selection

Warmth-related traits may be preferred and prioritized over competence-related traits because, in the ancestral past, there was greater variation in the warmth of potential partners relative to variation in competence (Eisenbruch & Krasnow, 2022). However, an overreliance on warmth for partner selection can also result in suboptimal decisions, especially in contexts where other traits can impact outcomes, such as competence. In other words, for partner preferences, and consequently partner selection, to lead to successful joint undertakings, preferences should be adjusted according to *situational affordances*.

Affordances involve opportunities or barriers to the expression of certain traits (Gibson, 1979). For example, tasks that involve a conflict between individual and collective interests (e.g., social dilemma task) afford the expression of warmth-related traits, such as trustworthiness, to influence behaviors and task outcomes (see Balliet & Van Lange, 2013; Thielmann et al., 2020). In social dilemma tasks, preferences for partners higher on trustworthiness may ultimately lead to suitable partner selection and, consequently, beneficial outcomes. After all, a partner may be skilled but unmotivated to cooperate. However, in tasks affording competence (e.g., tasks that demand higher intelligence), people may be better off preferring higher competence-related traits in a partner (Greengross & Miller, 2011). For example, people should prefer a partner with high competence in situations with corresponding interests and in which partner ability is key for successful coordination and the acquisition of mutual benefits.

Prior literature has found evidence that people adjust their partner preferences for different types of relationships. Cottrell and colleagues (2007) showed that people prefer competence-related traits for relationships in which these traits (e.g., intelligence, knowledge) are more important, such as an employee-employer relationship. On the other hand, examining the effect of a person's perceptions of warmth and competence from writing styles, Clark et al.,

(2019) found that people preferred partners that were perceived to be higher on warmth-related traits for cooperative tasks, while competence-related traits were thought to be more important for competitive tasks.

To date, however, prior research has not systematically studied partner preferences in tasks that afford warmth-related traits or competence-related traits. For instance, Cottrell and colleagues (2007) focused on different relationships (e.g., romantic partners and study partners), with each relationship affording many different traits. Overall, preferences for relationship partners often involve shared interests over longer periods, where warmth-related traits are more important. Indeed, in their study, preferences for trustworthiness and cooperativeness were rated as highly important across all relationship types (Cottrell et al., 2007). On the other hand, previous research has also studied partner preferences in tasks that vary in competitiveness versus cooperativeness (see Clark et al., 2019). Still, this work has not systematically varied situational affordances for warmth- and competence-related traits. Thus, a contribution of this research is to test hypotheses about whether partner preferences are influenced by tasks affording different levels of warmth and competence-related traits to impact outcomes.

Partner Preferences and Partner Selection

Partner preferences hold significant potential for shaping long-term consequences linked to partner selection. Partner preferences represent an ideal partner prototype that people aspire to select under ideal circumstances. These ideals can serve as a benchmark against which people evaluate the suitability of potential partners in their daily lives (da Silva Frost, Wang, Eastwick, & Ledgerwood, 2022; Huang et al., 2019). For instance, specific preferences for traits such as trustworthiness or competence can inform decisions about whom to pursue or select as a partner for cooperative tasks. Existing research has highlighted the influence of partner preferences on

partner selection in close relationships, yet the evidence remains limited and inconsistent (Cottrell et al., 2007; Huang et al., 2019). This connection warrants further investigation, especially since some studies suggest that preferences do not consistently predict partner choice in close relationships. For instance, one study found that partner preferences are predictive when friendship partners are chosen based on profiles, but the influence of preferences on partner choice diminishes when individuals engage in live interactions with potential partners (Huang et al., 2019). Moreover, there remains a notable gap in understanding these relations within the framework of partner selection for cooperative tasks.

Thus, another contribution is to test the role of partner preferences for warmth and competence in predicting partner selection. Here, it was hypothesized that partner preferences will moderate the effect that the perceptions of warmth and competence have on partner selection.

Overview of the Studies

This paper focused on studying partner preferences for cooperative tasks affording warmth- and competence-related traits by investigating: (a) how task affordances influence the preferred traits in a partner, (b) whether task affordances play a role in the relationship between perceptions of task-relevant traits (e.g., warmth and competence) and partner selection, and finally, (c) whether partner preferences moderate the relation between person perceptions and partner selection.

To achieve these goals, four studies, one pilot, and one supplementary study were conducted. In the first two studies, participants rated the most important traits for an ideal partner in tasks that emphasized either warmth- or competence-related traits. In the third study, participants were asked to select among partners. They read vignettes describing five potential

partners varying in warmth and competence and then evaluated, selected, and ranked them. The fourth study followed a similar procedure but also asked participants to report the important traits of an ideal partner, and we used new vignettes and asked individuals to engage in a task with a described candidate.

The task affording warmth-related traits was a social dilemma that involved conflicting interests, where a partner's trustworthiness could affect the achievement of mutually beneficial outcomes. On the other hand, in the task affording competence-related traits, the participants had corresponding interests, and a partner's competence, measured as intelligence, could determine the achievement of mutually beneficial outcomes. It is expected that participants will adjust their partner preferences based on task affordances, favoring trustworthiness in warmth-affording tasks and competence in competence-affording tasks. Similarly, partner selection is anticipated to align with these preferences, with participants choosing partners with traits most relevant to the task.

Transparency and Openness

All hypotheses of the studies were preregistered (https://osf.io/r6hgw/?view_only=0972868ebbe94a2aa5bc58c30442a45e). The second study was re-conducted during the reviewing process and thus separately pre-registered (https://osf.io/f7rwt/?view_only=f8d716639c0b497ebc99f42aa71f5f05). There were minor deviations in the preregistered hypotheses. Firstly, the study numbers in the preregistration (S1-S4) do not represent study numbers in this paper, as the originally preregistered Study 1 is presented as a pilot study in the Supplementary Materials (all study numbers in the paper; refer to the respective study number in the paper, not the preregistrations). Secondly, as we were mostly interested in the traits of trustworthiness and competence in Study 1 and given the low

number of budgets invested in all other characteristics, we did not test the original two hypotheses (S2.H1 and S2.H2) that were originally mentioned in the pre-registration (see Table 1). Similarly, due to reasons discussed below in the Methods of Study 1, we were not able to study the differences between traits people treat as luxuries and necessities, which were originally preregistered (S2.H3) (for the explanation on deviations regarding the Study Design, see SI, Note 1). Additionally, Study 2 was repeated and newly preregistered. The first version of the second study is presented here as a supplementary study (see SI, Note 9), while the re-conducted study is presented as Study 2 in this manuscript. Thus, the reader is referred to the corresponding preregistration (see link above) when investigating the hypotheses and the study design of Study 2.

We report all preregistered hypotheses that are relevant to these studies in Table 1, including any deviations from the preregistration and then findings. For all studies, we report how we determined our sample size, all data exclusions, all measures, and all manipulations relevant to the current manuscript. The data collection received ethical approval from the main author's institution.

Table 1

List of preregistered hypotheses, deviations, and whether research supported the hypothesis.

Study	Preregistered hypotheses (OSF)	Deviation	Findings
Study 1 & Study 2	People designing partners for the Joint Trust Task will invest more in partner's trustworthiness, compared to people designing partners for the Joint Competence Task. (S2.H4 & H1)		Supported
Study 1 & Study 2	People designing partners for the Joint Competence Task will invest more in partner's competence, compared to people		Supported

	designing partners for the Joint Trust Task. (S2.H5 & H2)		
Study 1	People designing partners for the Joint Trust Task will invest bigger proportion of their budget in partner's trustworthiness, relative to the other characteristics (S2.H1)	Hypotheses were stated about comparing the afforded trait to all the other characteristics. However, given that trustworthiness and competence were reported by participants as the most important traits across tasks, and given the task affordances, we decided to directly compare these two traits when testing these hypotheses.	Not Supported *
Study 1	People designing partners for the Joint Competence Task will invest bigger proportion of their budget in partner's competence, relative to the other characteristics. (S2.H2)		Supported
Study 3	Overall, individuals will select individuals who are perceived to be higher on warmth and higher on competence. (S3.H1)	None	Supported
Study 3	Participants selecting partners for the Joint Trust Task will select individuals that are perceived as being higher on warmth, compared to the Joint Competence Task. (S3.H2)	None	Supported
Study 3	Participants selecting partners for the Joint Competence Task will select individuals that are perceived as being higher on competence, compared to the Joint Trust Task. (S3.H3)	None	Supported
Study 4	Participants with a higher preference for warmth related traits (i.e. trustworthiness) will be more likely to select partner whom they perceive to be higher on those traits. (S4.H1a)	None	Supported
Study 4	Participants with a higher preference for competence related traits (i.e. intelligence) will be more likely to select partner whom they perceive to be higher on those traits. (S4.H1b*)	None	Supported

Note: Each preregistered hypothesis includes a notation about which preregistration document on OSF contains the hypothesis and the numbering of the specific hypothesis within that document (e.g., S2.H4).

