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Moderating role of place identity in parental support of children's folk games in Chinese neighbourhoods

Xin Zhao^{a,b} , Norhuzailin Hussain^a and Shureen Faris Abdul Shukor^a

^aFaculty of Design and Architecture, Universiti Putra Malaysia, Serdang, Malaysia; ^bFaculty of Art Design, Communication University of Shanxi, Jinzhong, China

ABSTRACT

Children's physical and mental health are currently facing serious challenges due to decreasing outdoor activity time and an increasingly homogeneous selection of accessible games. Children's social skills and physical development are improved by folk games, which also encourage them to interact more with the natural world. This study uses linear regression and moderating effect analyses based on a five-point Likert-scale questionnaire survey of 434 parents from four urban residential neighbourhoods in Taiyuan, China. The results show that parental support considerably impacts children's engagement in folk games. This effect becomes even stronger when parents demonstrate moderate or higher degrees of place identity to their neighbourhood's environment. These findings highlight the significance of promoting children's active participation in folk games to enhance social connection and nature exploration. Additionally, parents' emotional connections to their neighbourhoods, which are based on a sense of belonging and shared experiences, influence the requirements for play spaces. This provides valuable insights for parents, educators, urban planners and policymakers to develop or implement supportive measures that promote holistic child development and preserve cultural heritage.

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1. Introduction

In recent years, the preferred locations for outdoor activities among Chinese children have shifted from areas near their homes to designated sports venues and parks, accompanied by parents moving from active involvement in children's play to a more observational role (Lin et al., 2019). A key reason is that outdoor environments in residential areas rarely meet the conditions required for the traditional folk games parents recall from childhood (Tang et al., 2023; Zhao et al., 2023; Zhou et al., 2022). Folk games originate from folk culture, evolve collectively without identified authors and are not commercialised. They emphasise children's continuous interaction with peers and the natural environment, offering flexible formats and simple rules, exemplified by games such as Playing House, Playing Marbles and Leaf Stem Tug-of-War (J. Lin, 2016). These games effectively cater to children's social and environmental engagement, compensating for limited contemporary play options (Bowen, 2015; Jamoliddinzoda, 2022).

This development underscores the critical role of educational institutions, especially kindergartens, in preserving these games (X. Lin et al., 2019). In many cases, kindergartens and schools preserve traditional folk games only through symbolic or ritualised activities, which do not fully reflect such games' organic and dynamic nature. Additionally, the highly standardised and confined layouts of their outdoor spaces generally lack the spatial and environmental conditions necessary to support the diverse and adaptable forms of play these games entail (Lau et al., 2011; Liu et al., 2022).

As residential outdoor spaces serve as the primary venues for children's play activities, parent-child interactions in these settings can play a vital role in addressing the limitations of formal education

CONTACT Norhuzailin Hussain  zailin@upm.edu.my  Faculty of Design and Architecture, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

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in sustaining traditional games (Knoester & Fields, 2020). A significant majority of parents (87%) prefer their children to experience interactive play reminiscent of their childhood, emphasising peer interaction and engagement with nature (Wang et al., 2018). Children also express a desire for more varied and engaging play experiences beyond standard playground equipment (Carr & Luken, 2014; Wang et al., 2018). Nevertheless, residential environments rarely accommodate the natural and flexible conditions required for folk games, limiting parents' ability to support their children's play (Tang & Woolley, 2024). Designers often overlook spaces conducive to experiential play, such as areas offering small stones or natural hiding spaces (J. Lin, 2016). Parental support manifests as informational, emotional, appraisal and instrumental assistance (Malecki & Demaray, 2003). In the context of children's folk games, parental support primarily involves instrumental and emotional dimensions, ensuring safe play environments and boosting children's confidence (Heredia et al., 2016; Kepper et al., 2020). Active parental involvement fosters children's essential social skills and enthusiasm for games (Gottzén & Kremer-Sadlik, 2012; Washington et al., 2019). Moreover, traditional games improve interpersonal skills by attracting peer interactions and facilitating social connections (Marsh, 2008; Zainuddin et al., 2020).

