

The Role of Place Attachment in Empowering Residents in Conservation of Heritage Site: A case study in Lenggong Valley, Malaysia

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Abstract

This study investigates the relationship between the two theoretical constructs, building on earlier research that asserts place attachment as an antecedent to empowerment. The moderating effect of length of residence is also examined using data from a sample of 358 residents within Lenggong Valley. The partial least squares structural equation modeling (PLS-SEM) analysis found that the place dependence and nature bonding provided a strong sense of empowerment to Lenggong residents while place identity influenced psychological empowerment and political empowerment but not social empowerment. The moderation effect with length of residence revealed that residents who have resided in Lenggong for a considerable length of time, had a strong sense of place identity and were socially empowered. Future research can explore the influence of place identity and social empowerment on conservation participation initiatives among long-term residents. The findings have important implications for government and organisations involved in initiatives focusing on mobilizing residents in the area.

Keywords: place attachment, empowerment, Lenggong Valley

1. Introduction

Humans have an impact on heritage forests, which represent cultural, historical, and ecological values. In the past, these forests have helped to maintain a balance between people and their surroundings in the geographical setting of villages. Since they were regarded as sacred places for centuries, many of these forests have been preserved. Communities have benefited greatly from the ecosystem services that these forests have provided in terms of economy, aesthetics, ecology, and culture (Hu et al., 2011). International agreements and principles continue to push local conservation authorities to take the livelihood concerns of people residing in conservation landscapes seriously, which has led to the continued search for on-the-ground mechanisms that can facilitate a reconciliation between conservation and livelihood (Roth & Dressler, 2012). Concern over communities living in conservation landscapes persists especially for heritage sites or forests. Limiting people's rights to use the natural world is a key component of conservation implementation (Agrawal & Redford, 2009).

Lenggong Valley was designated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as a World Heritage Site (WHS) in recognition of its extensive archaeological heritage (Rasoolimanesh, Dahalan, & Jaafar, 2016) in 2012. Although it has been almost a decade since been conferred the WHS status, early observations suggest that residents are unaware of the importance of the site or the worth and value of the status. The local community's lack of understanding prevents them from informing people outside of their community and from involving other locals and local youth in conservation programmes (Jaafar et al., 2020; Jaafar, Noor, & Rasoolimanesh, 2015). In addition, it was observed that the population of Lenggong has declined by 16% between 2010 and 2010 (Official Website Perak State, 2019), an alarming indicator as heritage status would be seen as an opportunity for growth, leading to higher migration into Lenggong, but unfortunately, the opposite is observed.

In addition, Lenggong Valley is in danger of losing its coveted heritage status due to the poor condition of the valley and the caves caving in due to neglected environmental concerns (Lingham & Ravindran, 2019). Preservation of the heritage site necessitates active involvement and support from residents. Theory of attachment

and empowerment are employed to understand the role of residents in supporting conservation efforts in Lenggong Valley. The attachment to a place expressed as a bond between place and human is widely explored area and there are numerous theories and models in environmental and community psychology have been created to investigate people's emotional ties to place, most notably with regard to place attachment (Low & Altman, 1992), place identity (Proshansky, 1978) and tripartite organizing framework of place attachment (Scannell & Gifford, 2010). The importance of attachment to ensure resident empowerment was highlighted by Manzo and Perkins (2006) that residents attached to a place would be empowered through social capital to act and bring change.

Given the above preamble, the objective of this study is to explore residents' place attachment and the impact on empowerment, specifically the level of Lenggong Valley residents psychological, political, and social empowerment towards conservation of this heritage site. The significance of this study is that information on the connection of the different dimensions of place attachment and empowerment from the perspective of Lenggong Valley residents may guide on the development of appropriate conservation strategies. The findings of this study can serve as a valuable resource for the local government as they formulate policies that are appropriate, consider community opinions, and protect natural heritage sites. This article is organized as follows. The next section provides the theoretical foundation and details of past empirical research related to this study. The third section is on research methodology. The fourth section discusses the results, followed by discussions. The last section, conclusion, with some suggestions for future studies.

2. Literature Review

The foundation for place attachment theory can be traced to the attachment studies on mother-infant bonds (Buonincontri, Marasco, & Ramkissoon, 2017). The underlying premise being the attachment between the infant and the mother influences expectation and behaviour of children (Plunkett, Fulthorp, & Paris, 2019). Low and Altman (1992) employed the attachment theory to places by linking emotional bonding to cultural features, social environment and physical environment.

