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Psychological outcomes of local heritage engagement: Participation in community archeological excavations increases well-being, self-efficacy, and perceived community support

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Abstract

There is evidence that engagement with tangible heritage is linked to improvements in well-being. However, experimental tests of this association, as well as theoretical accounts explaining this relationship, are lacking. The present study aims to compensate for this gap by developing a theoretical framework based on the social identity approach that explains the effect of community-based heritage engagement on well-being, and testing this effect in a quasi-experimental field study in the context of community test pit archeological excavations. In line with the predictions, the results demonstrate that excavation participants (but not participants in the control condition) report improvements on a number of psychological outcomes after (as compared to before) participation in a 2-day excavation program (including well-being, self-efficacy, and perceived community support). The findings offer implications for community-based approaches to enhancing well-being, as well as the practice of conducting community-based archeological excavations.

1 | INTRODUCTION

Engagement with tangible cultural heritage appears to have a number of positive psychological impacts (Fujiwara et al., 2014; Pennington et al., 2018; Price & Keynes, 2020; Reilly et al., 2018). For example, there is evidence that visiting a heritage site is associated with stronger positive affect, higher life satisfaction, strengthened social connections, and greater sense of security (e.g., Fujiwara et al., 2014; Paddon et al., 2013; Sofaer et al., 2021). Similarly, participation in archeological excavations has been linked to positive effects on stress reduction and mood among former military staff (Everill et al., 2020; Finnegan, 2016), and to skills acquisition and higher aspirations among young people (Lewis, 2014, 2017). Most previous research, however, does not provide evidence for the cause-and-effect relationship between heritage engagement and psychological outcomes due to methodological limitations (e.g., not including control groups and/or premeasures). In addition, it stops short from suggesting a persuasive theoretical account for the observed relationships. The present research aims to compensate for these limitations by offering a theoretical explanation of the link between

heritage engagement and well-being, and conducting a quasi-experimental test of this effect in the context of community test pit excavation (TPE) participation.[1]

Below we outline the existing evidence of the relationship between heritage engagement and psychological outcomes, provide a theoretical account of these links using the social identity framework, and describe results of a quasi-experimental field study testing the effect of TPE participation on a range of psychological outcomes.

2 | HERITAGE ENGAGEMENT AND PSYCHOLOGICAL OUTCOMES

The term "heritage" refers to cultural assets (tangible and intangible) that society inherits from the past, including monuments, buildings, artifacts, and traditional practices. Engagement with *tangible* cultural heritage (e.g., monuments, buildings, artifacts) has been associated with a number of beneficial effects on skills, mental health, and well-being in different populations (e.g., young people, hospital patients, and military personnel, Lewis, 2014, 2015; Paddon et al., 2013; Ulke, 2018). For example, positive impacts on cognitive, technical, social, and personal skills have been demonstrated within the Higher Education Field Academy program, which focuses on raising aspirations, confidence, and attainment among teenagers through participation in TPE (Lewis, 2014, 2017). Positive effects of TPE participation were also observed in participating local residents (Lewis, 2015; Lewis et al., 2022). In particular, within the 2013 Cambridge Community Heritage program it was shown that, following TPE, participants had improved their knowledge of community archeology and history, acquired new skills, and showed increased engagement with local heritage (Lewis, 2015). Overall, this research suggests that there is a relationship between TPE participation and knowledge and skills acquisition. At the same time, reliance on primarily descriptive statistics and absence of control groups makes causal attribution of the observed effects to TPE participation problematic.

Other research has investigated the relationship between engagement with heritage and well-being. For example, analysis of in-depth semi-structured interviews with heritage volunteers by Lewis et al. (2022) demonstrated an association between well-being and volunteering on vulnerable heritage sites (at risk of deterioration), in a cohort of 35 adult volunteers who were mostly aged over 50 and lived near the place where they volunteered. Relatedly, Sofaer et al. (2021) showed on a larger sample that single visits to heritage sites subjectively increased happiness and reduced anxiety after the first UK Covid19 lockdown. Similarly, a study by Fujiwara et al. (2014) demonstrated a trend positive relationship between visiting a heritage site and well-being in specific participant groups (among participants with a long-standing illness or disability, in blue-collar occupations, participants over 45 years old, and those without children). One of the limitations of this research is that, again, it is not possible to infer causation between heritage engagement and well-being due to the correlational nature of the data.

Some research has aimed to overcome this limitation by experimentally exploring the effects of heritage engagement on well-being. Paddon et al. (2013) demonstrated that handling and discussing museum objects resulted in an increase in well-being among hospital patients, when compared to a premeasure. Similar results were found by Thompson et al. (2011) and Ander et al. (2013): a positive effect of heritage exposure (visiting a museum) on well-being and happiness was observed in a sample of hospital patients with mild or moderate level of impairment. Recently, research has started exploring effects on well-being in the context of archeological excavation. For example, a dissertation by Ulke (2018) showed that a small sample of veterans and military personnel demonstrated increased well-being after participation in a 2-week archeological excavation (when compared to a premeasure). Similarly, a study by Everill et al. (2020) showed reduced depression, anxiety, and isolation, and increased mental well-being and self-esteem following taking part in an excavation among 40 military veterans with disclosed mental health needs. While these studies included pre-measures when assessing changes in well-being following different forms of heritage engagement, they still lacked control groups to provide a conclusive evidence of a causal effect, and the conclusions may be limited to the specific populations studied.

