

**Radboud Universiteit**



**Promoting social connectedness by means of a simple  
bonding art task**

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## Abstract

The need for social connection is a fundamental human motive, and it is increasingly clear that feeling socially connected confers mental and physical health benefits. However, vulnerable populations such as refugees, the elderly or individuals with disabilities often feel socially isolated and lonely. The aim of this study was to explore ways to increase social connection towards others by means of a simple bonding task which could be implemented in settings such as asylum seeker centres. This paper also examines the role that perceptions of similarity and enjoyment play in this relationship. Pairs of unacquainted participants were asked to perform a collaborative art task without being able to look at each other's paper. Participants in the bonding condition had an additional requirement: to explore commonalities with their art partner and reflect those shared aspects on paper. Compared with a closely matched (non-bonding) control task, dedicating a few minutes to explore shared interests and ideas increased feelings of social connection. These results suggest that this easily implemented technique may help to foster connectedness between individuals and thus mitigate social isolation. This has implications for practitioners working with socially disconnected individuals which could apply the findings to exploit the potential of shared activities in promoting connectedness and ultimately well-being.

## Introduction

In the wake of forced displacement, individuals seeking refuge often find themselves in unfamiliar territories, grappling with loss, trauma, and a disrupted sense of belonging. In 2022, 46,460 asylum seekers entered the Netherlands, making it the European country with the sixth highest rate (Eurostat, 2023). Asylum seeker centres become crucial spaces for rebuilding lives shattered by conflict and persecution. However, these centres frequently face significant challenges in fostering social connectedness among their inhabitants (Damen et al., 2022; Sundvall et al., 2020). Social connectedness is defined as the deep sense of belonging and subjective psychological bond that individuals experience when they are connected to others in meaningful and authentic ways (Haslam et al., 2017). Strikingly, research shows that poor social connection is associated with as much effect on mortality as smoking, exceeding factors such as obesity and physical inactivity (Holt-Lunstad et al., 2010); and that individuals with robust social networks tend to have lower rates of cardiovascular disease and reduced mortality risk (Holt-Lunstad et al., 2003). This attests the power of social connectedness.

Beyond the physical health domain, the absence of social connectedness among displaced populations can have far-reaching consequences on their overall well-being and integration into the host community. Cantekin and Gençöz's (2017) study of Syrian refugees, which is the most common

nationality amongst asylum seekers in the Netherlands (CBS, 2023), showed that the ongoing separation from social networks and sources of social support was associated with increased psychological distress. This is because humans are inherently social creatures, intrinsically wired for connection and belonging (Baumeister & Leary, 1995). Maslow (1943) theorised a sense of affectionate and loving connection to others as an essential human need.

In fact, there are a myriad of theories explaining the association between social connectedness and well-being: from Bowlby's (1969) attachment theory to Alloway and Bebbington's (1987) buffer theory of social support. Simich and colleagues (2005) found that recreating social ties and social support, especially with refugees belonging to their ethnic group, was crucial to the emotional wellbeing of refugees. The idea that connectedness acts as a protective factor against mental health issues such as depression had gained considerable support (Gariépy et al., 2016; Doma et al., 2022; Wickramaratne et al., 2022). Importantly, loneliness was found to mediate the relationship between social integration and mental health among refugees living in Germany (Belau et al., 2021), suggesting social relationships play a critical role in the refugees' quality of life.

#### **How can social connectedness be increased?**

Bonding experiences in a shared setting have been widely studied to enhance social connectedness. For example, Annear and colleagues (2017) used an approach which offered opportunities for social interaction between medical students and older adults living in residential aged care facilities. These meaningful encounters boosted social connection and quality of life. Nevertheless, promoting social connectedness through bonding experiences transcends the need of physical contact. Zaine and colleagues (2019) used a novel computer-mediated approach which effectively increased feelings of closeness amongst older adults in the UK. They provided participants with social interaction topics designed to encourage meaningful reflections and expressions of feelings, which they would then send to others. By sending and receiving these messages, social relations between participants were deepened.

In a more controlled experimental context than the abovementioned, Aron and colleagues (1995) explored a closeness-generating paradigm with unacquainted dyads. Over a 45-minute period, subject pairs carried out either relationship-building tasks (by answering statements on self-disclose topics) or comparable small talk tasks (by answering statements on mundane, non-personal topics). They found greater post-interaction closeness in those that took part in the more meaningful and intimate tasks, suggesting that greater self-disclosure leads to higher connectedness. Recently, Sprecher and colleagues (2021) followed the same closeness-generating paradigm as Aron and colleagues (1995) but with the addition of an unstructured getting-acquainted task which requested

dyads to “become acquainted in a natural way”. Interestingly, this free-format getting-acquainted task generated as much closeness as Aron and colleagues’ closeness-inducing task.