Place attachment is a multi-dimensional construct comprising of place dependence, place identity, place affect and place bonding ([Alonso-Vazquez et al., 2019](#); [Plunkett et al., 2019](#)).

The attachment to heritage sites has been analyzed from various perspectives which includes appreciation towards outstanding universal value (OUV) embodied by heritage sites, authenticity of the site, interpretive service quality received at heritage sites, among others. The credibility of heritage sites is valued and determined by Outstanding Universal Value that a site emanates ([UNESCO World Heritage Convention, 2022](#)). [Nian et al. \(2019\)](#) explored the appreciation of outstanding universal value among tourists and how it was instrumental in enabling a sense of attachment with intention to protect the heritage site. The studies on heritage sites have focused more on tourist perspective rather than residents ([Cheng et al., 2018](#); [Yi et al., 2023](#)). However, comparison studies between residents and tourists have also been done. [Su and Wall \(2016\)](#) highlighted that tourists are more appreciative of heritage values compared to residents. Another study highlighted that tourist compared to residents demonstrated a higher degree of place attachment ([Woosnam et al., 2018](#)) influencing the tourists' intention to revisit a heritage site ([Hamid, Mohamad, & Suki, 2021](#)). However, [Hoang, Brown, and Kim \(2015\)](#) highlighted that residents display a combination of pride, happiness and honor especially with respect to the prestige of the heritage site ([Hoang et al., 2015](#)). A gap is the lack of studies focusing on residents' attachment, especially to heritage sites, which is addressed by the present study.

In this section, the domains of place attachment – place identity, place dependence and bonding – are explained from a definition perspective to support and link it to empowerment and length of stay discussion later. The first domain is place identity referring to emotional attachment to a place which translates as self-identity to an individual ([Hosany et al., 2017](#); [Junot, Paquet, & Fenouillet, 2018](#)). Identifying with a place influences individuals' decisions to engage in a site. The current study focuses on place identity expanding from personal to a group or community perspective. ([Manzo & Perkins, 2006](#)). In a group or community setting, the attachment and involvement an individual displays contributes to developing a

shared purpose to preserve and conserve a site (Liu & Cheng, 2016; Manzo & Perkins, 2006). This perspective is introduced to emphasize the importance of place identity as an influencer to encourage individual participation at community level on preservation concerns.

The much-cited definition of place dependence is the availability of social and physical resources to satisfy goal directed behaviour (Stokols, 1981). Place dependence can be expressed as having a positive opinion about a place due to its role as an enabler to support residents or tourists to obtain the desired outcome (Moore & Graefe, 1994; Romolini et al., 2019). Hence, a measure of place dependence can be reflected by function of its usefulness (Budruk, Thomas, & Tyrrell, 2009). The proposition here is the attachment towards heritage sites, specifically place dependence would be driven by a sense of functional usefulness perceived by the residents. The usefulness of a place would be an important motivator for people to perform physical and social activities and show more fondness toward the place (Sun et al., 2020).

Literature on place attachment focused on bonding as an important domain. Place attachment bonding explores two distinct bonding - nature bonding, which focuses on connection to natural environment and the second social bonding which focuses on connections with the community in place. Raymond, Brown, and Weber (2010) highlights that nature bonding is more applicable for the measurement of place attachment in natural setting, as is the case for this study, focusing on Lenggong valley, a natural heritage site. The definition for nature bonding focuses on individual emotional connections to nature (Kals, Schumacher, & Montada, 1999). Study indicates that individuals with nature bonding can relate to the environment and would express a desire to avoid consequences to the natural environment (Raymond, Brown, & Robinson, 2011). Given the focus of the current study is on the conservation of a natural heritage site, the natural bonding element would be a more effective construct to understand conservation of the natural site from the perspective of place attachment.

Though place attachment is widely applied in the study of heritage sites (Hoang, Brown, & Kim, 2020; Mohamed, Mohd Shariff, & Kayat, 2017; Nian et al., 2019; Tan et al., 2018; Woosnam et al., 2018; Yi et al., 2023), the investigation of how

place attachment influence residents' discernments of empowerment in heritage conservation is almost non-existent. This study is exploring this gap as it has the potential to understand how residents' bonding with heritage spaces coupled with a sense of empowerment would contribute to supporting and enhancing conservation activities. The concept of empowerment first introduced by [Rappaport \(1987\)](#) was defined as having ownership over one's life by engaging in a democratic manner in a community space. The four most used dimensions of empowerment are economic, social, political, and psychological ([Zimmerman, 1995](#)). Empowerment has applied in field of education, psychology, and planning/development as an enabler for social justice ([Boley & McGehee, 2014](#)). It has also been widely applied in tourism research ([Aleshinloye et al., 2022](#)) to investigate community level involvement. The interest of this study applying it to heritage study is also linked to community engagement, specifically to address challenges related to preservation and conservation of heritage sites.