* For this specific finding, the mean values were in the predicted direction but were not statistically significant.

* The hypothesis label S4.H1b in the manuscript refers to the second hypothesis in the preregistration labeled S4.H1a.

Study 1: Task affordances and partner preferences for cooperative tasks

Study 1 investigates whether partner preferences are affected by task affordances. In this study, participants were asked to design ideal partners by investing in 10 different traits. Participants designed a partner for either a task affording the expression of warmth- or competence-related traits to impact outcomes.

Method

Participants

Overall, 310 participants were recruited via an online recruiting platform Prolific (www.prolific.co). A priori power analysis using G*Power (version 3.1) showed that we needed at least 152 participants to observe a small effect size $\eta^2 = 0.01$. However, we decided to go for a larger sample size to afford to eliminate participants if they failed to pass the comprehension checks. Firstly, all participants with repeated IP Addresses were removed, decreasing the sample size ($n = 275$). Additionally, only the participants who completed the full study and participants who had at least one correct answer out of three comprehension questions were included in further analysis ($n = 246$) ($M_{age} = 29.61$, $SD_{age} = 9.18$). The comprehension questions included questions about the task (Example: “*If you give all 10 MU to the other person, and the other person gives 10 MU to you*”). Given the specificity and similarity between the questions, we reasoned that already having one correct answer demonstrates that the participants watched the video on the task.

In total, 123 participants identified as female, 119 as male, three as non-binary, and one participant preferred not to say. Sensitivity analysis using G*Power software indicated that given our experimental design and sample size, the lowest effect size we could observe in a mixed

ANOVA would be partial $\eta^2 = 0.01$ (with 246 participants, a .05 alpha error rate, and 80% power).

Measures

Partner preferences and trait importance were measured using a partner design task (Li et al., 2002; Cottrell et al., 2004). In the design task, participants were given a list of traits to which they needed to allocate money. Participants were told that the money allocated is proportional to the specific trait being more expressed in their future partner (Example of the instruction: “*The more coins allocated to a characteristic, the more expressed this characteristic will be in your partner. Remember, you must allocate a certain number of coins to each characteristic, with the lowest possible amount being 0 coins.*”). The list of traits was adopted from prior literature and extended to include the most reported traits in a pilot study (see SI, Pilot Study 1). The list included 10 traits: *trustworthiness* (trustworthy, honest), *competence* (intelligent, resourceful, creative, rational), *agreeableness* (agreeable, interpersonally warm), *extraversion* (extravert, outgoing, sociable), *conscientiousness* (conscientious, organized, perfectionist), *emotional stability* (emotionally stable, calm), *open-mindedness* (open-minded, imaginative, sensitive to art), *predictability* (predictable, consistent, reliable), *attractiveness* (physically attractive), and *assertiveness* (assertive, self-assured, confident). This task was repeated three times with three different budget sizes (100, 200, and 300)¹.

¹ Non-verbal intelligence was measured using the non-verbal intelligence task (UCMRT; Pahor et al., 2019). This task included 23 intelligence problems where individuals needed to decide which shape is missing in the matrix to continue the sequence. The intelligence task was only used to familiarize participants with the task problems that were used in the task affording for competence-related traits (see Experimental Manipulation of Cooperative Task Affordances).

We included a manipulation check that measured the extent to which participants correctly classified the task affordances. Specifically, at the end of the study participants rated how strongly the decision task emphasized trustworthiness or competence on a 5-point Likert scale (1 = “Not at all” to 5 = “A great deal”) (Example: “In your opinion, on a scale from 1 to 5, how strongly does the decision task you needed to select a partner for emphasize: a) Cooperativeness and b) Competence.”).

Experimental Manipulation of Cooperative Task Affordance

The *Joint Competence Task* was designed as an interdependent task where each participant could ensure a benefit for themselves and their partner. Here, each participant was given an initial endowment that was proportional to their performance in the non-verbal intelligence task (i.e., UCMRT; Pahor, Stavropoulos, Jaeggi & Seitz, 2019). Each point earned in the UCMRT test was worth 0.50 pounds (max. 10 pounds). When matched with another individual, their endowment and their partner’s endowment are summed up and placed in the shared pool. Each pair had its own shared pool. The money in the shared pool could be gained by correctly solving one additional problem taken from an unseen version of the UCMRT intelligence task. There were three possible outcomes based on their performance on this additional item: 1) if both participants provided the correct response, then both participants received half of the Monetary Units (MU) from the shared pool; 2) if one participant did not provide the correct response, then each participant received 1/4 of the amount in the shared pool, and 3) if both participants provided incorrect responses, then both participants receive nothing, and lose any funds provided in the shared pool. In summary, in the Joint Competence Task, people are interdependent with corresponding interests. Everyone earns more money when both

themselves and their partner correctly solve the given problem. Hence, this task affords partner competence to influence outcomes of the task, while warmth is less afforded by the task².

The *Joint Trust Task* is a modified version of a prisoner's dilemma (Rapoport & Chammah, 1965). In this task, participants are each given 10 MU as an initial endowment. Each MU was equivalent to 0.50 pounds. Participants decide how to distribute the money between themselves and their partner in the task. MUs they decide to give to the other person were worth more to their partner than to themselves (i.e., multiplied by 1.20). Participants were free to choose how much to give to their partner (0-10 MU). The maximum amount is earned by keeping all MU for oneself but receiving their partner's entire endowment. Thus, there is an incentive to exploit one's partner in this task. However, both participants in the task acquire a better outcome if they both decide to allocate their entire endowment to their partner (i.e., 6 euros), relative to both keeping their endowments to themselves (i.e., 5 euros). In summary, in this task, participants are interdependent and face a conflict of interest. Each person has an incentive to exploit their partner; as such, this task affords each person's concern for their partner's outcome (i.e., warmth, trustworthiness) to influence outcomes, while partner competence is less afforded to impact outcomes in this task. Visualizations of the task and detailed descriptions are provided in Supplementary Materials (see Note 2).

² Due to the nature of this task, having a competent partner is equivalent to having a skillful and intelligent partner to solve the abstract-problem solving task, therefore in the remainder of the paper competence and intelligence are used as synonyms.

Procedure

At the beginning of the study, all participants first read the informed letter and were asked to provide consent for participation and data usage. Next, participants were randomly assigned to one of the two experimental conditions. Half of the participants were assigned to the task affording competence-related traits ($n = 125$), and the other half were assigned to the task affording warmth-related traits ($n = 121$). In each condition, the participant watched a 3-minute video instruction explaining the specific task and completed three comprehension questions related to the task. To improve comprehension of the task affording competence, all participants in that condition also completed a UCMRT non-verbal intelligence task (see Pahor et al., 2019), which was a key aspect of the task. Afterward, all participants were presented with a list of 10 traits and were asked to design an ideal partner to do the task with. They did that by allocating a given budget to these 10 traits. All participants were told that the amount given corresponds with the perceived importance of the trait for the partner to have. This method was already used and validated in prior research to measure partner preferences in romantic relationships (Li et al., 2002). To capture the differences between which traits are deemed essential and which traits are treated as luxuries, participants made the allocation decisions to the 10 traits three separate times, each involving a different budget size (100, 200, and 300 coins). The assumption was that under restricted budgets people would invest only in the most essential traits, given their restriction in the budget, but with larger budgets (200 or 300) they would have more space to invest in traits that are appreciated in partners – *luxuries* – representing traits that are not essential for a partner to possess, but nice to have, while still investing most money in the necessary traits. The list of traits was acquired through the results of a pilot study (for more details, see SI) and an extensive literature review. In the pilot study, participants freely reported the most important traits of an

ideal partner for an interdependent task. Participants mostly reported warmth- and competence-related traits such as trustworthiness, agreeableness, intelligence, and creativity. These frequently reported traits were used in the list of 10 partner traits in this study.

Results

Manipulation Check

Firstly, as a sanity check, we investigated whether participants perceived differences between the two tasks in terms of the traits they emphasized. Two mean-comparison tests were conducted to compare opinions on how many people thought the tasks highlighted either warmth-related or competence-related traits. The degrees of freedom might diverge from what is expected due to missing responses.