In addition to the evidence of a link between heritage engagement and well-being, it has also been demonstrated that, in a local context, involvement with heritage can be linked to a sense of connection with one's community. For example, Bardavio et al. (2004) demonstrated the role of educational excavation projects in promoting local identity in student samples. Similarly, in a study by Nevell (2013), participants from deprived urban areas reported an increased sense of pride of their community following a community excavation project, as well as perceiving the community as a better place to live in and seeing their neighbors as friendlier people. Overall, this research suggests that heritage engagement in the form of local archeological excavation projects may be associated with stronger cohesion within participating communities.

While the existing research provides some evidence of the links between heritage engagement and skills acquisition, well-being, and a sense of connection to one's community, as suggested above, its conclusions are often limited by using correlational designs, absence of control groups, and, sometimes, reliance on descriptive statistics. This area of research would also benefit from developing a theoretical framework for the observed relationships, since relatively little attention has been paid so far to explaining *why* heritage engagement should lead to positive psychological outcomes. In the present research, we aim to overcome these limitations by presenting a theoretical framework for psychological benefits of heritage engagement, and conducting an experimental test of predicted effects. In particular, we will adopt a social identity perspective with a focus on psychological benefits of belonging to and identifying with social groups (i.e., the "social cure" approach, Jetten et al., 2009). This theoretical approach is outlined in the next section.

3 | GROUP IDENTIFICATION AND WELL-BEING

Social identity theory suggests that important group memberships can be incorporated into one's self and become self-defining—in other words, people can develop a sense of identification with social groups (Tajfel, 1978; Tajfel & Turner, 1979; Turner et al., 1994). These social identifications satisfy a number of psychological needs—for example, Greenaway et al. (2015) found that a need to belong, as well as needs for self-esteem, control, and meaningful existence were met as a result of belonging to and identifying with social groups. This satisfaction of needs may translate into stronger well-being—indeed, a number of approaches within the social identity framework have demonstrated links between group identification and well-being across contexts. For example, research based on the social identity model of collective resilience (Drury, 2012; Drury et al., 2009; Williams & Drury, 2009, 2010) demonstrates that, in emergency situations, high identification with a crowd leads to increased collective resilience and well-being through more supportive and fewer competitive behaviors (e.g., Drury et al., 2009, 2016). A similar argument is in the core of the rejection-identification model (Branscombe et al., 1999) that applies the social identity framework to the context of group-based discrimination. It suggests that perceived discrimination may lead to increased identification with the disadvantaged group, which, in turn, results in higher psychological well-being through social support offered by the group (Branscombe et al., 1999). Research based on the social identity model of collective resilience and the rejection-identification model provides strong evidence that identification with meaningful groups is associated with higher well-being and resilience in challenging contexts, due to social support and cooperation that cohesive groups provide (for a review, see Drury, 2018).

These insights were adapted to the context of life transitions by the social identity approach to health (also known as the "social cure" approach, Jetten et al., 2009). This model posits that belonging to social groups has a positive impact on well-being and general health, and can serve as a buffer against stressful life transitions. In particular, when a person faces a life change, whether positive or negative (e.g., becoming a parent, retirement, or serious illness), they can experience negative consequences, such as loss of existing links, isolation, or stigmatization. According to the social cure approach, maintaining old group identifications and developing new ones can buffer individuals against these negative effects (e.g., Haslam et al., 2016). Empirical evidence provides support for this suggestion in the context of transitions to retirement (e.g., Haslam et al., 2019; Lam et al., 2018), residential care living (Gleibs et al., 2011; Haslam et al., 2010), and recovering from heart surgery (Haslam et al., 2005) or brain injury (Jones et al., 2011).

In sum, the above models suggest that identification with meaningful social groups is associated with stronger well-being. This link can be explained by several mediating mechanisms. First, well-being can be enhanced by social support that individuals gain from groups they identify with (e.g., Haslam et al., 2005). In particular, evidence suggests that strongly identified group members tend to believe that support would be available from their group in case of need (Avanzi et al., 2018), and a sense of being supported has been linked to stronger resilience and well-being (e.g., Buckner et al., 2003). Perceived social support has also been demonstrated to increase trust in fellow group members (e.g., Dirks & Ferrin, 2002; Tanis & Postmes, 2005), and the link between trust and well-being has been observed at various scales (e.g., Helliwell & Wang, 2011). Overall, the impact of group identification on well-being may be partly accounted for by social support provided by meaningful groups and trust in fellow group members.

Second, the connection between group identification and well-being may also be mediated by self-efficacy (the belief that one is capable of achieving one's aims successfully). For example, Haslam et al. (2006) showed that belonging to a larger number of social groups was associated with higher self-efficacy and, consequently, fewer depression symptoms among new mothers. There is also evidence that sense of support from one's group may enhance resilience and well-being via strengthening one's sense of efficacy (Buckner et al., 2003). Finally, strong identification with a social group may strengthen group-based esteem (i.e., a sense of collective self-worth, e.g., Bizumic et al., 2009; Branscombe et al., 1999), which has been linked to individual well-being (e.g., Crocker et al., 1994) and health outcomes (Bailis et al., 2008). In sum, identifying with social groups could enhance well-being by satisfying psychological needs for esteem, efficacy, and social support.