### **The role of enjoyment in the promotion of social connectedness**

According to the broaden-and-build theory (Fredrickson, 2001), positive emotions – including enjoyment – are vehicles for individual growth and social connection. Fredrickson proposed that positive emotions make individuals more open to connecting and engaging with others, which promotes social bonding. More specifically, she theorised that enjoyment broadens momentary thought-action repertoires by creating the urge to play and push the limits, which in turn builds social bonds and attachments. In line with the broaden-and-build theory, Paakkanen and colleagues (2021) argue that positive emotions strengthen our abilities to form initial connections while creating an environment for maintaining closeness. Similarly, Mauss and colleagues (2011) demonstrated that positive emotional behaviour that accurately signals to others the individual’s internal state – such as laughing when enjoying the activity – enhances social connectedness. Therefore, this line of research points toward the fact that positive emotions such as enjoyment can boost the feelings of closeness and connection that arise from shared activities. Insofar as the shared activity promotes increases in positive emotions, these shared elevated positive states may prime the environment for greater social connection.

### **The role of perceived similarity in the promotion of social connectedness**

Similarity breeds connection. People create ties primarily with people resembling their own profile of interest (Jensen et al., 2002). Possible reasons for this include the strive for cognitive consistency, social comparison and validation, or simply the anticipation of rewarding interactions (Kaptein et al., 2013). As the ancient aphorism goes, “Birds of a feather tend to flock together”. In fact, the link between perceived similarity and attraction is well established (Montoya et al., 2008). Sprecher and colleagues (2015) examined this link using a social interaction experiment with 73 unacquainted dyads who either discussed their leisure interests, discussed their political beliefs, or simply “became acquainted.” They found that perceived similarity was important in shaping initial attraction, as it may signal an opportunity to expand the self. The self thus becomes other-oriented, in that it takes another for the self to emerge. Self-expansion theorists claim that similarity plays an important role in the process of inclusion of other in self, which relates to connectedness (Aron et al., 2004, as cited in Sprecher et al., 2015). Strikingly, sharing minimal and perhaps trivial details, such as a birthday, is sufficient to create a so-called “unit relationship” or bonding experience (Miller et al., 1998). Studies in this research area suggest that one way in which the power of shared activities can be exploited is by highlighting similarity through shared attitudes and interests.

## The present study

The aim of the present study is to explore ways to foster social connectedness in asylum seeker centres. For this, we developed two studies: the first comprised a questionnaire aimed to explore connectedness amongst the residents in several asylum seeker centres in the Netherlands (namely *Elderhofseweg* in the region of Gelderland and *Leersum* in the region of Utrecht); the second study aimed to develop an intervention to enhance social connectedness. However, many difficulties arise when conducting research with refugees (Bloch, 1999). Therefore, this thesis only details the second study which was more elaborate<sup>1</sup>.

Based on the social intervention literature reviewed above, we investigated whether participating in a shared activity that allows for familiarity to develop increases perceptions of connectedness. We compared this to a shared activity which did not involve bonding. Both activities involved a simple art task performed in pairs. We expected that the nature of the task would influence social connectedness, and that both enjoyment and perceived similarity would strengthen this relationship (see Figure 1 for a conceptual diagram). Specifically, we hypothesised the following:

*H1*: The bonding task (vs the non-bonding) will increase social connectedness with an art partner.

*H2*: The social connectedness that arises from the shared task will increase if there is high self-reported enjoyment.

*H3*: The social connectedness that arises from the shared task will increase if there is high self-report of perceived similarity with the art partner.

Exploratorily, we also checked whether perceived similarity mediates the relationship between the bonding task and social connectedness:

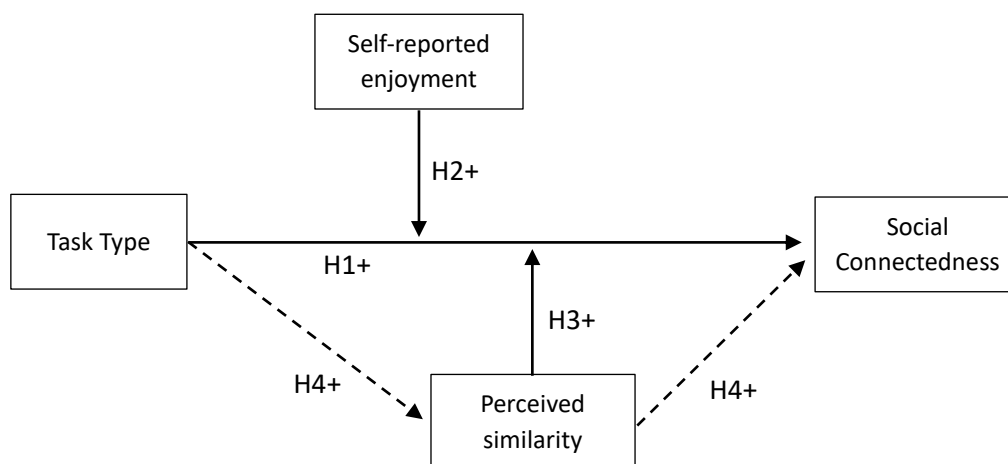
*H4*: The bonding task (vs the non-bonding) will increase perceived similarity with the art partner, which will in turn increase social connectedness.