Results showed that both tasks were seen as emphasizing their corresponding traits. Participants selecting partners for the Joint Trust Task rated cooperativeness (a warmth-related trait) higher ($M = 4.12$, $SD = 0.94$) than those in the Joint Competence Task ($M = 3.05$, $SD = 1.15$; $t(241) = 7.87$, $p < .001$, $d = 1.01$). Conversely, participants in the Joint Competence Task rated competence higher ($M = 4.36$, $SD = 0.84$) compared to the Joint Trust Task ($M = 3.65$, $SD = 1.08$; $t(241) = 5.76$, $p < .001$, $d = .74$).

Main Analyses

In terms of different budget sizes, the results show that participants allocated very similar budgets across the three different budget sizes³. Therefore, we aggregated the results across the

³ Specifically, there were medium to high correlations (average correlations ranged from $r_s(244) = .51$ to $.81$ with an average $p < .001$) between the budget allocations across the three different budget sizes (see SI, Note 4, Table 8).

three-size budgets⁴. This decision removes our ability to explore which traits were viewed as luxuries and necessities (Li et al., 2002), but the approach addresses the problem of multicollinearity in the analysis.

As a sanity check, we wanted to test if participants differentiated between characteristics when allocating the budget. A one-way robust repeated measure analysis of variance (ANOVA) was fitted with all characteristics as predictors and the proportion of the allocated budget as an outcome variable. The results showed a significant main effect of characteristics ($F(3,502) = 152.58, p < .001$ ⁵) indicating that participants did not evaluate all characteristics as equally important. Descriptive statistics showed that overall, the highest proportion of the budget was given to competence ($M = 0.29, SD = 0.19$) and trustworthiness ($M = 0.18, SD = 0.12$). Here, the means represent the ratio of the invested budget.

Lastly, to test the preregistered hypotheses on the link between person preferences and task affordances, a robust mixed ANOVA on trimmed means was run using the WSR2 package in R (Mair & Wilcox, 2020). This was run as a confirmatory analysis. Trimmed means discard a certain percentage of values on both ends of the distribution. Here, default percentage values of trimmed means are used for each robust test (Mair & Wilcox, 2020). We opted for a robust model due to deviations from parametric test assumptions, specifically normality of distribution

⁴ To do so, a proportion of coins allocated to a trait was calculated for each budget size and then averaged across the budget size conditions (see SI). Despite collapsing the variance due to budget sizes, the median values indicate that in the Joint Trust Task participants invested most in competence and trustworthiness, while agreeableness, predictability, and conscientiousness and open mindedness were considered luxuries (see SI). A similar pattern was observed in the Joint Competence Task, where competence was considered most important, and trustworthiness and the other traits were treated as luxuries (see SI).

⁵ As we were unable to calculate the effect size for the robust ANOVA, a non-robust ANOVA was run to acquire the effect size for the analysis (Results: $F(4,1004) = 141.98, p < .001$, partial $\eta^2 = .35$)⁵

and homoscedasticity. We fitted a robust-mixed model ANOVA with the Type of task (Joint Trust Task and Joint Competence Task) as the between-subject, Characteristics (Trustworthiness and Competence) as the within-subject variable, as well as their interaction effect as the predictors, and proportion of budget allocated as the outcome variable. We limited this analysis to the partner traits of Trustworthiness and Competence since these were the traits afforded by the task and the traits for which we preregistered the hypotheses.

As expected, there was a significant interaction effect between the type of task and partner characteristic ($Q(1, 135) = 77.28, p < .001$)⁶, indicating that participants allocated their budgets differently to trustworthiness and competence when designing partners for the Joint Competence Task and Joint Trust Task⁷. To investigate this interaction effect further, post-hoc comparisons on trimmed means were done.

Post-hoc comparisons on trimmed means show that participants invested more of their budget in trustworthiness in the Joint Trust Task compared to the Joint Competence Task ($t_y(139) = 4.73, p < .001, d_t = 0.45$ ⁸; trimmed $M_{diff} = 0.07$). On the other hand, participants invested more of their budget in competence in the Joint Competence Task, compared to the Joint Trust Task $t_y(127) = 8.69, p < .001, d_t = 0.70$; trimmed $M_{diff} = 0.18$). Despite being mostly interested in

⁶ A non-robust ANOVA was also run to acquire the effect size on the three effects (Results: Type of Task ($F(1,244) = 25.62, p < .001$, partial $\eta^2 = .033$); Characteristics ($F(1,244) = 48.96, p < .001$, partial $\eta^2 = 0.12$); Interaction Effect ($F(1,244) = 76.88, p < 0.001$, partial $\eta^2 = 0.176$))

⁷ All other variables from the model had significant main effects, including type of task ($Q(1, 148) = 24.81, p < .001$) where more budget was given in the Joint Competence Task to both trustworthiness and competence ($M_{trimmed} = 0.23, SD_{trimmed} = 0.21$), compared to Joint Trust Task ($M_{trimmed} = 0.19, SD_{trimmed} = 0.12$) and characteristics ($Q(1, 135) = 55.34, p < .001$), where more budget was given to competence ($M_{trimmed} = 0.27, SD_{trimmed} = 0.20$) compare to trustworthiness ($M_{trimmed} = 0.17, SD_{trimmed} = 0.12$).

⁸ t_y and d_t represent robust version of a t-test and Cohen's d on 20 % trimmed means (see Mair and Wilcox, 2020)

Trustworthiness and Competence, we also ran an exploratory study testing the differences between tasks in the remaining eight characteristics. For more details, see SI, Note 6.

To test if the same pattern would be observed within the specific task, we ran additional exploratory comparisons on within-task values, as we originally preregistered within-task comparisons that compared whether participants gave to Trustworthiness and Competence more compared to other characteristics. However, as the proportion of the allocated budget was relatively low for other characteristics, we decided to only include competence, trustworthiness, and agreeableness as a sanity check as it was the third highest trait in the Joint Trust Task (see SI for descriptive information). These results showed that, in the Joint Competence task, participants invested more of their budget in competence, compared to trustworthiness ($\psi^{\hat{}} = 0.22, p < .001, d_t = 2.86$), while more was invested in trustworthiness than in competence in the Joint Trust Task ($\psi^{\hat{}} = 0.02, p = .09, d_t = 0.85$)⁹, but the latter difference was not statistically different. Participants also did not give more to agreeableness than to trustworthiness or competence¹⁰. Significance testing was compared to Bonferroni's corrected p -value for multiple comparisons $p = .005$.

Discussion

Study 1 found some initial support for the idea that people prefer partner traits aligned with the type of task affordance. Across both tasks, participants preferred partners who were

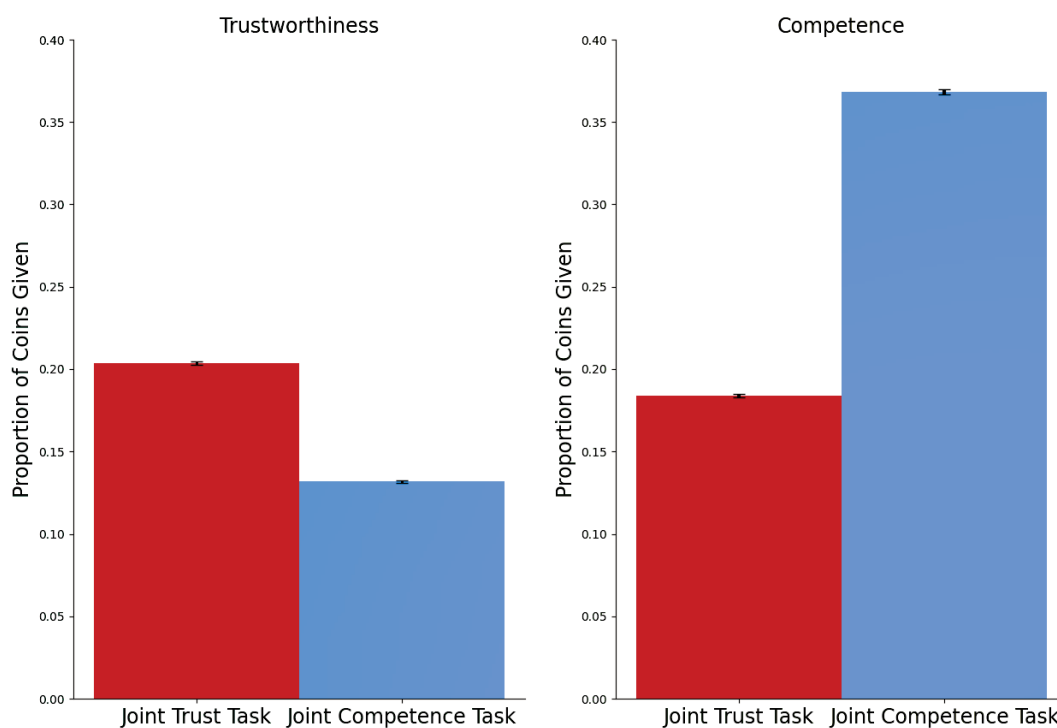
⁹ Psihat denotes the pairwise trimmed mean differences, 95% CI and the p -values are adjusted for multiple testing (see Mair and Wilcox, 2020).