The above insights could be effectively applied to explain why engagement with heritage that takes the form of cooperative group activities (such as TPE participation) could result in improved well-being. Working on a shared group goal with one's community members (e.g., during an excavation) could increase a sense of identification with the community (McNamara et al., 2021), which could lead to a stronger sense of mutual support, higher trust in other community members, and increased self-efficacy and self-esteem (Rabinovich et al., 2020). As demonstrated above, these psychological processes could be expected to lead to stronger well-being. Indeed, the link between community identification and well-being has been demonstrated in the context of disadvantaged and diversifying residential communities (e.g., McNamara et al., 2013; Stevenson et al., 2019, 2020), and some evidence for the mediating role of social support, esteem, and efficacy was reported in the context of regenerated urban neighborhoods (Heath et al., 2017). Based on this evidence, it would be reasonable to expect that community identification could explain the relationship between heritage engagement in the form of TPE participation and well-being.

4 | GROUP CONTINUITY

The theory and research reviewed above suggest that strengthening identification with meaningful groups may lead to enhanced well-being, and we have argued that participation in community-based excavation projects (TPEs) may achieve exactly this by developing

stronger community identification. However, in addition to strengthening links between community members, TPE participation is also likely to have a benefit of connecting participants to their community's history and heritage. At a social psychological level, this connection may increase a sense of collective continuity with respect to one's community.

Collective continuity refers to a perception that a social group that one belongs to has temporal endurance, and that there is a connection between the group's past, present, and future. Within the motivated identity construction theory (Vignoles, 2011), group continuity has been suggested as one of the motives that a social identity needs to satisfy to be adaptive—in other words, perceived group continuity is described as a basis on which meaningful social identification can develop. Using this framework, Smeekes and Verkuyten (2013, 2014) have demonstrated that collective continuity strongly predicts national identification, as well as constitutes an important motive for responses to identity threat. In a different line of work, Sani et al. (2007) suggested that perceived group continuity is linked to collective esteem and incorporates two dimensions: cultural (perceived continuity of norms and traditions) and historical continuity (perceived connection between historical time points and events). Importantly, Sani et al. (2008) demonstrated that perception of group continuity is positively related to well-being. This effect was mediated by collective esteem—in other words, perceiving continuity made group members feel good about their group, which then led to higher well-being. Overall, existing evidence suggests that perceived group continuity (a) may strengthen group identification (e.g., Smeekes & Verkuyten, 2013), and (b) may lead to enhanced well-being via increased group-based esteem (Sani et al., 2008). Based on this, in the context of community excavation projects, it could be expected that TPE participation would increase perceived continuity of one's community, which would lead to higher well-being via stronger community identification and community-based esteem.

5 | PRESENT RESEARCH

The present research aims to test in the field possible effects of participating in a community-based archeological excavation project (using the TPE methodology) on well-being. It also aims to explore related psychological processes, including community identification, perceived community continuity, group-based esteem, perceived social support, trust in community members, and self-efficacy. To achieve this, we have conducted a quasi-experimental field study that measures the outcomes listed above among community members taking part in a 2-day TPE and nonparticipating members of the same communities (a control group), both before and after the TPE project.

Based on the evidence reviewed above, we expected that there would be an interaction between TPE participation (participants vs. control) and time of measurement (before vs. after TPE) on well-being, community identification, perceived community continuity, group-based esteem, perceived social support, trust in community members, and self-efficacy. In particular, we expected that TPE participants would report higher levels of these parameters after TPE participation (as compared to before it), while this increase would not be observed in the control group.

6 | METHOD

6.1 | Participants and design

The sample consisted of 66 participants who completed outcome measures at both time points (38 female, 27 male, 1 unidentified; mean age = 57.00, *SD* = 15.36). The data were collected during three rural community TPE projects, two of them in the Netherlands (*N* = 28) and one in the UK (*N* = 38). Power analysis for a multivariate analysis of variance (MANOVA) test, assuming a medium effect size with power of 0.80 and alpha level of .05 suggested a sample size of 128. However, practical constraints related to TPE recruitment did not allow us to reach the planned sample size during the first season: in the Netherlands, where participative community TPE was then a new idea, volunteer numbers were small at first, while in both Netherlands and England some participants were reluctant to take part in the survey. It was not possible to continue data collection in the following (2020) season because the Covid-19 pandemic meant that the TPE program did not run. A sensitivity power analysis using power of 0.80, alpha level of .05, and the sample size of 66, suggested that the study was powered to detect an effects size of V = 0.35.