Social empowerment is defined as a process of taking control of their own lives and supporting and reinforcing the empowerment of other members of ones' community ([García-Lastra & Sierra, 2021](#)). The next construct is political empowerment expressed as a collective effort at community level to influence the direction of development, i.e. heritage conservation ([Boley & McGehee, 2014](#)). The final construct is psychological empowerment which depicts a person's psychological states and gauges their level of empowerment ([Malik, Sarwar, & Orr, 2021](#)). An internalisation of the organization's goals and objectives as well as a sense of perceived control and competence were considered to be characteristics of the psychologically empowered state ([Menon, 1999](#); [Spreitzer, 1995](#)). According to the literatures, psychological empowerment is positively correlated with individual performance outcomes ([Maynard, Gilson, & Mathieu, 2012](#)), task performance ([Chamberlin, Newton, & LePine, 2018](#)), organisational commitment ([Avolio et al., 2004](#)) and work engagement ([Monje-Amor et al., 2021](#)).

Based on the above review, the present study adopted the framework from [Strzelecka, Boley, and Woosnam \(2017b\)](#) which incorporates the elements of place attachment and empowerment among residents. The present study adopts this

framework to understand the element of place attachment and the influence on empowerment among residents in Lenggong Valley in support of the conservation effort of the heritage site. In addition, the present study modified [Strzelecka et al. \(2017b\)](#) framework to include the element of length of stay as a moderating factor. Years of residence in a place was observed as an influencer towards place attachment ([Trąbka, 2019](#)), however, there is lack of literature on the influence of length of stay on place of attachment and empowerment studies. There are studies indicating that people residing in a place for a long duration are likely to be attached and identifying with the place ([Lewicka, 2011](#)). The rationale is that duration of stay coupled is likely to influence the wanting to be engaged with the activities within the heritage site ([Lewicka, 2013](#)). Therefore, engagement and commitment to a place would determine the commitment to participating in improvement in community spaces ([Pretty, Chipuer, & Bramston, 2003](#)). Given there is a gap in the existing literature, the framework from [Strzelecka et al. \(2017b\)](#) was adapted to include a moderation effect to understand the impact on conservation effects. The framework for this study is shown in [Figure 1](#).