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<sup>1</sup> The low response rate for the first study (N = 15) manifests the need for exploring other modes of administration of surveys (such as face-to-face interviews) and sampling techniques (such as snowball sampling) with the refugee population (Isernia et al., 2018). These difficulties are accentuated with asylum seekers, which have shown to be less willing than refugees to participate in research due to anxieties about repercussions should their responses go to the authorities (Bloch, 1999).

**Figure 1**

*Conceptual Framework of the Hypothesis to be Tested*



*Note.* Solid lines denote the confirmatory hypothesis. Dashed lines represent the exploratory mediation analysis.

## Methods

### Participants

The study sample comprised 110 individuals aged between 18 and 51 ( $M = 22.75$ ;  $SD = 4.69$ ). A convenience sample was used whereby the researcher would find participants in parks around the city of Nijmegen, in the Netherlands, and on Radboud's University campus. Most of the participants were obtained from the university's psychology department. Due to the gender imbalance present amongst psychology students, a greater proportion of the participants were women ( $N = 80$ , 73%). Participants volunteered to participate in the experiment and did not receive any compensation for their time.

A power analysis was conducted to check how many participants were required. The regression analysis to be performed had five predictors. To have a power of 80% to detect an effect of 0.15 with a significance level of .05, 77 participants were required. The final sample satisfied these requirements.

### Materials

An online survey (accessed through a QR) assessing (1) participant's social connection with their art partner, (2) enjoyment of the task, and (3) perceived similarity with the art partner. The subscales can be found in the Appendix.

### **Social Connectedness**

A modified version of van Bel and colleagues (2009) social connectedness scale at the individual level was used. This version included the three factors which were more relevant for the present study – satisfaction with contact quality, shared understandings, and feelings of closeness – since they could be applied to the connection with a novel individual. Participants were presented with statements such as “I feel that my art partner shares my interests and ideas” and were asked to rate them on a seven-point Likert scale going from *strongly disagree* to *strongly agree*. The order of the statements was randomised per participant.

Scores ranged from 2.50 to 6.75 ( $M = 4.74$ ,  $SD = 0.83$ ) – high scores meaning higher connectedness with their art partner. Cronbach's alpha for the eight-item scale showed good reliability ( $\alpha = .79$ ).

The scores for those that took part in the bonding task ranged from 2.75 to 6.75 ( $M = 4.93$ ,  $SD = 0.89$ ), whilst the scores in the non-bonding group ranged from 2.50 to 6.00 ( $M = 4.56$ ,  $SD = 0.74$ ).

### **Enjoyment**

A modified version of Davidson's (2018) ENJOY scale was used to assess the participants' enjoyment of the activity they had just taken part in. The original version is composed of five factors: pleasure, relatedness, competence, challenge/improvement, and engagement. For this study, the relatedness factor was not included as this component was assessed with van Bel and colleagues' (2009) social connectedness scale mentioned above. To give an example item: “I lost track of time during the activity”. Again, participants were asked to rate to what extent they agreed with each statement by marking their answer on a seven-point Likert scale going from *strongly disagree* to *strongly agree*. The order of the statements was randomised per participant.

Participants generally scored high – ranging from 3.67 to 6.83 ( $M = 5.42$ ,  $SD = 0.63$ ) – meaning the task they took part in was rated as enjoyable. Cronbach's alpha for the 12-item scale showed good reliability ( $\alpha = .81$ ).

The scores for those that took part in the bonding task ranged from 3.75 to 6.83 ( $M = 5.45$ ,  $SD = 0.66$ ), whilst the scores in the non-bonding group ranged from 3.67 to 6.50 ( $M = 5.41$ ,  $SD = 0.57$ ).

### ***Perceived similarity***

This consisted of a single item: “On a scale 1 to 7, how similar do you feel to your art partner?”. The seven-point Likert scale response options ranged from *not at all* to *extremely similar*.

Scores ranged from 1 to 6 ( $M = 4.07$ ,  $SD = 1.21$ ); the higher the score, the more similar the art partner is perceived to oneself. The scores for those that took part in the bonding task ranged from 1.00 to 6.00 ( $M = 4.37$ ,  $SD = 1.22$ ), whilst the scores in the non-bonding group ranged from 1.00 to 6.00 ( $M = 3.83$ ,  $SD = 1.14$ ).