The study used a 2 (TPE participation vs. nonparticipating control) × 2 (time: before vs. after TPE) mixed measures quasi-experimental design, with the first factor varying between-subjects, and the second factor varying within-subjects. The dependent measures were well-being (operationalized as life satisfaction and positive emotion), community identification, perceived community continuity, perceived social support, community trust, community esteem, and self-efficacy.[2]

6.2 | Procedure

The data were collected during the TPE excavation season of 2019.[3] Each TPE project was completed within 2 days (over a weekend), during which participating community members worked in groups of up to eight people to excavate multiple 1 m^2 archeological test pits, with the assistance of a professional archeologist. The pre-TPE measures (time 1) were completed on the morning of the first day of the TPE (before the excavation started), the post-TPE measures (time 2) were completed at the end of the second (and last) day of the TPE excavations. The control group completed the same measures at the same time points. Participants in the experimental condition were recruited from the volunteers who had already signed up to take part in the TPE program. These had been recruited through local promotional campaigns and residents' social networks and told that the TPE offered a chance to

make new discoveries about the past history of their village, and would be an enjoyable community activity. TPE participants were invited to take part in the experimental survey on the first day of the excavation, just before it started, and then again in the end of the program on the second day. It was made clear that willingness to take part in the study did not affect participants' right to take part in the excavation activities. No one who wanted to participate in the TPE was turned down, so participants for the control group were recruited using a door-to-door method in the same villages where the TPEs took place. All participants were told that the purpose of the study was to explore their perceptions and experience of their community. Participants who completed the questionnaire at both time points were included in a prize draw. At the end of the second survey, all participants were debriefed and thanked.

6.3 | Materials

Participants in both conditions (TPE and control) completed the same measures at both time points, in the same set order. The original version of the questionnaire was in English. A back-translation method was used to create a Dutch version. Participants responded to all items on one of two 5-point Likert scales (1 = "not at all" to 5 = "very much" for the emotions scale; 1 = "strongly disagree" to 5 = "strongly agree" for all other scales). First, we provided a place-based definition of the concept of a "community" as a set of people with whom one is sharing a place where they live (such as a village, a town, or a parish) and who are connected through the space they live in. Participants were then asked to complete measures of community identification, perceived social support, perceived community continuity, community esteem, and community trust.

Four items were used to assess participants community identification (e.g., "I see myself as being part of my local community," "I am pleased to be part of my local community," adapted from Doosje et al. (1995), t1, $\alpha = .899$; t2, $\alpha = .903$); four items were used to assess perceived community support (e.g., "People within my local community really try to help each other out," "I have friends in my local community who I can share my joys and sorrows with," adapted from Heath et al. (2017), t1, $\alpha = .820$; t2, $\alpha = .870$). Three items were used to measure perceived group continuity (e.g., "Being a member of my local community gives me a sense of continuity between past, present, and future," "Being a member of my local community gives me a feeling of being connected with the past," adapted from Smeekes and Verkuyten (2014), t1, $\alpha = .893$; t2, $\alpha = .934$); and five items were used to measure community esteem (e.g., "I feel that my local community is worthy," "On the whole I am satisfied with my local community," adapted from Heath et al. (2017), t1, $\alpha = .691$; t2, $\alpha = .780$). Community trust was measured using a single item ("I trust people from my local community," adapted from Lam et al., 2018).

This was followed by measures of well-being and self-efficacy. Five items were used to assess self-efficacy (e.g., "I can remain calm when facing difficulties because I can rely on my coping abilities," "I am certain that I can accomplish my goals," adapted from Heath et al. (2017), t1, $\alpha = .823$; t2, $\alpha = .908$). Well-being was operationalized in two ways, as general life satisfaction and as current positive emotion. Six items were used to assess life satisfaction (5 items were adapted from the Diener et al. (1985), e.g., "In most ways my life is close to ideal," "The conditions of my life are excellent," and one item was adapted from Lyubomirsky and Lepper (1999), "In general, I consider myself a happy person"; t1, $\alpha = .852$; t2, $\alpha = .889$). Positive emotion was measured using six items, where participants were asked to indicate to what extent they experienced a number of emotions at that moment (e.g., happy, hopeful, adapted from Usborne and Taylor (2010), and Power and Smyth (2016), t1, $\alpha = .885$; t2, $\alpha = .575$). Finally, participants completed the demographic measures. The study was pre-registered at AsPredicted. org[4] (#24845). Full list of items is available in the supplementary materials.

7 | RESULTS

Tables 1 and 2 show correlations between all study variables at time 1 and time 2. There were no demographic differences between participants in the two conditions (in age, gender, or time they have lived in their current villages, all Fs < 0.297, all ps > .827). At time 1, TPE participants reported higher community identification ($M_{TPE} = 4.22$, $SD_{TPE} = 0.64$; $M_{control} = 3.90$, $SD_{control} = 0.73$; F (1, 46)[5] = 4.75, $p = .034$, $\eta_p^2 = 0.094$), and higher perceived community continuity than participants in the control condition ($M_{TPE} = 3.96$, $SD_{TPE} = 0.98$; $M_{control} = 3.49$, $SD_{control} = 0.87$; F (1, 46) = 4.99, $p = .030$, $\eta_p^2 = 0.098$). There were no significant differences at time 1 on any other measures (all ps > .180).

A 2 (condition: TPE participation vs. control) × 2 (time: pre-TPE vs. post-TPE) mixed-measures MANOVAs with repeated measures on the second IV were conducted with the following measures as outcomes: community identification, perceived social support, community continuity, community esteem, trust in community members, self-efficacy, life satisfaction, and positive emotion. In line with the preregistration, we controlled for village membership and time participants had been living there for. Descriptive statistics are reported in Table 3.