¹⁰ Joint Trust Task: Agreeableness vs. Trustworthiness ($\psi^{\hat{}} = -0.07, p < .001, d_t = -3.51$); Agreeableness vs. Intelligence ($\psi^{\hat{}} = -0.05, p = .003, d_t = -2.61$). Joint Competence Task: Agreeableness vs. Trustworthiness ($\psi^{\hat{}} = -0.07, p < .001, d_t = -4.49$); Agreeableness vs. Intelligence ($\psi^{\hat{}} = -0.30, p < .001, d_t = -13.92$)

higher on trustworthiness and competence. However, people allocated a higher amount of their budget to their partner's competence in the Joint Competence Task than in the Joint Trust Task. Similarly, participants allocated a greater percentage of their budget to their partner's trustworthiness in the Joint Trust Task than in the Joint Competence Task. Also, within the Joint Competence Task, people prioritized partner's competence, compared to trustworthiness. However, in the Joint Trust Task, participants similarly preferred their partner's trustworthiness and competence. All observed results aligned with the preregistered hypotheses, except for the lack of significant difference between the preference for competence and trustworthiness in the Joint Trust Task.

Figure 1

Average (trimmed) proportions of MU allocated to Partner Competence and Trustworthiness between tasks (Study 1)



Study 2: Task affordance affects a trade-off between partner trait preferences

In Study 1, people adjusted their partner preferences to fit the task affordance. To further test the relative preference for trustworthiness versus competence in tasks that differentially afford the expression of these traits, in Study 2, participants nominated the single most important trait for their partner in the task. This study was conducted twice due to partial preregistration. The first version is provided as a supplementary study (see SI, Note 9), while the second version is presented here following a full preregistration. The second version replicated all the findings from the first version of the study.

Method*Participants*

Two hundred forty-one participants were recruited via the online platform Prolific (www.prolific.co). An apriori power analysis using G*Power showed that we need 240 participants to observe a difference between independent proportions, which was already observed in a supplementary study (see SI, Note 9). Similar to Study 1, only participants who answered one out of three of the comprehension questions correctly were included in further analysis, reducing the number of participants to 225 ($M_{age} = 41.28$; $SD_{age} = 12.65$). In total, 116 participants identified as female, 108 as male, and one identified as non-binary. All participants reported their sex and age. The procedure was the same as in Study 1. Participants were randomly assigned to either the task affording for competence (Joint Competence Task, $n = 109$) or the task affording for trustworthiness (Joint Trust Task, $n = 116$). Sensitivity analysis using G*Power software indicated that the proportion needed to detect a minimum detectable effect size, given our experimental design, sample size with 225 participants, .05 alpha error rate, 80%

power, was $p = .32$ when we used 16% of participants reporting competence in the Joint Trust Task as the first proportion.

Measures

Partner preferences and trait importance were measured similarly to Study 1. Participants were provided with the same list of 10 partner traits used in Study 1. However, instead of allocating coins to traits, in this study, participants selected one trait they thought to be most essential for a partner to have.

We assessed the extent to which people correctly classified the task affordances with the same manipulation check used in Study 1. However, rather than asking for the importance of cooperativeness, as in Study 1, participants were asked to rate the importance of trustworthiness.

Procedure

The procedure in Study 2 was similar to that of Study 1, where participants were asked to design an ideal partner for a specific task. However, unlike Study 1, participants in Study 2 were required to select a single trait they considered most essential for a partner to have in either the Joint Trust Task or the Joint Competence Task rather than allocating coins to various traits. This change in the measurement of partner preferences allows for the assessment of the trade-offs participants make between different traits.

Results

Similar to Study 1, the analysis of the manipulation check shows that participants correctly recognized that the two tasks afforded corresponding traits (see SI, Note 7).

Nominations of the most important trait provided an additional test of a potential trade-off between traits that are afforded by the tasks (Sparks et al., 2020). Table 2 presents the percentages with which each trait was selected by participants. The chance level indicates the

potential for the trait to be selected by chance alone. Binomial tests comparing the observed and expected frequencies indicate that when selecting the most important trait for a partner in the Joint Trust Task, only trustworthiness and competence were reported more than would be expected by chance (trustworthiness: 50.00 %, $p < .001$, $RR = 5.00$; competence: 16.38 %, $p = .029$, $RR = 1.62$). Other traits were not significantly more reported than would be expected by chance. On the other hand, only competence was reported more than chance in the Joint Competence task (59.63 %, $p < .001$, $RR = 5.96$), while trustworthiness was not (8.26%, $p = .634$, $RR = 0.83$).

To test the preregistered hypotheses, in a confirmatory analysis, we compared the proportions of nominations for trustworthiness and competence between the two tasks, we ran two chi-squared tests for independence (two-proportions z-test). As expected (see Table 1 for preregistered hypotheses for Study 2), participants designing ideal partners for the Joint Trust Task nominated trustworthiness to be more important for a partner (50.00 %), compared to participants designing partners for the Joint Competence Task (8.26 %) ($\chi^2(1) = 44.85$, $p < .001$, $w = .46$). Similarly, significantly more participants reported competence (59.63 %) to be the most important trait for a partner to have in the Joint Competence Task, compared to 16.38 % of participants selecting competence when designing partners for the Joint Trust task ($\chi^2(1) = 43.11$, $p < .001$, $w = .45$).

These patterns were also partially observed in an exploratory and supplementary analysis to see whether similar patterns occurred within the specific tasks. For more details, see SI, Note 8.

Discussion

In Study 2, when designing ideal partners for the Joint Trust Task, more participants indicated trustworthiness as the most important partner trait compared to participants designing partners for the Joint Competence Task. Similarly, participants designing partners for the Joint Competence Task selected competence as the most important partner trait more often than participants designing a partner for the Joint Trust Task. Overall, these results indicate that people can recognize which traits are afforded by the task and adjust their partner preferences accordingly to select a suitable partner.

Study 3: Role of Task Affordance in Partner Selection for Cooperative Tasks

Understanding and recognizing partner preferences is useful only if perceptions of preferred traits are predictive of an individual's partner selection. For instance, if people prefer partners that are higher on trustworthiness or competence, then they are expected to select partners they perceive to be higher on these traits. In Study 3, we test this hypothesis.

Table 2

Percentages of Trait Nominations for an Ideal Partner by Type of Task (Study 2)

Trait	Most essential nominations (%)	
	Joint Trust	Joint Competence
	Task	Task
	(Chance level: 10 %)	
Trustworthiness (<i>trustworthy, honest, truthful</i>)	50.00	8.26
Competence (<i>intelligent, creative, resourceful</i>)	16.38	59.63
Predictability (<i>predictable, consistent, reliable</i>)	11.21	11.01
Assertiveness (<i>assertive, self-assured, confident</i>)	0.86	3.67
Agreeableness (<i>agreeable, interpersonally warm</i>)	12.07	2.75

Open-mindedness (<i>open-minded, imaginative, sensitive to art</i>)	4.31	7.34
Emotional Stability (<i>emotionally stable, calm</i>)	1.72	0.92
Conscientiousness (<i>conscientious, organized, perfectionist</i>)	1.72	6.42
Attractiveness (<i>physically attractive</i>)	0.86	0.00
Extraversion (<i>extravert, outgoing, sociable</i>)	0.86	0.00

Note: Highlighted numbers represent the traits that were reported significantly more than would be the case due to chance

Method

Participants

In total, 234 participants were recruited via the online recruiting platform Prolific (www.prolific.co). The number of participants was selected to be close to the number of participants adopted in the first two studies. Only participants who answered more than one out of three comprehension questions correctly were included in further analysis, reducing the sample size to 203 participants ($M_{age} = 39.36$, $SD_{age} = 13.17$). In total, 117 participants identified as male, 85 as female, and one participant filled in the option “Other”. Similar to the first two studies, half of the participants were randomly assigned to the Joint Trust task ($n = 100$), and the other half was assigned to the Joint Competence Task ($n = 103$).