### **Procedure**

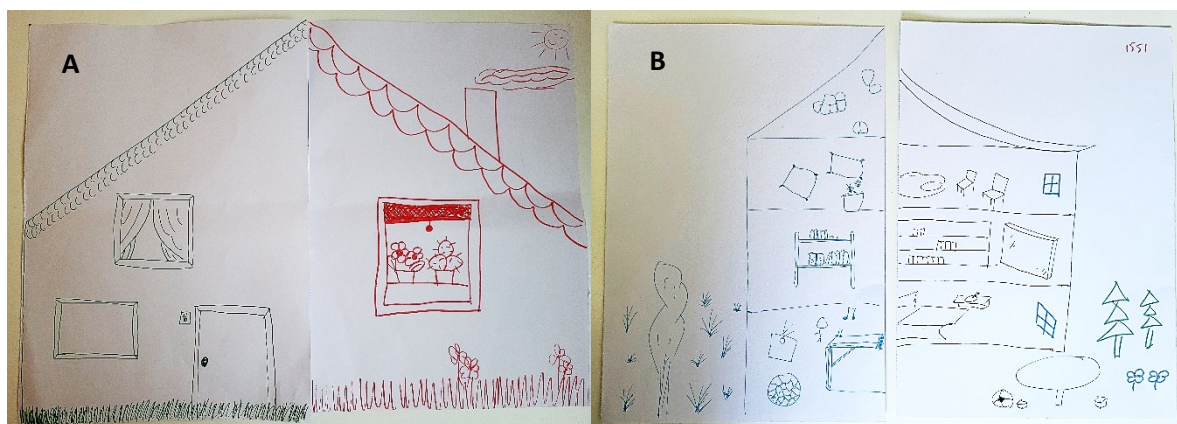
This experiment follows a between-subjects design whereby half of the participants took part in a non-bonding art task ( $N = 55$ ) and the other half took part in a bonding art task ( $N = 55$ ). The basic premise behind the art tasks in each condition is the same. The art tasks had to be performed in pairs. For this, the investigator would pair up one participant with another nearby stranger (for example, two strangers sitting on nearby benches in a park). Importantly, none of the pairs knew each other before the start of the experiment. The art task would only go ahead if both participants agreed to participate after reading the fully informed consent form. Afterwards, both participants were asked to sit back-to-back and were given the art materials. They had to work together – without looking at each other’s paper – to create a single drawing of *a house* in five minutes (see Figure 2). They were told that at the end the two papers would be connected, and it should look like one drawing is the continuation of the other. In other words, the participants had to communicate exactly where in the paper they would place each feature of the house so that it ended being a combined art piece rather than two separate ones.

The difference between the non-bonding and the bonding condition is that, in the latter, the participants were instructed to draw their *mutual ideal house* (see Figure 2B). This involved a much richer discussion which revealed a bit about each other’s personalities. They were encouraged to ask each other questions to explore shared interests and ideas about what their ideal house looked like and represent on paper those aspects they would agree on. For instance, they could explore topics such as where their ideal house would be located, whether they would have pets, or which games they would have. Participants did not have to adhere to a set structure, so the topics covered were of personal choice.



## Figure 2

### *An Example of the Drawings Made by Two Pairs of Participants*



*Note.* (A) shows the house drawing made by a pair of participants in the non-bonding condition. (B) shows the house drawing made by a pair of participants in the bonding condition.

Right after the five-minute task, subjects were separated to avoid further interaction and individually completed a post-interaction online questionnaire designed to assess their experiences throughout the activity (namely, social connectedness, enjoyment, and perceived similarity with their art partner). At the end, they were offered the debrief with more detailed information about the study.

### Data Analysis

Three participants in our sample did not get to the end of the questionnaire so they were excluded from analysis. All the variables were converted from string to numeric form from 1 to 7 – the lowest being *strongly disagree* and the highest being *strongly agree*. The first three items from the connectedness scale were reverse coded, so *strongly disagree* was assigned the highest value (7) and *strongly agree* was assigned the lowest (1). The responses from the 12 items of the ENJOY scale were computed into a new variable showing the average scores for each participant. Similarly, the eight items of the connectedness scale were averaged into a new variable. To identify potential outliers, the standardised residuals were plotted for each scale. Cases with standardised residuals larger than three are extreme and considered outliers (Montgomery et al., 2013). Three cases were identified in our sample and were labelled as missing cases to exclude them from analysis.