The analysis demonstrated a significant multivariate main effect of the experimental condition: F (8, 39) = 2.32, $p = .039$, $\eta_p^2 = 0.322$, and a nonsignificant multivariate main effect of time: F (8, 39) = 1.95, $p = .080$, $\eta_p^2 = 0.285$. Importantly, the multivariate interaction between condition and time was statistically significant: F (8, 39) = 3.46, $p = .004$, $\eta_p^2 = 0.415$.

Univariate results are summarized in Table 4. For community identification, there was a significant main effect of the condition (F (1, 46) = 7.99, $p = .007$, $\eta_p^2 = 0.148$), which was qualified by a marginally significant interaction between condition and time (F (1, 46) = 4.03, $p = .051$, $\eta_p^2 = 0.080$). Planned pairwise comparisons showed that TPE participants reported higher community identification post-TPE ($M_{t2} = 4.39$, $SD_{t2} = 0.65$) compared to pre-TPE ($M_{t1} = 4.22$, $SD_{t1} = 0.64$), although this difference did not reach statistical

TABLE 1 Descriptive statistics and correlations between all study variables at time 1.

Variables	M (SD)	1	2	3	4	5	6	7	8
1-Community identification	3.97 (0.77)	–							
2-Social support	3.85 (0.83)	0.74**	–						
3- Perceived group continuity	3.70 (0.92)	0.57**	0.56**	–					
4-Community esteem	4.14 (0.48)	0.65**	0.50**	0.51**	–				
5- Community trust	4.03 (0.62)	0.45**	0.45**	0.26*	0.64**	–			
6-Life satisfaction	4.06 (0.59)	0.22	0.33**	0.11	0.25	0.28*	–		
7-Self-efficacy	4.15 (0.68)	−0.03	0.04	−0.06	0.11	0.04	0.59**	–	
8-Positive emotions	3.71 (0.63)	0.06	0.03	0.03	0.11	0.01	0.58**	0.57**	–

Abbreviations: M, mean; SD, standard deviation.
*$p < .05$; **$p < .01$.

TABLE 2 Descriptive statistics and correlations between all study variables at time 2.

Variables	M (SD)	1	2	3	4	5	6	7	8
1-Community identification	3.97 (0.81)	–							
2-Social support	3.92 (0.82)	0.75**	–						
3- Perceived group continuity	3.76 (0.91)	0.72**	0.55**	–					
4-Community esteem	4.9 (0.60)	0.77**	0.60**	0.62**	–				
5- Community trust	3.89 (0.77)	0.62**	0.57**	0.38**	0.68**	–			
6-Life satisfaction	4.11 (0.59)	0.39**	0.41**	0.24	0.42**	0.38**	–		
7-Self-efficacy	4.18 (0.66)	0.14	0.08	0.13	0.31*	0.16	0.57**	–	
8-Positive emotions	3.77 (0.64)	0.24	0.27*	0.28*	0.35*	0.28*	0.57**	0.60*	–

Abbreviations: M, mean; SD, standard deviation.
*$p < .05$; **$p < .01$.

TABLE 3 Descriptive statistics for all outcome measures across the conditions and time points.

Variables	TPE group M (SD) time 1	TPE group M (SD) time 2	Control group M (SD) time 1	Control group M (SD) time 2
Community identification	4.22 (0.64)$^{\#}$	4.39 (0.65)$^{\wedge}$	3.90 (73)^{c}	3.81 (0.77)^{c}
Social support	3.81 (0.79)^{a,c}	4.11 (0.76)^{b,c}	3.91 (0.74)^{c}	3.86 (0.85)^{c}
Perceived group continuity	3.96 (0.98)$^{\#}$	4.20 (0.77)$^{\wedge}$	3.50 (0.87)^{c}	3.51 (0.94)^{c}
Community esteem	4.26 (0.41)^{a}	4.31 (0.40)$^{a,\#}$	4.11 (0.48)^{a}	4.00 (0.64)$^{a,\wedge}$
Community trust	4.11 (0.47)^{a}	4.11 (0.58)^{a}	4.03 (0.68)^{a}	3.84 (0.83)^{a}
Life satisfaction	3.94 (0.54)^{a,c}	4.21 (0.50)^{b,c}	4.16 (0.57)^{c}	4.17 (0.59)^{c}
Self-efficacy	4.17 (0.69)^{a,c}	4.46 (0.54)^{b,c}	4.20 (0.74)^{c}	4.17 (0.70)^{c}
Positive emotions	3.85 (0.55)^{a,c}	4.02 (0.56)$^{b,\#}$	3.72 (56)^{c}	3.75 (0.58)$^{c,\wedge}$

Means with different letter superscripts are different at $p < .05$ level. Means with different symbol superscripts are different at $p < .10$ level.

TABLE 4 Univariate effects of the experimental condition, measurement time, and their interaction.