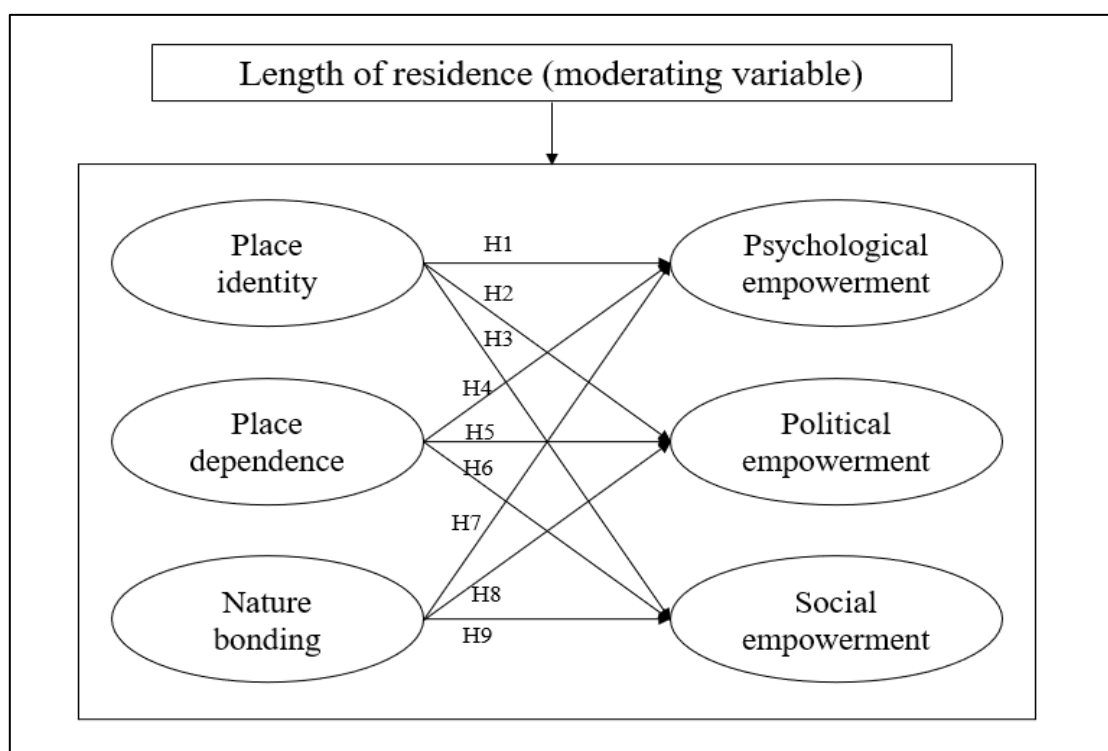


Figure 1: Conceptual framework

Source: Adapted from [Strzelecka et al. \(2017b\)](#).

A review of methodology employed by past studies reveals the main data collection tool were questionnaires, adapted from previous studies (Lewicka, 2011, 2013; Strzelecka et al., 2017b; Trąbka, 2019). The studies also have employed structural equation modeling An approach that is mirrored by the present study. The application of Structural Equation Modelling (SEM) was also employed to test for relationships among the constructs with many studies using PLS-SEM software (Aleshinloye et al., 2022; Jaafar et al., 2020; Jaafar et al., 2015).

3. Methodology

A descriptive and cross-sectional questionnaire-based survey was employed by this study. The sample respondents for this study are residents staying within the locality of the Lenggong Valley World Heritage Site. The focus on residents as respondents was to align with the objective of the study to understand the attachment and level of attachment exhibited by the residents which would support conservation of the site. Lenggong Valley is situated in Hulu Perak District, in the state of Perak, Malaysia. Lenggong Valley is home to a cluster of caves where the 11,000 year-old prehistoric Palaeolithic era skeleton, known as the Perak Man was discovered (Lingham & Ravindran, 2019). Lenggong Valley was inscribed as a world heritage site in 2012 (UNESCO World Heritage Convention, 2012).

The study employed a purposive sampling technique based on voluntary participation, collecting data from a sample of 358 residents within Lenggong. Out of the total sample, 353 respondents completed 80% of the questionnaire ensuring a response rate of 98.6%. Malaysia has three main ethnic groups, Malays, Chinese and Indians. The sample is predominantly from the Malay ethnicity (98%). The sample is reflective of the population of Hulu Perak, which reports a Malay ethnicity of 88% as of 2019 (Department of Statistics Malaysia, 2020). Sample consists of a balanced gender composition with males at 56.4%. About 50.4% of the respondents are between the age of 26 and 35 years old. Most of the respondents had completed secondary education (83%). It was noted that

more than half of the sample respondents (56.9%) have lived in Lenggong for more than 30 years. This is supportive of the direction of the research to understand whether length of residence would impact the attachment and empowerment of residents.

The questionnaire consists of two sections. One section includes items on place attachment and empowerment as components to explain residents' attitude towards conservation. The study included seven constructs to measure these relationships - place dependence, place identity, nature bonding, psychological empowerment, social empowerment, and political empowerment (Strzelecka et al., 2017b). The items included in the first section measure the constructs employ a five-point Likert scale ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree", with a mid-point of neutral. The details of the constructs are summarised in the Table 1 below. The second section includes items on demographic and social factors. The questions measuring these factors include length of residence, home-ownership status, age, gender, education, income, neighbourhood ties and sense of security (Lewicka, 2010). A graduate research assistant trained in how to hand out questionnaires went to the heritage sites to conduct the survey.

The evaluation of the model employed PLS-SEM, a two steps method with an evaluation of the measurement model (i.e. the outer model) and the structural model (i.e. the inner model). (Chin, 1998; Hair, Ringle, & Sarstedt, 2011). According to Hair et al. (2017), partial least squares structural equation modelling (PLS-SEM) offers an advantage in the analysis of data that are not normally distributed, therefore a normal distribution of the data is not required in this study. According to Ramayah et al. (2018), validity refers to whether the theoretical and practical manifestations of the core concept under consideration are an accurate representation of the core concept under consideration. Content validity, construct validity (including convergent validity and discriminant validity) and criterion validity are the three categories of validity analysis (including reliability analysis).