Power Analyses

To run the power analyses for the regression coefficient, simulations were run with R (version 4.3.2) using the *simr* package (Green & MacLeod, 2016). We ran 10 simulations for each variable. The minimal regression coefficient we would observe for perceptions of trustworthiness with 80 % power and 5% error rate with our current sample size is $b = 0.24$,

while for competence, the lowest value of the regression coefficient is $b = 0.28$. Additionally, looking at the effects of these perceptions over different tasks, the smallest regression coefficient we would observe for perceptions of trustworthiness in the Joint Trust Task is $b = 0.43$. For competence, the smallest observed regression coefficient in the Joint Competence Task would be $b = 0.43$. Regarding differences in proportions, power analysis in G*power (3.1) showed that the smallest observable effect size would be $w = .25$ (with a 203 sample size, 5% error rate, and 80% power).

Measures

Person Perceptions of Warmth- and Competence-related traits (trustworthiness and intelligence) were measured using established measures of warmth and competence (Kirmani et al., 2017, Leach et al., 2007). Warmth ($\alpha_{HW-HC} = .84$; $\alpha_{HW-LC} = .79$; $\alpha_{LW-HC} = .72$; $\alpha_{LW-LC} = .76$; $\alpha_{neutral} = .76$) was measured with a three-item scale, measuring trustworthiness and kindness (i.e., “*How trustworthy/kind/sociable is this person?*”), while competence was measured through intelligence and skillfulness (i.e., “*How intelligent/skillful/competent is this person?*”). Both perceptions were measured on a 7-point Likert scale (Example: 1 – “Extremely unintelligent” to 7 – “Extremely intelligent”) ($\alpha_{HW-HC} = .85$; $\alpha_{HW-LC} = .86$; $\alpha_{LW-HC} = .86$; $\alpha_{LW-LC} = .80$; $\alpha_{neutral} = .78$)

Partner Selection was measured with responses to a single question after reading each vignette (i.e., “*Do you want to do the decision task with this person?*”). Participants could provide a yes or no response.

Vignettes

Vignettes briefly described five people who differed on how much they possessed warmth- and competence-related traits. All vignettes were created using a large language model ChatGPT (version 3.5), where we prompted the system to provide descriptions of four people

that were high or low on warmth-related traits, such as trustworthiness and friendliness, as well as competence-related traits, such as intelligence and capability. No words from the person evaluation questions were used in the descriptions (i.e., trustworthy/intelligent). Creating all possible combinations resulted in four vignettes (level (high x low) and trait (warmth x competence). A neutral vignette was used to create a baseline condition. Additionally, to reduce the effect of gender on person perceptions, gender-ambiguous names were used in all vignettes (e.g., Taylor, Riley, Casey) together with neutral pronouns (e.g., “they”) (see SI, Note 10). The vignettes in this study were used to generate a broad distribution of person perceptions of warmth- and competence-related traits (Example of High Warmth – Low Competence Vignette: *Taylor is a good-natured individual who prioritizes relationships and connections above technical skill or knowledge. They may struggle with certain tasks or responsibilities, but they make up for it with their empathy and willingness to help others.*) For the rest of the vignettes see SI, Note 10.

Procedure

At the start of the experiment, all participants received an information letter explaining the study and provided informed consent. Participants were then randomly assigned to one of two experimental conditions: the Joint Trust Task condition or the Joint Competence Task condition. Participants in each condition were shown video instructions detailing the respective task and completed comprehension questions to ensure they understood the instructions. Additionally, those assigned to the Joint Competence Task condition were asked to complete the UCMRT intelligence task to gauge the difficulty of the task. Next, participants were informed explicitly that the objective of the study was to select a partner for the described joint task. Following this, they were presented with five **vignettes**, each briefly describing the profile of a

potential partner. The profiles varied systematically in terms of two traits: warmth-related traits, such as trustworthiness, and competence-related traits, such as intelligence. One of the five vignettes described a neutral profile (i.e., the potential partner was neither high nor low in warmth or competence). To avoid order effects, the presentation of the vignettes was counterbalanced. For each vignette, participants completed two tasks: a) indicating whether they would like to perform the joint task with the described individual and b) rating the described individual on two scales measuring warmth-related traits and competence-related traits. The order of the partner selection and candidate evaluation questions was also counterbalanced across participants. Importantly, participants in this phase were only required to select and evaluate potential partners; they did not engage in the actual joint tasks.

Results

Manipulation Check

Participants indeed rated the vignettes differently on warmth-related traits ($F(4,808) = 437.89, p < .001$, partial $\eta^2 = .68$) and competence-related traits ($F(4,808) = 246.73, p < .001$, partial $\eta^2 = .55$). Comparisons between warmth and competence showed that person perceptions were aligned with the descriptions of the candidates (for further details see SI, Note 11 and Note 12).

Main Analysis

How participants are described can differ from how they are perceived by participants. Thus, the main analyses and pre-registered hypotheses were about how a person's perceptions of warmth and competence-related traits inform partner selection instead of looking at the objective description. The following analyses also enabled us specifically to study perceptions of trustworthiness. Trustworthiness was selected to maintain the separation between other warmth-

related traits but also maintain consistency, as this trait was used in the previous two studies. For this purpose, a mixed logistic regression was fitted with partner selection as a binary outcome variable. We fitted two models. In the first model, perceptions of trustworthiness and competence were added as fixed effects. In the second model, we added the fixed term of interaction between the perception of trustworthiness and type of task and perceptions of competence and type of task to the model. Subject identifiers and vignettes were used as random effects in both models to address the repeated measures design and the experimental context. Both models were run to test preregistered hypotheses (see Table 1, Hypothesis S3.H1, S3.H2, and S3.H3).

In the first model, there were significant main effects of perceptions of trustworthiness and competence on partner selection. Candidates perceived to be higher on trustworthiness ($b = 0.69$, $SE = 0.11$, $OR = 1.99$, $z = 6.11$, $p < .001$) and competence ($b = 0.38$, $SE = 0.11$, $OR = 1.46$, $z = 3.40$, $p = .001$) had a higher likelihood of being selected as partners, overall. This model explained 14.52 % of the marginal variance (38.59 % conditional). These findings are in line with the preregistered hypothesis (see Table 1, Hypothesis S3.H1).

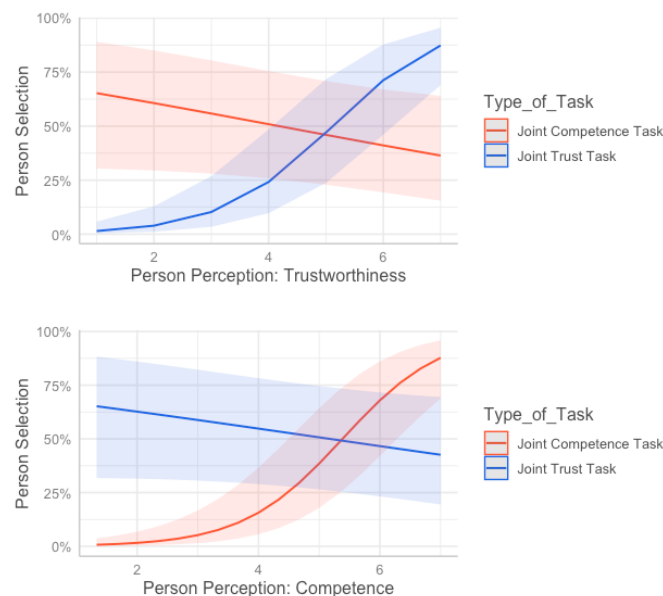
The results of the second model showed that there was a significant interaction effect between trustworthiness and the type of task, as well as competence and the type of task in predicting partner selection. Results show that the relation between trustworthiness and selection was stronger in the Joint Trust Task, compared to the Joint Competence Task ($b_{JTT} = 1.71$, $SE = 0.23$, $OR_{JTT} = 5.53$, $z = 7.37$, $p < .001$). Similar results were found for perceptions of competence, where the relationship between competence and partner selection was lower in the Joint Trust Task, compared to the Joint Competence Task, ($b_{JTT} = -1.74$, $SE = 0.24$, $OR_{JTT} = 0.24$, $z = -7.13$, $p < .001$) (see Figure 2). This model explained 28.82 % of the marginal variance of partner

selection (54.80 % conditional variance). The remaining results on the main effects that were included in the model are provided in SI, Note 14.