Outcome variables	Main effect condition			Main effect time			Interaction time condition		
	F	*p*	η_p^2	F	*p*	η_p^2	F	*p*	η_p^2
Community identification	7.985	.007	0.148	0.434	.514	0.009	4.003	.051	0.080
Social support	0.498	.484	0.011	11.658	.001	0.202	8.670	.005	0.159
Perceived community continuity	7.448	.009	0.139	1.028	.316	0.022	1.693	.200	0.035
Community esteem	3.152	.082	0.064	0.476	.494	0.010	1.343	.252	0.028
Community trust	1.717	.197	0.036	0.243	.631	0.005	0.397	.532	0.009
Life satisfaction	0.203	.654	0.004	3.307	.075	0.067	4.988	.030	0.098
Self-efficacy	0.335	.565	0.007	0.573	.453	0.012	9.659	.003	0.174
Positive emotions	1.942	.170	0.040	0.105	.747	0.002	3.327	.075	0.067

significance: mean difference = −0.16, $SE = 0.09$, $p = .098$, 95% CI [−0.345; 0.030]. In the control condition, there was no significant difference in community identification between the two time points, with the mean being nonsignificantly lower post-TPE ($M_{t1} = 3.90$, $SD_{t1} = 0.73$; $M_{t2} = 3.82$, $SD_{t2} = 0.77$, mean difference = 0.08, $SE = 0.07$, $p = .255$, 95% CI [−0.058; 0.215]).

For perceived social support, there was a significant main effect of time (F (1, 46) = 11.66, $p = .001$, $\eta_p^2 = 0.202$), which was qualified by a significant interaction between time and condition (F (1, 46) = 8.67, $p = .005$, $\eta_p^2 = 0.159$). Pairwise comparisons demonstrated that TPE participants perceived a significantly higher level of social support post-TPE ($M_{t2} = 4.11$, $SD_{t2} = 0.76$) compared to pre-TPE ($M_{t1} = 3.81$, $SD_{t1} = 0.79$, mean difference = −0.25, $SE = 0.07$, $p = .001$, 95% CI [−0.395; −0.102]). There was no difference across the time points in the control group ($M_{t1} = 3.91$, $SD_{t1} = 0.74$; $M_{t2} = 3.86$, $SD_{t2} = 0.81$, mean difference = −0.03, $SE = 0.09$, $p = .680$, 95% CI [−0.085; 0.129]).

For perceived community continuity, there was a significant main effect of the condition: F (1, 46) = 7.45, $p = .009$, $\eta_p^2 = 0.139$, all other effects were nonsignificant. However, planned pairwise comparisons showed that TPE participants perceived community continuity to be marginally higher post-TPE ($M_{t2} = 4.20$, $SD_{t2} = 0.77$) compared to pre-TPE ($M_{t1} = 3.96$, $SD_{t1} = 0.98$, mean difference = −0.22, $SE = 0.12$, $p = .064$, 95% CI [−0.458; 0.013]). There was no difference across the time points in the control group ($M_{t1} = 3.49$, $SD_{t1} = 0.87$; $M_{t2} = 3.52$, $SD_{t2} = 0.94$, mean difference = −0.03, $SE = 0.09$, $p = .726$, 95% CI [−0.202; 0.142]).

For life satisfaction, we found no significant main effects and a significant interaction between TPE participation and time of measurement: F (1, 46) = 4.99, $p = .030$, $\eta_p^2 = 0.098$. Pairwise comparisons demonstrated that TPE participants reported a significantly higher level of life satisfaction after TPE participation ($M_{t2} = 4.21$, $SD_{t2} = 0.50$) rather than before it ($M_{t1} = 3.94$, $SD_{t1} = 0.55$), mean difference = −0.25, $SE = 0.09$, $p = .005$, 95% CI [−0.423; −0.082]). No difference in life satisfaction across the time points was found in the control condition ($M_{t1} = 4.17$, $SD_{t1} = 0.57$, $M_{t2} = 4.17$, $SD_{t2} = 0.59$, mean difference = −0.01, $SE = 0.06$, $p = .823$, 95% CI [−0.138; 0.110]).

For positive emotion, there were no significant main effects and a marginally significant interaction between TPE participation and time of measurement: F (1, 46) = 3.33, $p = .075$, $\eta_p^2 = 0.067$. Planned pairwise comparisons showed that TPE participants reported a significantly higher level of positive emotion after TPE participation ($M_{t2} = 4.02$, $SD_{t2} = 0.56$) than before it ($M_{t1} = 3.85$, $SD_{t1} = 0.55$), mean difference = −0.20, $SE = 0.08$, $p = .015$, 95% CI [−0.359; −0.041]). There was no difference in positive emotion across the time points in the control condition ($M_{t1} = 3.72$, $SD_{t1} = 0.56$, $M_{t2} = 3.76$, $SD_{t2} = 0.58$, mean difference = −0.02, $SE = 0.06$, $p = .753$, 95% CI [−0.134; 0.097]).

For self-efficacy, there were no significant main effects and a significant interaction between experimental condition and time of measurement: F (1, 46) = 9.66, $p = .003$, $\eta_p^2 = 0.174$. Pairwise comparisons demonstrated that TPE participants reported significantly higher self-efficacy after TPE participation ($M_{t2} = 4.46$, $SD_{t2} = 0.54$) rather than before it ($M_{t1} = 4.17$, $SD_{t1} = 0.69$), mean difference = −0.20, $SE = 0.09$, $p = .001$, 95% CI [−0.476; −0.129]. The means in the control group did not differ across the time points ($M_{t1} = 4.20$, $SD_{t1} = 0.74$; $M_{t2} = 4.17$, $SD_{t2} = 0.71$, mean difference = 0.04, $SE = 0.06$, $p = .567$, 95% CI [−0.090; 0.163]). For community esteem and trust no statistically significant effects were found (see Tables 3 and 4 for statistics).[6]

Although no predictions for specific mediation processes were preregistered, as an exploratory analysis, we conducted mediation analyses using difference scores. In particular, we computed differences between time 1 and time 2 scores for all variables were significant or marginal univariate interactions were found in the analysis reported above (community identification, perceived social support, self-efficacy, positive emotions, and life satisfaction). Model 4 from the SPSS macro PROCESS was used to test indirect effect of TPE participation on change in life satisfaction via change in community identification, perceived social support, and self-efficacy. As in the main analysis, we controlled for the village where participants lived and time they lived there. No significant indirect effects were found (see the SM for statistical results).