In order to test the first three hypotheses, a multiple regression analysis with a total of five predictors will be conducted to understand their effects on connectedness scores. These include type of task, the enjoyment and perceived similarity levels, as well as the interaction of task type ×

enjoyment and task type  $\times$  perceived similarity. To test the fourth hypothesis, a mediation analysis using Hayes' PROCESS Macro for SPSS will be used with a unique predictor (task type), a moderator (perceived similarity) and an outcome variable (connectedness scores). To prepare the data for these analyses, the average enjoyment and similarity scores were mean centred by subtracting the group mean from each score.

## Results

Our data met the assumptions of a regression analysis. No outliers were present in the sample (Std. Residual Min = -2.87, Std. Residual Max = 2.56). Tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern for any of the predictors: Tolerance was greater than 0.1 and VIF lower than 3.03 for all variables. The data met the assumption of independent errors (Durbin-Watson value = 2.00) and non-zero variances. The scatterplot of standardised residuals showed that the data met the assumptions of homogeneity of variance and linearity. Hence, we tested our first three hypothesis with a regression analysis to be able to determine the direct effects of our variables of interest (task type, enjoyment and similarity), as well as the interaction effects of enjoyment and similarity on connectedness scores.

It was found that the five predictors all together explain a significant amount of the variance in the level of connectedness reported by participants, ( $F(5, 101) = 26.00, p < .001, R^2 = .56$ ). The direct effects of each individual predictor on connectedness scores, as well as the interaction effects, can be seen in Table 1. So, for every unit increase in the enjoyment scale, there is a 0.35 increase in the connectedness scale. Similarly, for every unit increase in perceived similarity, connectedness scores increase by 0.32.

**Table 1**

*Summary of Multiple Regression Analysis for Variables Predicting Average Social Connectedness (N = 107)*

Variables	<i>B</i>	<i>SE</i>	$\beta$	95% CI		<i>t</i>	<i>p</i>
				<i>LL</i>	<i>UL</i>		
Task type	.191	.113	.115	-.033	.415	1.70	.093
Average Enjoyment	.350	.149	.149	.056	.645	2.36	.020
Average Perceived Similarity	.319	.075	.075	.171	.467	4.27	<.001
Task Type $\times$ Enjoyment	.367	.204	.204	-.038	.771	1.80	.075

Task Type × Similarity	-.056	.107	.107	-.268	.155	-0.53	.600
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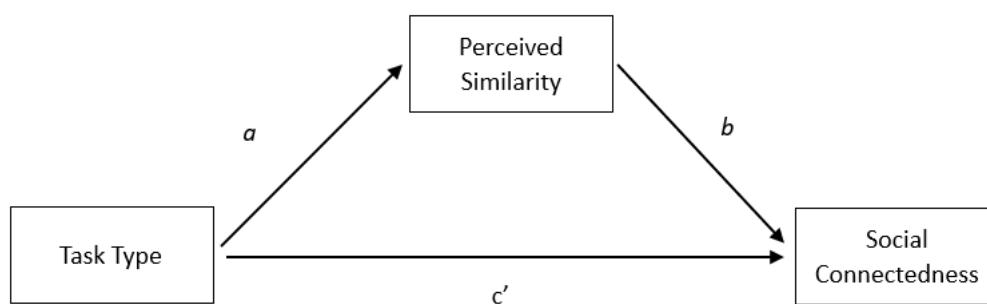
*Note.* Constant = 4.64,  $F(5, 101) = 26.00$ ,  $p < .001$ ,  $R^2 = .56$ . Enjoyment and Similarity were centred at their means. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

### Exploratory Analysis

A further analysis was conducted to detect whether the effect of the task type on connectedness can be explained through perceived similarity. The assumptions for mediation analysis were met. Two cases were identified as outliers using Cook's Distance; however, these were considered non-spurious and were not excluded from the analysis. The variables of interest (perceived similarity and social connectedness scores) have a linear relationship and they do not show multicollinearity. The histogram of standardised residuals indicated that the data contained normally distributed errors, as did the normal P-P plot of standardised residuals. Finally, the scatterplot of standardised predicted values showed that the data met the assumptions of homogeneity of variance and linearity. Hence, an explorative mediation analysis (see Figure 3) was performed to test the fourth hypothesis. A bootstrapping approach ( $N = 5000$ ) was used to assess the significance of the indirect effects of the predictor ( $X$ ; task type) on the outcome variable ( $Y$ ; social connectedness), through the mediator ( $M$ ; perceived similarity).

**Figure 3**

*Conceptual Framework Illustrating the Indirect Effects of Task Type on Social Connectedness*



*Note.*  $c'$  = direct effect of  $X$  on  $Y$ ;  $a*b$  = indirect effect of  $X$  on  $Y$  through  $M$ .