4. Analysis

The study employed the measurement technique for the six constructs. The constructs as discussed above are place identity (PI), place dependence (PD), nature bonding (NB), psychological empowerment (PE), social empowerment (SE) and political empowerment (POE). The reflective measurement model was assessed by examining the constructs' reliability and validity. Composite reliability (CR) and average variance extracted (AVE) are the two key criteria for evaluating the reliability and validity of a reflective measurement model (Chin, 1998; Hair et al., 2011).

The Cronbach's alpha coefficient and composite reliability scores were used to analyze consistency between items. Cronbach's alpha and composite reliability (CR) should both be above 0.70 (Hair et al., 2017). Hair et al. (2017) defined excellent reliability as greater than 0.9, good reliability as greater than 0.8, adequate reliability as greater than 0.7, doubtful reliability as greater than 0.6, and below average reliability as less than 0.5. Table 1 shows the values of Cronbach's alpha and Cronbach's CR for all constructs. All reliability values exceeded the required value of 0.70. Consequently, the reliability of the constructs was established.

Convergent validity is defined as the extent to which two measures of the same concept are related (Hair et al., 2017). Hair et al. (2017) also proposed studies to assess convergent validity using factor loadings, CR and average variance extracted (AVE). All item loadings should exceed the recommended value of 0.70. Researchers had previously suggested that composite reliability scores, which indicate how well the construct indicators represent the latent variable, should be greater than 0.70. In addition, all composite reliability values (Table 1) in this study ranged from 0.856 to 0.946, indicating strong internal consistency reliability. The AVE compares the variance captured by the indicators with the measurement error, and a loading value greater than 0.50 was recommended to validate the use of the construct. The AVEs in this study ranged from 0.601 to 0.820, which were all within the acceptable range. As the threshold was met, the entire set of latent variables was found to meet the criteria for convergent validity.

Table 1: Assessment results of the measurement model

Construct	Loading	Cronbach alpha	CR	AVE
Place Identity (PI)				
1) I identify strongly with Lenggong Valley.	0.843			
2) I feel Lenggong Valley is a part of me.	0.855			
3) Lenggong Valley is very special to me.	0.863	0.929	0.944	0.745
4) Lenggong Valley means a lot to me.	0.862			
5) I am very attached to Lenggong Valley.	0.879			
6) I have a lot of fond memories of Lenggong Valley.	0.875			
Place Dependence (PD)				
1) Living near Lenggong Valley satisfies my needs better than any other place could.	0.855			
2) I would not substitute any other area for the activities I do in the Lenggong Valley.	0.831	0.787	0.875	0.601
3) Doing my activities in the Lenggong Valley is more important to me than doing them in any other place.	0.780			
Nature Bonding (NB)				
1) I am very attached to the natural environment in the Lenggong Valley.				
2) When I spend time in the natural environment in the Lenggong Valley, I feel at peace with myself.	0.811			
3) I learn a lot about myself when spending time in the natural environment in the Lenggong Valley.	0.894	0.890	0.924	0.758
4) When I spend time in the natural environment in the Lenggong Valley, I feel a deep sense of oneness with the natural environment.	0.885			
	0.890			
Psychological Empowerment (PE)				
1) Conservation efforts in Lenggong makes me proud to be a Lenggong Valley resident.				
2) Conservation efforts in Lenggong makes me feel special because people travel to see my county's unique features.	0.806			
3) Conservation efforts in Lenggong makes me want to tell others about what we have to offer in Lenggong Valley.	0.890	0.928	0.944	0.776
4) Conservation efforts in Lenggong reminds me that I have a unique culture to share with visitors.	0.909			
5) Conservation efforts in Lenggong makes me want to work to keep Lenggong Valley special.	0.902			
	0.893			
Social Empowerment (SE)				
1) Conservation efforts in Lenggong makes me feel more connected to my community.	0.930			
2) Conservation efforts in Lenggong foster a sense of 'community spirit' within me.	0.934	0.893	0.934	0.820
3) Conservation efforts in Lenggong provide ways for me to get involved in my community.	0.850			
Political Empowerment (POE)				
1) I feel like I have a voice in Lenggong Valley maintenance and development decisions.				
2) I feel like I have access to the decision-making process when it comes to maintenance and development in Lenggong Valley.	0.905			
3) I feel like my vote makes a difference in how Lenggong Valley is maintained and developed.	0.852	0.900	0.928	0.769
4) I feel like I have an outlet to share my concerns about maintenance and development in Lenggong Valley	0.895			
	0.855			

In this study, the cross-loading measurement was analysed according to the indicator following Fornell-Larcker's criterion to ensure the discriminant validity of the measurement model. The square root of AVE is compared with the correlations of the other components to determine discriminant validity. Each latent variable should be greater than the correlations between the latent variables. The square root of AVE for value added, place identity (PI), place dependence (PD), nature bonding (NB), psychological empowerment (PE), social empowerment (SE) and political empowerment (POE) is significantly larger than the corresponding correlations of the latent variables (Table 2). Hence, the Fornell and Larker's criteria are met.