Simple effects of interaction effects further showed that only perception of trustworthiness ($b = 1.16$, $SE = 0.19$, $OR = 3.19$, $z = 6.12$, $p < .001$) was a significant predictor of partner selection in the Joint Trust Task, while perception of competence was not ($b = 0.21$, $SE = 0.17$, $OR = 1.23$, $z = 1.21$, $p = .227$). However, in the Joint Competence Task, competence was a significant predictor of partner selection ($b = 1.22$, $SE = 0.25$, $OR = 3.39$, $z = 4.92$, $p < .001$), while perceptions of trustworthiness did not predict partner selection ($b = 0.04$, $SE = 0.19$, $OR = 1.04$, $z = 0.21$, $p = .837$). In other words, trustworthiness was more predictive of one's likelihood to be selected in the Joint Trust Task, while competence was more predictive of partner selection in the Joint Competence Task. These results are in line with preregistered hypotheses S3.H2 and S3.H3 (see Table 1).

Figure 2

Interaction between person perceptions of warmth and competence and the type of task predicting partner selection



Exploratory Analysis

Besides testing the association between subjective perceptions and partner selection, we also tested whether candidates were preferred differently in the Joint Competence and the Joint Trust Task. As we were only interested in testing the differences between vignettes where candidates had differing and conflicting levels of warmth and competence (e.g., high warmth and low competence), we ran two proportion z-test which indicated that in the Joint Trust Task, more participants selected candidates that were higher on trustworthiness and kindness, but low on competence-related traits, compared to the Joint Competence task ($\chi^2(1) = 70.41, p < .001, w = 0.60$) (see proportions in SI, Note 13). However, in the Joint Competence task, more participants selected candidates that were high on competence but low on warmth-related traits ($\chi^2(1) = 49.73, p < .001, w = 0.51$), relative to the Joint Trust Task. These results replicate the pattern of results observed in Study 2.

Discussion

Study 3 found that person perceptions of trustworthiness and competence predicted partner selection, and these associations were moderated by type of task affordance. Specifically, candidates that were perceived to be higher on trustworthiness had a greater likelihood of being selected as partners in the Joint Trust Task relative to the Joint Competence Task. However, participants preferred to be paired with highly competent partners in the Joint Competence Task relative to the Joint Trust Task. While participants generally preferred candidates that were high on both traits, when presented with candidates that were high on one trait but low on the other, participants selected candidates that were high on the trait afforded by the task. For example, in the Joint Trust Task, participants preferred to be paired with candidates who were high on warmth and low on competence, compared to in the Joint Competence Task. However, when

people selected partners for the Joint Competence Task, they preferred candidates that were higher on competence and low on warmth compared to the Joint Trust Task.

Study 3 has some limitations. Due to the nature of the measure of warmth, which also measures kindness and sociability, trustworthiness was operationalized using a single-item measure. Another limitation of the current study is that the vignettes presented fictional candidates. Lastly, while the current study demonstrates that the relation between person perceptions and partner selection is moderated by task affordance, this study didn't directly address the role of partner preferences in partner selection. Study 4 addresses these limitations.

Study 4: Partner Preferences, Person Perceptions, and Partner Selection

Until now, it has been found that people adjust their partner preferences according to task affordances and that person perceptions predict partner selection. However, partner preferences are relevant only if preferences regulate how person perceptions inform partner selection. Prior research indicated previous doubts about their predictiveness in romantic contexts (Huang et al., 2019). Thus, to test if preferences regulate how person perceptions inform partner selection, we replicate Study 3 while including a measure of partner preferences.

Method

Participants

In total, 236 participants were recruited via the online recruiting platform Prolific (www.prolific.co). The sample size was selected to be close to the sample size used in previous studies. All participants who had the same IP addresses were removed from the study, reducing the sample size to 228 participants. Participants who answered more than or equal to two comprehension and attention questions correctly were included in further analysis, which further reduced the sample size to 223 participants ($M_{age} = 42.97$, $SD_{age} = 12.95$). In total, 126 participants identified as male, 95 as female, and two participants filled the category "Other". All

participants were randomly assigned to one of the two tasks ($n_{\text{Joint Trust Task}} = 112$; $n_{\text{Joint Competence Task}} = 111$).

Power Analyses

To run power analyses for the regression coefficient, simulations were run with R (version 4.3.2) using the *simr* package (Green & MacLeod, 2016). We ran 10 simulations for each variable. Concerning the person perceptions of trustworthiness and competence in the first main model, the smallest obtained regression coefficient with 80% power for perceptions of competence would be $b = 0.45$ and perceptions of trustworthiness $b = 0.35$. Additionally, in the second model for the estimate of partner selection in situations where participants were selected and cooperative behavior in the Joint Trust Task, the smallest observer coefficient would be $b = 0.65$. Lastly, in the model exploring the mutual payoffs and partner selection, the smallest observed effect for partner selection in cases when participants are selected in the Joint Trust Task would be $b = 0.40$ and $b = 0.65$ in the Joint Competence Task.

Measures

Partner Preferences were measured using the same method described in Study 1, whereby participants allocated between 0 to 100 coins to different traits.

Person Perceptions of Warmth- and Competence-related traits were measured using established measures of warmth (trustworthiness and sociability) and competence (Kirmani et al., 2017, Leach et al., 2007). Here, two separate sub-components of warmth-related traits were measured: sociability and trustworthiness. In this study, we focus on trustworthiness. Each subcomponent was measured with a three-item scale (e.g., trustworthiness: “*How trustworthy/sincere/honest is this person?*”; $\alpha_{HW-HC} = .92$; $\alpha_{HW-LC} = .86$; $\alpha_{LW-HC} = .84$; $\alpha_{LW-LC} = .86$; $\alpha_{neutral} = .85$). Competence was measured through traits such as intelligence, skillfulness, and

competence. Again, both scales were measured on a 7-point Likert scale (“*How intelligent/skillful/competent is this person?*”; $\alpha_{HW-HC} = .87$; $\alpha_{HW-LC} = .87$; $\alpha_{LW-HC} = .91$; $\alpha_{LW-LC} = .85$; $\alpha_{neutral} = .89$).

Vignettes

In Study 4, all vignettes portrayed five “real” candidates. To enhance the realism of the vignettes, they were not AI-generated, as in Study 3. Instead, they were developed using data from personality questionnaires and intelligence task performance provided by five actual participants from a separate study (anonymized reference), which falls outside the scope of this paper. For a comparison between the vignettes that participants saw in Study 4 and Study 3, please refer to SI, Note 10. To retain the difference in the level of warmth and competence, five participants were selected with the highest and lowest scores on items that were used to measure warmth and competence-related traits. Also, one participant was selected who scored middle or neutral values. The ranges of the high and low levels were determined by comparing the values with the total mean of the sample on each relevant trait. (Example: “*Riley is a highly reliable and capable person who enjoys working with other people. They possess a strong logical thinking talent, perform better than average, and excel in problem-solving tasks. They are good-natured and willing to help others. Often, they are the first ones to make friends in every setting.*”). All other characteristics of the vignettes were the same as in Study 3 (gender-ambiguous, no traits used from evaluation scales).

Procedure

The first part of the study was the same as in Study 3. All participants read an informed letter and provided consent. Afterward, they were randomly distributed to either the Joint Competence Task or the Joint Trust Task condition. Afterward, all participants were presented

with the task video instructions and comprehension questions. Compared to Study 3, here, all participants engaged in a 10-minute UCMRT intelligence task to equate the participant journey across conditions. Also, contrary to Study 3, all participants were asked to report their preferred partner traits using the same list of partner traits as in previous studies.

Next, all participants were presented with five vignettes. To increase the realistic aspect of the vignettes, the vignettes depicted actual people and their results on personality questionnaires and performance in the intelligence tasks. However, these people were taken out of the pool of participants who took part in another experiment, which is not a part of this paper. For the descriptions, we selected people with the highest and lowest scores. This was done to retain the same four combinations of low and high warmth and competence. We also selected one person who scored middle or neutral values. The ranges were determined by comparing the values with the total mean of the sample on each relevant trait.