The results showed that there was a significant total effect between task type and social connectedness ( $B = 0.38$ ,  $p = .018$ ). In addition, path  $a$  (i.e., task type on perceived similarity) ( $B = 0.54$ ,  $p = .019$ ) and path  $b$  (i.e., perceived similarity on average social connectedness) ( $B = 0.43$ ,  $p < .001$ ) were both significant. Finally, when perceived similarity entered the relationship between task

type and social connectedness, the direct effect ( $B = 0.14$ ,  $p = .256$ ) was not significant. Moreover, the 95% confidence interval ranges from 0.05 to 0.50, which excluded zero. Hence, perception of similarity with an art partner is considered a mediator of the relationship of type of task on social connectedness.

## Discussion

### Summary of results

The purpose of this study was to gain a better understanding of the factors that lead to higher connectedness among people. The analyses performed provide partial support for the first hypothesis. This is because when the model of the predictors is tested through a multiple regression, task type did not significantly predict connectedness scores. However, the explorative mediation analysis does show that the total effect of task type of connectedness is significant. In other words, the addition of perceived similarity as a predictor takes away the significance of task type – which no longer explained a significant amount of variance in connectedness scores. Therefore, it seems that the nature of the task does significantly affect social connectedness levels, but mainly because it changes perceived similarity. Even though the multiple regression showed that the type of task did not significantly predict connectedness scores, exploratory results indicate that the bonding task (compared to the non-bonding) was effective at increasing self-reports of connectedness with an art partner. In addition, the relationship between the task type and social connectedness seems to be enhanced with higher enjoyment. Nonetheless, this moderating effect was not significant – so our second hypothesis was not fully supported. Regarding our third hypothesis, the social connectedness that arose from the shared task did not increase with high self-report of perceived similarity with the art partner. Instead, the bonding task (compared to the non-bonding) caused an increase in perceived similarity, which then lead to higher social connectedness. Hence, our explorative mediation hypothesis of similarity being the driver of the relationship was supported.

### Linking the current findings to prior research

This pattern of results is consistent with previous literature exploring the effects of closeness-generating paradigms on social connectedness (Sprecher et al., 2021; Aron et al., 1995). Just like in Sprecher and colleagues' (2021) research, our results demonstrate that an unstructured getting-to-know each other paradigm is sufficient to increase social connectedness. Our results, however, do not offer full support for Fredrickson's (2001) broaden-and-build theory which states that positive emotions such as enjoyment can enhance positive relational outcomes. In the present study, enjoyment did not have the expected boosting effect on the relational outcomes that emerged from

the bonding task. Furthermore, whereas Sprecher and colleagues (2015) pointed towards the fact that perceived similarity could act as a moderator of the effect of bonding task on connectedness, the present study showed that perceived similarity did not affect that relationship. Rather, our results illuminate a key pathway - perceived similarity – through which the bonding activity increased connectedness. Studies such as Kurtz and Algoe's (2016) also describe perceived similarity as driver of co-experienced laughter between strangers and affiliation. This relates to the current study since the bonding activity (which was rated as highly enjoyable) likely caused co-experienced laughter between the pairs of participants. This finding is also consistent with Boer and colleagues (2011) who claim that music preferences can be cues for similar or dissimilar value orientations, with similarity in values fostering interpersonal bonds between young people. Hence, perceived similarity was seen to mediate the link between shared interests and social bonding.

### **Interpretation of results**

Findings highlight the power of simple bonding interventions in fostering connectedness. Drawing about shared ideas and interests can go a long way. The results also shed light on the important role that similarity plays in causing the effect. It offers an explanation as to why the type of task the participant engaged in affected social connectedness scores is through perceived similarity. Those in the bonding activity were asked to discuss about shared interests and ideas; therefore, not surprisingly, this task increased their perceptions of similarity with the art partner, which in turn resulted in higher connectedness. The expression of similar interests and attitudes by a stranger could have served as positive reinforcement because consensual validation for an individual's opinions and beliefs is a major source of reward (Ziegler & Golbeck, 2007).

Contrary to what was expected, enjoyment did not significantly affect the relationship between the type of task and connectedness scores. A possible explanation for might lie on the sharedness of the experience. Previous literature looks at co-experienced positive affect leading to greater connection between strangers (Brown & Fredrickson, 2021). In the current study, individual enjoyment was measured, thus it might not be as predictive of social connectedness as the perception that both the participant themselves and their partner are enjoying the activity. Nevertheless, the data did show a trend, suggesting that perhaps with a bigger sample size, enjoyment could boost the effectiveness of the bonding task in fostering connectedness.