8 | DISCUSSION

The aim of the present research was to test the effect of participation in community-based TPE projects on well-being and associated psychological processes. Based on the social identity framework, we

suggested that taking part in a TPE could enhance a sense of community identification, which would lead to increased well-being via stronger perceptions of social support and trust, higher community esteem, and increased efficacy. We also expected that TPE participation could increase perceived temporal continuity of one's community. The results provided partial support for these expectations. In line with the predictions, TPE participants demonstrated a significant increase in well-being after (as compared to before) the TPE project on the measures of life satisfaction and positive emotion. This increase was not observed among the control participants. This finding is consistent with the existing work on the relationship between engagement with historical heritage and well-being (e.g., Fujiwara et al., 2014; Paddon et al., 2013), as well as with the previous work on benefits of community-based TPEs (Lewis, 2014, 2015, 2017). The present results extend this existing research by providing stronger evidence for the causal effect of TPE participation through comparing outcomes before and after the TPE among those taking part in the program, as well as a nonparticipating control group. They also demonstrate that the effect of heritage engagement on well-being is observed not only in specific populations (such as military personnel, Ulke, 2018; hospital patients, Paddon et al., 2013; or young people, Lewis, 2014, 2015) but also in general community participants.

In addition to the effect on well-being, TPE participants (but not those in the control condition) reported stronger perceptions of community support, higher self-efficacy, marginally higher community identification, and marginally higher perceived temporal continuity of their community after (as compared to before) TPE participation. These results are consistent with the predictions, as well as with the general social identity framework (Tajfel & Turner, 1979; Turner et al., 1994) and the previous research on the role of group identification in well-being (e.g., Haslam et al., 2016; Jetten et al., 2009). In particular, they are consistent with the suggestion that well-being can be enhanced through activities that strengthen identification with meaningful groups (e.g., Haslam et al., 2019; Lam et al., 2018), increase social support (e.g., Haslam et al., 2005), and, as a result of this, strengthen efficacy (Buckner et al., 2003). These results are also in line with the existing work on the role community identification in well-being (e.g., Heath et al., 2017; McNamara et al., 2013; Stevenson et al., 2019, 2020). The present results extend this existing research by demonstrating the link between group identification, social support, and well-being in a context where the social identity framework has not hitherto been applied, namely engagement with heritage through community-based archeological excavations. They provide not only support for the relationship between community identification and well-being, but also suggest a type of activity that may effectively strengthen community identification in a field context.

The finding that perceived group continuity was related to group identification and group-based esteem is consistent with the previous research within the motivated identity construction framework (Vignoles, 2011) and the work on historical continuity in the context of national identity (Sani et al., 2008). In line with this research, our findings demonstrate that perceived collective continuity may be linked to a stronger sense of connection to one's group and a higher sense of collective worth, which are, in turn, associated with enhanced well-being (Sani et al., 2008).

At the same time, the findings did not support the prediction that TPE participation would result in stronger community-based esteem and trust. This could be related to the nature of the TPE activity and opportunities that it provides. TPE projects offer many opportunities for cooperative action (which could increase perceived community support) and for learning skills (which would affect self-efficacy). However, there may be fewer opportunities within a 2-day program for significant collective achievements (which could explain the absence of an effect on community esteem) or for a deeper and sustained interaction with other community members that could increase trust beyond the base level. It is possible, however, that TPE offers an opportunity to establish initial connections with fellow community members that could continue beyond the program and, over time, lead to enhanced trust. This possibility remains to be investigated.

Although exploratory tests of indirect effects did not show significant results in the present study, this is likely due to the difficulty of detecting indirect effects using change scores. Given that analysis of change scores does not allow to make causal inferences (e.g., Tennant et al., 2022), future research should aim to manipulate potential mediating processes experimentally, and to achieve sufficient power to focus on between-subject effects.

On a practical level, the present study may provide some suggestions both for rural community work professionals whose aim is to enhance community well-being, as well as for archeologists involved in conducting community-based TPE programs. For the former, it shows that participative archeology offers an approach that may not only provide opportunities for communal working on shared goals (thereby increasing cooperation and group identification), but also reconnect communities with their historic heritage, increasing the sense of continuity. This may serve as an additional route to increasing community identification and well-being—community connections could be strengthened not only by cooperative action, but also by activities that uncover a group's connection to its past, adding an extra layer of meaning for what it means to be a member of that community. With respect to archeologists and/or heritage professionals involved in community work, our findings highlight the importance of being aware of and understanding psychological processes unfolding through TPE activities, and ways in which these might be shaped by the TPE structure. In particular, our analysis indicates that for TPEs to have maximal positive impact on people and communities, it is important that they provide opportunities for cooperative group working on shared goals, and for shaping the community's sense of continuity between its past and future. More broadly, it can be suggested that interdisciplinary research connecting archeology and social psychology may have the potential to advance understanding of other social impacts of heritage engagement.