Table 2: Discriminant validity of measurement model

	NB	PD	PI	PE	POE	SE
Nature Bonding (NB)	0.867					
Place Dependence (PD)	0.479	0.837				
Place Identity (PI)	0.502	0.561	0.881			
Psychological Empowerment (PE)	0.656	0.641	0.597	0.859		
Political Empowerment (POE)	0.197	0.222	-0.059	0.076	0.874	
Social Empowerment (SE)	0.566	0.420	0.690	0.445	0.145	0.908

For the structural model analysis, PLS generates the path coefficients for the modelled relationships between the constructs. To determine the significance of these coefficients, the bootstrap approach was used, providing t-values for each path estimate. The predictive power R^2 and predictive relevance were used to assess the model's ability to predict the outcome variables (Hair et al., 2011). According to Chin (1998), R-squared values of 0.67, 0.33 and 0.19 are considered substantial, moderate, and weak, respectively. The R-squared values of the endogenous latent variables psychological empowerment (PE) and social empowerment (SE) are 42.5% and 34.9%, respectively, indicating a moderate level of model fitness. Meanwhile, the R-squared value of political empowerment (POE) is 8.6%, indicating a low level of model fitness. The effect size for each relationship is reported in Table 2 and the interpretation of the f^2 is as follows: 0.02 (small), 0.15 (medium), and 0.35 (large).

As suggested by Hair et al. (2017), the problem of multicollinearity was assessed. All variance inflation factor (VIF) values for the three endogenous variables (PE, POE and

SE) were below the recommended value of 5, which does not indicate a collinearity problem. Next, model fit was assessed by evaluating the standardised root mean square residual (SRMR). Since the SRMR value for this research model was 0.07, which is below the threshold of 0.08, it can be concluded that the model is adequately fitted.

Table 3: Hypotheses

Hypothesis	Path	Beta	T-statistic	P-value	Decision	f ²
H1	PI -> PE	0.306	5.397	0.000	Supported	0.070
H2	PI -> POE	-0.247	2.972	0.003	Supported	0.029
H3	PI -> SE	0.025	0.659	0.510	Not Supported	0.000
H4	PD -> PE	0.286	4.901	0.000	Supported	0.083
H5	PD -> POE	0.271	4.443	0.000	Supported	0.047
H6	PD -> SE	0.183	3.278	0.001	Supported	0.030
H7	NB -> PE	0.164	2.272	0.024	Supported	0.026
H8	NB -> POE	0.229	2.468	0.014	Supported	0.032
H9	NB -> SE	0.462	8.580	0.000	Supported	0.185

The structure model tested the hypotheses in the research framework via PLS regression analyses. Table 3 shows all path coefficients and explained variances for the model. The analysis showed that place identity (PI) presented a positive effect on psychological empowerment (PE) ($\beta=0.306$, $t=5.397$, p value < 0.05) at significant level 0.05, which supported H1. Meanwhile, place identity (PI) presented a negative effect on political empowerment (POE) ($\beta=-0.247$, $t=2.972$, p value < 0.05). However, the path from place identity (PI) to social empowerment (SE) was not significant ($\beta=0.025$, $t=0.659$, p value > 0.05), which did not support H3.

The results for Hypotheses 4, 5 and 6 show that the path coefficients of place dependence (PD) on psychological empowerment (PE), social empowerment (SE) and political empowerment (POE) are 0.286, 0.271 and 0.183, respectively, thus H4, H5 and H6 supported. Table 3 shows that the effect of nature bonding (NB) towards psychological empowerment (PE), social empowerment (SE) and political empowerment (POE) was positive and significant. Therefore, the results of this study supported H7 - H9.

The present study expanded on [Strzelecka et al. \(2017b\)](#) to understand the moderation impact residents of length of stay on place attachment and empowerment.