### **Strengths and weaknesses**

A strength of the interaction paradigm used in this study is that it controls for non-verbal behaviour such as facial expressions, body posture and gestures which likely influence social

connectedness (Furl et al., 2012). In fact, Wiltermuth (2012) showed that participants who were instructed to follow a leader while walking in-step with him (versus non synchronised) felt more closeness towards the leader. Hence, the paradigm used allows to make stronger claims that it is nature of the bonding task itself that accounted for the change in connectedness and rule out some alternative non-verbal explanation.

A major limitation is the shortness of the paradigm. A five-minute task with someone you have just met is likely to be superficial no matter the bonding task. Since superficiality is part of the connectedness scale, this likely lowered connectedness scores. It might be that longer bonding activities (such as Aron et al.'s (1997) 45-minute task) have a greater boosting effect due to having more time to get acquainted. That said, if the activity had been longer, those in the non-bonding condition will have finished way before the time limit – since they have less to do in the same time-frame. This would likely decrease enjoyment and increase awkwardness of the interaction due to not knowing what else to say or draw about, potentially lowering connectedness too. Therefore, it would not be clear whether the bonding task improves connectedness, or whether the non-bonding decreases it.

Moreover, while aiming to explore shared interests in the bonding condition, unshared ones could also naturally emerge, which would lower perceived similarity and social connectedness. In our study, the instructions in the bonding condition were to draw only the shared interests or ideas that arose while leaving unshared ones behind. This increases the saliency of similar aspects and therefore increases connectedness. However, it might be that the shortness of the paradigm prevents the unshared from emerging, as interactions can only stay at a superficial level. Hence, one cannot know whether the nature of the task changes the focus of attention towards the shared aspects, or whether the task simply did not allow for dissimilarity to develop due to its shortness. Consequently, caution must be taken when similar types of free-format bonding tasks are employed – especially if they require participants to interact for a longer time – as the effects of the bonding intervention might backfire, leading to more perceived dissimilarity and decreased social connection.

Furthermore, the benefits of the bonding task may not apply to everyone. The present study concerned newly acquainted dyads, therefore, the results might not be applicable to individuals who already know each other, such as residents in an asylum seekers centre. In spite of this, the general literature does suggest that the higher the similarity the more bonding (Jensen et al., 2002; Montoya et al., 2008). Therefore, it can be expected that as long as the bonding task increases perceptions of similarity, that the results can be applied to individuals with higher interaction history. Future research should look at how similar interventions are useful at deepening social connection among

people who already know each other. Another aspect which was not captured in the current study was whether the effects of the intervention are affected by social connectedness levels prior to the experiment. It is important to consider this as Reis and colleagues (2017) found that lonely individuals received a weaker boost from shared interventions. This has implications for applying the results of the current study to vulnerable populations who lack social connectedness – such as asylum seekers dealing with trauma or individuals with low mental health. These populations might struggle with sharing their interests and ideas, perhaps they might not know what their hobbies are or what they like doing. This highlights the need to test bonding interventions in such contexts.

### **Implications**

Despite these limitations, the present study sheds light on how a simple intervention helps interactions to develop at a more personal level, increases perceived similarity with others and ultimately fosters interpersonal connectedness. The simplicity, affordability and efficiency of the intervention makes it practical and accessible for implementation in real-world settings. The fact that there is no need to train professionals or elaborate complex materials renders its implementation particularly suitable in resource-constrained environments such as the voluntary sector.

As reviewed earlier, social connection is closely linked to well-being and mental health (Gariépy et al., 2016; Doma et al., 2022; Wickramaratne et al., 2022). As such, interventions that promote social connection have the potential to positively impact individuals' psychological well-being, reducing feelings of loneliness, isolation, and other negative mental health outcomes. Vulnerable populations such as the elderly, individuals with disabilities, or those experiencing social exclusion could highly benefit from such interventions. In addition, they are especially pertinent given the growing recognition of mental health as a critical public health concern.

Our results highlight the fact that any shared details, even if they are not profound (such as similar hobbies), have the potential to increase connectedness between people. This might be particularly influential for relationships marked by notable dissimilarities. For instance, places such as asylum seeker centres which host residents from very diverse backgrounds, races, and religions, could greatly benefit from these types of interventions which increase perceived similarity. Even in people with totally different backgrounds and experiences there is room for exploring commonalities, whether that is similar traditions, cultural heritage, tales, food, or dances. Through increased perceived similarity, the intervention has the potential to improve the quality of contact and prosociality towards immigrants (López-Rodríguez et al., 2015). This has implications for individuals working with refugees (such as social workers) where improving facilitative behaviour towards these groups is a desired outcome.