8.1 | Limitations and future research

Several limitations of the present research have to be considered. First, the present study had a quasi-experimental design. It was not possible to use random assignment to the conditions for practical reasons: in particular, recruitment for TPE participation was conducted before and separately from the present study, and it was not considered appropriate for anyone who signed up for TPE participation to be assigned instead to the control group. While the control participants were recruited within the same communities and were not demographically different from TPE participants, the conclusions are limited by participants' self-selecting to the TPE group. It could be possible that the effects of TPE participation are more pronounced for those who already have a strong connection with their community and interest in its heritage (and thus are more willing to sign up for community-based heritage projects). Future research should address this limitation by using experimental designs with random assignment (e.g., by offering control participants an opportunity to take part in a TPE at another time point). An additional limitation of the mixed measures design used is possible demand characteristics that could affect participants' responses at time 2. Future research could employ suspicion checks or focus on demonstrating between-subject effects following TPE participation.

Another limitation is the relatively small sample size. This was again limited by practical field constraints. Community TPE was introduced as a novelty in the Netherlands in 2019, and while recruitment increased over time, lower participant numbers at the outset meant it was not possible to reach the planned sample size before the end of the 2019 window for experimental data collection. Returning to increase the size of the data set in following seasons was not possible due to the Covid-19 pandemic. As a result of lower statistical power, the present study may have failed to detect some of the predicted effects, and the effects that were observed could be less reliable.

Future research could also aim to provide evidence for longevity of the observed effects. In the present research, the postmeasures were taken immediately after the completion of the TPE program. It would be important to explore how stable these effects are. There is a possibility that rather than wearing off, they may become stronger over time, since the TPE program could inspire continuous interactions and stronger mutual support within communities. On the other hand, capturing these longer-term effects could be methodologically challenging, as the effects may spread over time to control participants through community interaction.

Another consideration for future research that has important theoretical and practical implications, is the extent to which increased perception of temporal continuity of one's community could have negative (as well as positive) consequences. For example, Smeekes and Verkuyten (2013) found that collective continuity may result in stronger opposition to outgroups and resistance to social developments, as well as ingroup protectionism. In community contexts, this could be reflected in hostility toward newcomers with nontraditional backgrounds, or resistance to changes in communal practices that could be adaptive (cf. Rabinovich et al., 2019). Future research should explore the possibility of these less beneficial consequences of heritage engagement, and it would be important to consider how principles of diversity and openness could be incorporated into heritage engagement activities.

9 | CONCLUSION

The present research provides one of the first experimental explorations of the effect of community heritage engagement activities, in particular TPE projects, on psychological outcomes. The findings suggest that TPE participation results in increased perception of community support, higher self-efficacy, life satisfaction, positive emotion, and marginally higher community identification and continuity, as compared to premeasures. The same changes were not observed in the control group. These results contribute to the existing work on psychological benefits of heritage engagement by providing some evidence for the causal impact of TPE participation and offering a theoretical framework for understanding it. The findings are consistent with the social identity approach and the existing work on the role of community identification in well-being, and extend these areas of research by demonstrating the link between group identification and well-being in a new applied context, as well as suggesting a practical approach to community building through the existing community archeology practice. Finally, the present work offers practical implications for those involved in planning and conducting TPE programs, suggesting that opportunities for cooperative interaction around shared goals are key to maximizing positive psychological outcomes of heritage engagement initiatives.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

This research received ethics approval from the University of Exeter.

ENDNOTES

[1] A test pit is a small (usually 1 m^2) excavation sampling subsurface deposits for archeological evidence which can advance knowledge of the history of the place being excavated. TPE has been used widely as a "citizen science" activity with members of the public carrying out the excavations to research the history of village they live in, in which circumstances the excavations typically take place over 2 consecutive days under professional archeological supervision.

[2] We also measured place attachment and negative emotions for exploratory purposes. As these measures are not part of the theoretical rationale, they were not included in the main analysis. ANOVAs for each of these measures did not show statistically significant interactions between the experimental condition and time of measurement.

[3] A written handbook (in English/Dutch as appropriate) was issued to excavators to ensure the same procedure was followed by all; and a proforma record booklet was completed by all to ensure records were made in the same way. The test pits are all the same size, all TPs are located in gardens, paddocks, or other unbuilt up places within villages. The format of the events is the same (excavations by village residents, taking place over 1 weekend, activity starts with a briefing, archeologists provide support to people excavating over the 2 days, followed by a final get-together to celebrate achievement and compare finds).

[4] We planned to collect data at three time points, but due to practical constraints it was not possible to collect data at time 3.

[5] Degrees of freedom are based on the MANOVA analysis described below.

[6] We have run a set of mixed univariate ANOVAs for all outcomes except for community identity and perceived community continuity. We controlled for community identification in time 1 and perceived community continuity in time 1 since there were significant differences in time 1. Results are reported in the Supporting Information.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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