In this study, it is hypothesized (H10) that length of residence moderates the relationship between place identity (PI) and social empowerment (SE). To determine if length of residence has moderating effects on SE, results were generated using SmartPLS software with two-tailed bias-corrected and accelerated (BCa) bootstrap of 5000 sub-samples set to 95 per cent confidence interval (Ali et al., 2017; Ringle, Da Silva, & Bido, 2015). From the result, it was revealed that length of residence has moderating effects between place identity (PI) and social empowerment (SE) ($\beta = 0.122$, $t = 3.153$, $p = 0.002$). Consequently, H10 is accepted as the effect of place identity and social empowerment is strengthened with the moderating variable of frequency of use.

5. Discussion

Considering the role of place attachment in influencing residents' empowerment towards conservation effort of Lenggong Valley heritage sites, this study delves into understanding the inter-relationship between the three-dimensional interpretation of place attachment and residents' psychological, social, and political empowerment. This study illustrated the relations between attachment and empowerment among residents (Aleshinloye et al., 2022; Strzelecka, Boley, & Strzelecka, 2017a), distinct from most literature that focuses on attachment and empowerment from the perspective of tourism (Buonincontri et al., 2017; Joo et al., 2020).

The first set of hypotheses focuses on the relationship between place identity and the three dimensions of empowerment. Place identity was found to significantly predict two dimensions of empowerment, i.e. psychological (H1) and political empowerment (H2). The result supports that attachment in terms of emotional or symbolic meanings assigned by residents to the place played an important role in determining psychological empowerment, effectively stimulate their enthusiasm to take part in the conservation effort of the heritage site. The result also supports that place identity influences the residents' power, ability, and awareness to influence the direction of development toward heritage conservation. In contrast to psychological and political empowerment, social empowerment was not strongly predicted by place identity. This means that the process of developing a sense of autonomy and self-

confidence in the way the community tries to improve their way of life was not determined by place identity. The result of this study contradicted the findings of [Strzelecka et al. \(2017b\)](#) Not unexpected though, prior studies have claimed the insignificance of social empowerment in an urban agriculture initiative for the population in Klang Valley ([Nazuri et al., 2022](#)), supported by a peer-reviewed literature by [Aghazamani and Hunt \(2017\)](#) addressing the issue of disempowerment among the local community and [Cyril et al. \(2015\)](#) concerned over empowerment among disadvantaged populations.

The second and third set of hypotheses investigates how place dependence and nature bonding relate to the three domains of empowerment. All three domains of empowerment are considerably predicted by the worth of a place measured by how effectively it can serve the needs of the residents, similar to that of [Strzelecka et al. \(2017a\)](#). And thirdly, in line with the conclusions of [Strzelecka, Prince, and Boley \(2023\)](#), significant associations were also discovered in the final three hypotheses (H7, H8 and H9) that evaluate nature bonding and the three dimensions of empowerment.

Previous studies have explored the relationship between length of residence and its influence on place attachment ([Casakin, Hernández, & Ruiz, 2015](#); [Song & Soopramanien, 2019](#); [Trąbka, 2019](#)), however there is a lack of research on the impact of length of residence moderating the relationship between place attachment and empowerment. With this gap in mind, the present study wanted to explore if place identity and social empowerment would have a significant relationship if length of stay was considered as an influencer. A strong sense of place identity have been found to promote greater social awareness, environmental consciousness, and interconnectedness among residents. This, in turn, fosters a greater sense of social cohesion and interaction within the community ([Karaçor & Akçam, 2016](#); [Meloni, Fornara, & Carrus, 2019](#)) providing the right platform for social empowerment among communities. In line with this, three hypotheses were proposed with regards to the moderating role of length of residence. Out of the three hypotheses (H₁₀, H₁₁ and H₁₂), length of residence was found to significantly moderate the relationship between place identity and social empowerment. Thus,

the involvement of the residents who have resided long enough should be empowered for successful conservation initiatives.

6. Conclusion

The results of this study revealed the importance of place attachment in empowering residents on conservation efforts in heritage sites such as Lenggong Valley highlighting the need to create opportunities for residents to participate and to have a say in the decision-making process of the heritage site. Involving residents by inviting them to conservation planning discussions. Residents who are more involved would have a greater sense of empowerment, leading to greater buy-in from the local community. In addition, findings on length of residence reinforces the fact that long term residents with strong sense of place identity would be socially empowered in wanting to play a more important role toward conservation efforts of the Lenggong Valley heritage site.

The present study focused on the moderating role of length of residence to understand the relationship between influence of attachment and level of empowerment among residents. Future research can consider other socioeconomic and demographic factors such as age, educational level and income among others. The place attachment and empowerment expressed among the elderly and the youth may vary greatly. Hence the engagement among the different age groups may lead to more effective conservation efforts. The present study focused on Lenggong Valley, a heritage site which faces danger of losing its heritage status due to neglect. To expand upon these findings, future research could be conducted among world heritage sites that are facing danger of been delisted, where the current list stands at fifty-five sites ([UNESCO World Heritage Convention, 2023](#)).