After reading the vignettes, participants were again asked to indicate partner selection decisions and report their perceptions of warmth and competence. Afterward, regardless of their choice, all participants were sequentially asked to decide how much money they would give a specific candidate in the Joint Trust task or to solve an intelligence problem in the Joint Competence Task. To indicate with which candidates they are doing the task, we presented them with the vignettes. The participants did not do the task with the described candidates in real time. Instead, participants' behavior (e.g., money transferred or task performance) was matched with candidates' behavior they had in another study as participants only after the study. Thus, the task outcomes were calculated after the study. After calculating all the earnings for five interactions,

we randomly selected one of the payoffs out of the five. These payoffs were paid out as a bonus to participants¹¹.

Results

We managed to replicate all the effects that were observed in Study 3. These analyses included testing the vignette's manipulation check, replicating the results of the exploratory study on partner selection when only objective descriptions were considered, and moderating the effect of task affordances on the relationship between person perceptions and partner selection. For the full report and statistical results, see SI, Note 15 to Note 18.

Next, we tested the moderating effect of a person's preferences for trustworthiness and competence on the relationship between a person's perceptions of the same traits and partner selection. A logistic mixed regression model was fitted using binary partner selection as the outcome variable, while the perceptions of warmth and competence, preferences for trustworthiness and competence, the interaction between perceptions and preference of trustworthiness, and the interaction between perception and preference for competence were used as fixed effects. Subject ID and vignettes were used as random effects to address the repeated measures and the experimental design of having five vignettes.

The results showed that overall, participants' preferences for trustworthiness significantly moderated the relationship between a person's perception of trustworthiness and partner selection ($b = 0.39$, $SE = 0.11$, $OR = 1.48$, $z = 3.57$, $p < .001$), suggesting that the relationship

¹¹ As candidates only engaged in the Joint Competence task or the Joint Trust task, the behavior in the task they did not engage in was predicted based on their responses to the personality questionnaire and the intelligence task.

between how trustworthy someone perceives a potential partner to be and whether they select them as a partner depends on their preference for trustworthiness. Similarly, preferences for competence also significantly moderated the relationship between perceptions of competence and partner selection ($b = 1.29$, $SE = 0.17$, $OR = 3.63$, $z = 7.65$, $p < .001$). Results on the main effects of perceptions of trustworthiness and competence and preferences for these traits can be found in SI, Note 20, Table 22. The model explained 19.38 % of the marginal variance of partner selection. These results indicate that partner preferences for respective traits moderate the effect of how trait evaluations predict partner selection and are in line with the preregistered hypotheses S4.H1a and S4.H1b (see Table 1).

Exploratory Analysis

To further examine cooperative behavior, we test how this was predicted by selection decisions, perceptions of trustworthiness, and preferences for partner trustworthiness. Specifically, we conducted an exploratory analysis to test whether partner selection and the interaction between perceptions of partner trustworthiness and preferences for trustworthy partners would predict cooperative behavior toward candidates in the Joint Trust Task. Here, we only used the Joint Trust Task ($n = 112$), since cooperative behavior was only measured in that task (i.e., costly behavior that benefits another person). For that purpose, a robust linear mixed model with Huber-White Sandwich Standard Error Estimators was run with cooperative behavior as the outcome variable. The main terms of partner selection, perceptions of trustworthiness, preference for trustworthiness, and the interaction term between perception and preference for trustworthiness were included as fixed effects, while subject ID was used as a random effect.

Participants were more cooperative with candidates they wanted to be paired with ($M = 5.51$, $SD = 3.26$), compared with the ones they did not ($M = 2.97$; $SD = 2.77$) ($b_{Selected} = 1.28$, $SE = 0.24$, $t(407) = 5.37$, $p < .001$). Participants were also more cooperative with candidates they perceived to be more trustworthy ($b = 0.65$, $SE = 0.14$, $t(262) = 4.76$, $p < .001$), while the interaction terms between person perception of trustworthiness and preferences for trustworthiness were not significant ($b = 0.03$, $SE = 0.09$, $t(469) = 0.35$, $p = .724$). The rest of the results of the main effects can be found in SI (Note 20, Table 24). This model explained 15.34 % of the marginal variance (60.09 % conditional) of cooperative behavior in the Joint Trust Task.

Lastly, we were interested in examining whether participants had better payoffs in both tasks with the partners they selected. For this purpose, two separate robust linear models with Huber-White Sandwich Standard Error Estimators were fitted with partner selection as a fixed effect, subject IDs as the random effect, and mutual payoff as an outcome. Separate models for the Joint Trust Task and Joint Competence Task were fitted due to slight changes in what the MU represented and measured (see Measures). Results showed that participants achieved better payoffs with selected candidates, compared to unselected candidates, in both tasks. Specifically, participants were earning more in the Joint Trust Task with selected candidates ($M = 5.62$, $SD = 2.09$), compared to unselected candidates ($M = 4.89$, $SD = 1.84$) ($b_{Selected} = 0.91$, $SE = 0.16$, $t(501) = 5.69$, $p < .001$). This model only explained 5.23 % of the variance of mutual payoff. Similarly, participants earned more with selected candidates in the Joint Competence task ($M = 5.10$, $SD = 3.01$), compared to unselected candidates ($M = 1.49$, $SD = 1.69$) ($b_{Selected} = 3.70$, $SE = 0.21$, $t(476) = 17.96$, $p < .001$). Here, the model explained 37.99% of the variance of mutual payoff. Given the multiple testing, all statistics were compared against a Bonferroni corrected value $p = .008$.

Discussion

The results of Study 4 replicate several findings from the previous studies, including the effect of task affordances on partner preference, partner selection of potential candidates, and the relationship between partner perceptions and partner selection. Additionally, we found that partner preferences moderate the relationship between a person's perceptions of such traits and partner selection. Additionally, we found that partner selection predicted cooperative behavior and task outcomes. Specifically, participants were more cooperative towards partners they wanted to be paired with, and that was perceived to be higher on trustworthiness. Furthermore, participants achieved better mutual payoffs with their selected candidates in both tasks, compared to unselected candidates. Thus, participants were successful in selecting partners that led to greater mutual benefit.

General Discussion

Partner preferences provide a basis for assessing potential partners and are key to achieving successful outcomes (Huang et al., 2019). Prior research has shown, so far, that people tend to prefer partners that are high on warmth across a broad range of relationships and contexts (Cottrell et al., 2007; Raihani & Barclay, 2016; Eisenbruch & Roney, 2017). Yet not all situations afford partner warmth to impact outcomes. For example, in some situations, a partner's competence will more strongly impact what happens in the situation. To date, little research has addressed whether partner preferences can shift depending on task affordance, and this is especially the case for partner preferences for warmth- and competence-related traits. Indeed, these are two fundamental dimensions on which other people are evaluated in social interactions (Fiske et al., 2007) and have been considered essential for evaluating partners for interdependent cooperative endeavors (Barclay, 2013). Across four studies, we observed that (a) people adjust

their preferred partner traits in response to task affordances (Study 1-4), (b) a person perceptions of warmth-related traits, such as trustworthiness, and competence-related traits, predict one's chances to be selected as partners, and the effect is more pronounced in tasks affording those specific traits (Study 3-4), and (c) partner preferences for trustworthiness and competence strengthen the association between perceptions of such traits and partner selection (Study 4).

Across all the studies, participants preferred partners who possessed high levels of a trait that was afforded to impact the outcomes of the task. Specifically, in the task with conflicting interests (i.e., the Joint Trust Task), participants preferred partners that were higher on trustworthiness relative to the task involving corresponding interests and which afforded competence to impact outcomes (i.e., the Joint Competence Task). In terms of partner selection, results showed that potential candidates perceived to be higher on trustworthiness or competence were more likely to be selected as partners, and these associations were stronger in the tasks that afforded these traits. Thus, person perceptions influenced partner selection differently based on task affordances. Moreover, partner preferences were associated with partner selection. People who preferred trustworthy or competent partners selected candidates who were perceived to possess these traits. Lastly, we showed that partner selection can lead to beneficial outcomes. People were more cooperative towards partners they selected, compared to unselected partners. Furthermore, participants indeed received better mutual outcomes with selected partners, compared to unselected partners.