As postulated by the belief congruence theory (Rokeach et al., 1960, as cited in Struch & Schwartz, 1989), dissimilarity in beliefs, attitudes and values increases negative orientations toward others – including racial prejudice (Serum & Myers, 1970). Struch and Schwartz (1989) found support for the belief congruency theory by measuring the attitudes of 156 Israeli adults towards their own religious group and toward the ultraorthodox Jewish out-group. Results indicated that perceived value dissimilarity was associated with aggression toward the ultraorthodox (opposing institutions, supporting harmful acts towards them, and opposing interaction with them). Therefore, increasing perceived similarity might reduce outgroup hostility. Interventions which increase perceptions of similarity hold promise for mitigating racial discrimination and aggression towards outgroups, which has implications for a variety of conflictive settings. For instance, it could be applied to schools aiming to reduce bullying and racial prejudice, but also workplaces, refugee centres, or even online platforms.

### **Recommendations**

Findings highlight the power of increased perceived similarity as a mechanism for connectedness. Thereafter, a practical recommendation for anyone wanting to increase social connectedness amongst individuals – such as practitioners, policy makers or NGOs – is to focus on designing interventions which foster perceptions of similarity. For example, activities which encourage people to explore commonalities (shared backgrounds, interests, or values) hold promise. Even when there is a language barrier, a lot can be communicated through drawings, gestures, pictures, and sounds. Strikingly, communication is mostly nonverbal, with 70 to 93 percent of our messages coming through body language, tone of voice, and facial expressions (Mehrabian, 1971).

### **Directions for future research**

A useful avenue for future research would be to extend the current findings by targeting (1) people who already know each other with the purpose of deepening that relationship, and (2) people classified as lonely and socially disconnected. It is expected that pleasant experiences are amplified when co-experiencers are psychologically proximate (Boothby et al., 2016), therefore the intervention might work well to improve connection in already established relationships. On the other hand, lonely individuals might receive a weaker boost (Reis et al., 2017).

Another topic which requires future exploration is whether the intervention leads to a durable change in social connectedness with the individual. To address this research gap, it is important to investigate whether an initial encounter leads to further interactions, and to measure social connectedness at different time points.



## **Conclusion**

To conclude, the present study has enhanced our understanding of the relationship between bonding tasks and social connectedness. The intervention design discussed in this paper presents a novel solution for promoting social connectedness amongst strangers. The data support the importance of the type of task in developing connectedness, shedding light on the importance of perceived similarity in driving this effect. In addition, it opens a window of exploration to better understand how enjoyment might strengthen the association between the task and social connectedness. While deep, meaningful connections are undoubtedly beneficial, even fleeting moments of positive interaction can contribute to a sense of belonging and connectedness.

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## Appendix

### Questionnaire used to assess Enjoyment and Social Connectedness

Thank you for taking part in the art activity. Now, please provide honest answers to the following questions which assess how you felt throughout the art activity. It will only take 5 minutes and all answers are anonymous!

Please indicate to what extent you agree with the statements.

The activity made me feel happy.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

The activity was fun.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I liked doing the activity.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I felt very capable/competent with the task during the activity.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I am good at the activity.

- Strongly disagree (1)
- Disagree (2)

- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I feel like I did a good job during the activity.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

The activity allowed me to develop new skills.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I felt challenged, but not over-challenged, during the activity.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

During the activity, I feel like I got better at doing the task.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I lost track of time during the activity.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)



When I did the activity, I thought about nothing else.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I forgot what was going on around me during the activity.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

The next few statements assess your relationship with your 'art partner'. This is the person you were paired up with during the activity. Please indicate to what extent you agree with the statements.

I derived little satisfaction from the contact with my art partner.

- Strongly disagree (7)
- Disagree (6)
- Somewhat disagree (5)
- Neither agree nor disagree (4)
- Somewhat agree (3)
- Agree (2)
- Strongly agree (1)

I feel that my art partner did not understand me well.

- Strongly disagree (7)
- Disagree (6)
- Somewhat disagree (5)
- Neither agree nor disagree (4)
- Somewhat agree (3)
- Agree (2)
- Strongly agree (1)

The contact with my art partner felt superficial.

- Strongly disagree (7)
- Disagree (6)
- Somewhat disagree (5)
- Neither agree nor disagree (4)
- Somewhat agree (3)
- Agree (2)
- Strongly agree (1)

I feel that my art partner shares my interests and ideas.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I have a lot in common with my art partner.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I felt on the same wavelength with my art partner.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

I could talk about anything with my art partner.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

My art partner and I communicated well with each other.

- Strongly disagree (1)
- Disagree (2)
- Somewhat disagree (3)
- Neither agree nor disagree (4)
- Somewhat agree (5)
- Agree (6)
- Strongly agree (7)

On a scale 1 to 7, how connected do you feel to your art partner?

1 = Not at all    2        3        4        5        6        7 = Extremely connected

On a scale 1 to 7, how similar do you feel to your art partner?

1 = Not at all    2        3        4        5        6        7 = Extremely similar