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Appendix 1: Questionnaire

Introduction

The researcher team is conducting a study to assess the attachment to Lenggong Valley, a World Heritage Site situated in Hulu Perak Malaysia. The proposition of this study is, for Malaysia to protect, safeguard and ensure the sustainability of Lenggong Valley, there is a need to assess the current level of attachment expressed by the local community towards this site. In the presence of strong place attachment, communities are more willing and able to engage on issues perceived as important to the community.

This questionnaire will take approximately 10 to 15 minutes to complete. Your responses will be kept confidential and completely anonymous. Participation is voluntary and you may withdraw at any time without incurring any penalty.

PART A

Using the 1-5 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. The 5-point scale is: 1 =strongly disagree, 2 = disagree, 3 = neutral, 4 =agree, 5 =strongly agree.

Place Identity (PI)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I identify strongly with Lenggong Valley	1	2	3	4	5
I feel Lenggong Valley is a part of me	1	2	3	4	5
Lenggong Valley is very special to me	1	2	3	4	5
Lenggong Valley means a lot to me	1	2	3	4	5
I am very attached to Lenggong Valley	1	2	3	4	5
I have a lot of fond memories of Lenggong Valley	1	2	3	4	5
Place Dependence (PD)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Living near Lenggong Valley satisfies my needs better than any other place could	1	2	3	4	5
I would not substitute any other area for the activities I do in the Lenggong Valley	1	2	3	4	5
Doing my activities in the Lenggong Valley is more important to me than doing them in any other place	1	2	3	4	5
The Lenggong Valley area is the best place for the activities I like to do	1	2	3	4	5

No other place can compare to the Lenggong Valley	1	2	3	4	5
There is no other place I would want to live than in the Lenggong municipality	1	2	3	4	5
Nature Bonding	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am very attached to the natural environment in the Lenggong Valley	1	2	3	4	5
When I spend time in the natural environment in the Lenggong Valley, I feel at peace with myself	1	2	3	4	5
I learn a lot about myself when spending time in the natural environment in the Lenggong Valley	1	2	3	4	5
When I spend time in the natural environment in the Lenggong Valley, I feel a deep sense of oneness with the natural environment	1	2	3	4	5
Psychological Empowerment (PE)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Conservation efforts in Lenggong makes me proud to be a Lenggong Valley resident	1	2	3	4	5
Conservation efforts in Lenggong makes me feel special because people travel to see my county's unique features	1	2	3	4	5
Conservation efforts in Lenggong makes me want to tell others about what we have to offer in Lenggong Valley	1	2	3	4	5
Conservation efforts in Lenggong reminds me that I have a unique culture to share with visitors	1	2	3	4	5
Conservation efforts in Lenggong makes me want to work to keep Lenggong Valley special	1	2	3	4	5
Social Empowerment (SE)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Conservation efforts in Lenggong makes me feel more connected to my community	1	2	3	4	5
Conservation efforts in Lenggong foster a sense of 'community spirit' within me	1	2	3	4	5
Conservation efforts in Lenggong provide ways for me to get involved in my community	1	2	3	4	5
Political Empowerment (POE)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel like I have a voice in Lenggong Valley maintenance and development decisions	1	2	3	4	5
I feel like I have access to the decision making process when it comes to maintenance and development in Lenggong Valley	1	2	3	4	5
I feel like my vote makes a difference in how Lenggong Valley is maintained and developed	1	2	3	4	5
I feel like I have an outlet to share my concerns about maintenance and development in Lenggong Valley	1	2	3	4	5

PART B: PERSONAL INFORMATION

- 1) About how long have you lived in Lenggong? _____ years
- 2) Place of Birth _____
- 3) Place of Residence _____
- 4) Gender: Male Female
- 5) Ethnicity
 Malay Chinese Indian Others
- 6) How old are you? _____
- 7) What is your highest level of qualification?
 No formal education Primary education Secondary education
 Vocational education Tertiary education
- 8) Total monthly household income:
 Less than MYR 2000
 MYR 2000-4000
 MYR 4000-6000
 MYR 6000-8000
 MYR 8000 and above
- 9) Employment Sector
 Government employee
 Employed in private sector
 Own business
 Unemployed
 Others