Theoretical Implications

We initially conducted a pilot study to examine which traits people prefer in an ideal cooperation partner. This study found that people prefer warmth-related and competence-related traits in cooperation partners. Prior research has documented that these are two fundamental

dimensions of person perception (Fiske et al., 2002). The commonly reported warmth-related traits included trustworthiness, kindness, and friendliness, while competence was the most frequently mentioned competence-related trait. The pilot study also found that warmth-related traits were more valued for ideal partners in a cooperative task, followed by competence-related traits. This finding is consistent with prior research indicating that warmth is generally prioritized over competence in cooperative tasks involving conflicting interests (Raihani & Barclay, 2016). Current explanations of such prioritization postulate that (a) warmth is more consequential for people than competence, as warmth-related traits capture the beneficial or harmful intentions of a partner (Brambilla et al., 2021) and (b) there is a greater variation in warmth-related traits, compared to competence-related traits, and so people pay relatively more attention to warmth-related traits (Eisenbruch & Krasnow, 2022). Prioritizing warmth over competence-related traits would be important in situations involving conflicting interests since, in these situations, people would especially benefit from having a partner with intentions to engage in behaviors that benefit others (Thielmann et al., 2021).

However, prioritizing warmth over competence irrespective of task affordance can lead to selecting less optimal partners. Across four studies, we studied whether participants adjusted partner preferences according to task affordances. Specifically, we compared partner preferences in two interdependent tasks: (1) the Joint Trust Task followed previous research and studied partner preferences in situations involving a conflict of interests (i.e., social dilemmas, Raihani & Barclay, 2016); and (2) the Joint Competence Task, on the other hand, was a task that involved corresponding interests, and each person's ability (i.e., performance on an intelligence test) would influence joint outcomes. Thus, the Joint Trust Task more strongly afforded partner warmth (i.e., trustworthiness) to influence outcomes, while partner warmth is much less relevant

to affecting outcomes in a situation with corresponding interests (see Balliet & Van Lange, 2013). Situations with corresponding interests, such as in the Joint Competence Task, would afford a partner's competence to strongly influence outcomes.

We consistently found that participants preferred partners with the trait afforded by the situation. This finding underscores the flexibility of partner preferences to task affordances. This finding is aligned with prior literature, which found that partner competence, compared to trustworthiness, is more strongly preferred in business partners, employees, and in competitive tasks (Cottrell et al., 2007; Clark et al., 2019). That said, results in Study 1 do show that the pattern of partner preferences was more distinctive in the Joint Competence Task, where individuals favored a partner's competence over trustworthiness in almost all situations. However, this was not the case for the Joint Trust task, where participants showed nearly equal preference for competence- and warmth-related traits. This might be because even though the Joint Trust Task afforded warmth, it might have still afforded a partner's competence to affect outcomes by facilitating the calculation of the payoffs. Across the studies, we used two tasks that differed in their affordance of warmth- or competence-related traits. Although these tasks have low ecological validity, a real-life parallel could involve selecting a surgical partner. Here, partner choice would be primarily based on perceived competence rather than trust, as social norms obligate doctors to prioritize the patient's well-being. On the other hand, there can be situations that primarily afford warmth, such as selecting a partner to loan money from when in a state of need. Nevertheless, although daily life situations can differ in the presence of affordances for warmth and competence, situations can often afford both traits to influence outcomes, but to differing degrees. Future research can study how perceptions of situational affordances across daily life situations relate to partner preferences and partner selection. Nevertheless, the present

research demonstrates that people can recognize task affordances for warmth and competence and actively use them to adjust their preferences and, ultimately, partner selection.

Partner preferences can ultimately guide behavior and decision-making. Indeed, we found that individuals' perceptions of trustworthiness and competence significantly influenced partner selection decisions. Potential partners who were perceived to be higher on trustworthiness and competence were associated with a greater likelihood of being chosen as task partners. Moreover, the association between person perceptions and partner selection was moderated by task affordance. Perceptions of trustworthiness were more predictive of partner selection in the Joint Trust Task, while competence was more predictive of partner selection in the Joint Competence Task. Furthermore, as expected, we found that partner preferences for traits, such as trustworthiness and competence, moderated the association between partner perception of these traits and partner selection. Taken together, these results indicate that partner preferences have an important role in how people select partners for diverse cooperative tasks.

The current findings extend the effect of partner preferences on partner selection for cooperative undertaking, which was previously only reported in the context of (romantic or friendship) relationships, where it was found that in the initial stages (based on photographs or reputational information) partner preferences are indeed predictive of partner selections for specific relationships (Huang et al., 2019). Despite the predictive validity of partner preferences for these different types of relationships or tasks, Huang et al. (2019) found that partner preferences can lose their predictive validity after in-person interactions. Thus, future research can test whether partner preferences for an interdependent task predict partner selection before and after having in-person interactions with potential partners.

In turn, partner selection was also found to be consequential for cooperation and task outcomes. Specifically, we found people were more cooperative with selected partners compared to people they did not select to interact in the task. This finding indicates that people are indeed attempting to find partners with whom to cooperate and not exploit. Thus, partner selection can indeed promote the assortment of cooperators and exclude interactions with defectors (Barclay, 2013). Also, in both tasks, participants achieved better mutual outcomes when performing the task with selected partners compared to unselected partners. Therefore, partner preferences, which are adaptive to task affordances, can indeed lead people to select partners that result in the achievement of mutual outcomes.

Practical Implications

Partner preferences significantly influence individuals' decisions in forming relationships, whether romantic, friendly, or task-specific. While much research has focused on romantic and friendship relationships, task-specific partner selection has received less attention. Investigating partner preferences across various contexts, such as romantic relationships, friendships, and cooperative undertakings, is vital for uncovering context-specific criteria and identifying potential universal qualities valued in any partner. For example, in task-specific cooperative settings, people prioritize warmth and competence but not traits like financial stability or physical attractiveness, which are often valued in romantic partners (Li et al., 2002). However, warmth-related traits, such as kindness and trustworthiness, are consistently important across different types of relationships, suggesting a more domain-independent preference.

An understanding of partner preferences can enhance the design of recommender and decision-support systems, particularly with the increase of AI-driven solutions that assist in partner selection. Current applications, like e-learning platforms (Yusri, Abusitta, & Aïmeur,

2020) and dating apps, often focus on specific criteria for setting matches. However, these systems could be improved by addressing the link between task requirements and partner preferences. For instance, a system that recommends partners for business brainstorming would differ from one for sightseeing companions. Our findings indicate that people adjust their partner preferences based on the task at hand, suggesting that recommendation algorithms should account for task affordances. By asking users about the intended activity or task, these systems can better align recommendations with user preferences, leading to more effective decision-making and collaborative outcomes (Ai, Zhong, Yan, & Gu, 2014).

Strengths and Limitations

One strength of this study was the theory-driven approach to identify task affordances that afforded two key traits to impact outcomes and which have previously been considered important for selecting cooperation partners (i.e., warmth-related traits and competence-related traits; Raihani & Barclay, 2016; Barclay, 2013). Importantly, these traits are also aligned with the Stereotype Content Model (SCM) of person perception (Fiske et al., 2007), and guided by theory, we developed tasks with high internal validity of affording these traits to impact outcomes. Another strength is the integration of theory-driven and data-driven approaches to identify preferred partner traits for collaborative tasks. The pilot study utilized participants' spontaneous reporting of important traits for cooperative tasks, and these results were supplemented by insights from existing literature on partner preferences.

However, the studies used vignette descriptions that presented unambiguous warmth- or competence-related traits, which may not fully reflect the complexity and uncertainty of real-life social interactions. Further research is needed to validate reputational information derived from such descriptions in practical social settings. Additionally, the studies were limited to testing

partner preferences in highly specific task settings that have low external validity. Future research should explore whether these trends extend to ecologically valid tasks, such as hiring decisions for roles where competence (e.g., software developer) or warmth (e.g., customer service agent) are afforded to impact outcomes. This would enhance our understanding of partner preferences in contexts more closely resembling everyday decision-making scenarios.

Concluding Remarks

Prior research, including the studies reported here, has consistently found that people strongly prefer partners high on warmth-related traits (e.g., trustworthiness and kindness). However, our studies reveal that partner preferences for warmth-related traits, specifically trustworthiness and competence-related traits, are influenced by situational affordances. Across four studies, we found that while people preferred warmth-related traits in partners for a task involving conflicting interests, they favored competence in partners for tasks involving corresponding interests, which afforded competence-related traits to impact outcomes. This indicates that partner preferences adapt to situational affordances. Importantly, our findings show that partner preferences strengthen the association between person perceptions (warmth and competence) and partner selection, leading to improved cooperative outcomes.

Open Practices

All of the study hypotheses were preregistered, as well as other details about the study in the mutual preregistration

(https://osf.io/r6hgw/?view_only=0972868ebbe94a2aa5bc58c30442a45e and

https://osf.io/f7rwt/?view_only=f8d716639c0b497ebc99f42aa71f5f05). Materials and Data will

also be made available with the published paper.

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