It is crucial to explore how parents' childhood play memories influence their environmental perceptions and support for children's folk games, particularly as these perceptions closely relate to their sense of place identity. Interaction with natural environments through play notably contributes to children's well-being (Shi, 2021). Place identity, formed through continuous interaction with specific locations, encompasses emotional connections, memories and values attached to places (Lengen et al., 2019). It significantly influences behaviours and emotional responses towards environments (Knez, 2014; Lengen & Kistemann, 2012). The motivation for outdoor play often stems from a strong place identity, shaped by secure, nurturing childhood experiences (Prince et al., 2019). Experiences within natural environments, perceived through sensory engagement, significantly enhance place identity, making childhood memories essential for adult-environment interactions (Colley & Craig, 2019; Morgan, 2010).

Therefore, examining parents' childhood memories of folk games provides critical insights into how their sense of place identity influences their decisions in selecting play environments and supporting their children's engagement in traditional games (Singer, 2009). This study addresses an existing knowledge gap regarding the relationship between parents' childhood play experiences and their current perceptions of residential outdoor environments. Understanding this relationship is particularly important given the limited availability and diversity of contemporary children's outdoor play spaces and activities. Through a quantitative approach involving questionnaires and data analysis, this research investigates explicitly how parents' place identity moderates their level of support for children's participation in folk games, thus providing practical guidance for fostering supportive communities for children's engagement in folk games (see Figure 1).

Based on the above discussion, this study aims to address the following research questions:

1. To what extent does parental support influence children's participation in folk games?
2. Do parents' sense of place identity moderate the effect of their support on children's engagement in folk games?

Correspondingly, the research hypotheses are:

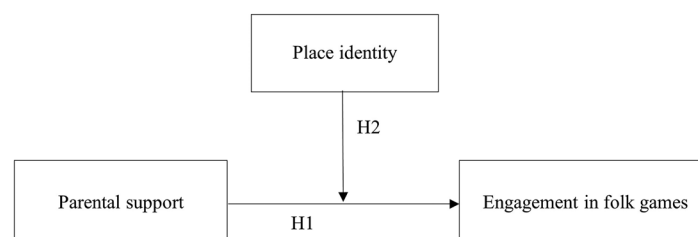


Figure 1. The research framework and hypothesis.

H1: Parental support positively affects children's engagement in folk games.

H2: Parents' sense of place identity strengthens the positive relationship between parental support and children's engagement in folk games.

2. Theoretical framework

The Self-Determination Theory established a motivational model where an individual's main drive is seen as the satisfaction of their competence, relatedness and autonomy requirements (Ryan & Deci, 2000). The person is expected to experience healthy adaptation and increased levels of self-motivation when their demands for effectiveness, connection to others and autonomy are satisfied (Poulsen et al., 2006). Parental support for children's play reflects the interactive dimension of family relationships, fostering relationship-building within children's play activities and promoting their engagement (Moè et al., 2018). With parental guidance, children gradually acquire game perception and develop their folk game abilities, allowing them to experience a sense of competence within the games and motivating them to take chances with a variety of folk games (Bouchard et al., 2007; Ryan & Deci, 2000). Moreover, when parents have a strong sense of place identity, they are more likely to exhibit a positive attitude towards folk games, which can in turn, inspire and enhance children's enthusiasm and internal drive to participate in such play (Li, 2021; Qunito Romani, 2020) (see Figure 2). In summary, the Self-Determination Theory explains parental support for children's outdoor play by emphasising the importance of relatedness, competence and autonomy. Autonomy-supportive parenting practices can promote children's motivation and engagement in outdoor play.

3. Empirical study

3.1. Research design

This study employs a quantitative, cross-sectional survey design to investigate relationships among parental support (PS), place identity (PI) and children's engagement in folk games (EF) within residential neighbourhoods. Parental support acts as the independent variable, children's engagement in folk games as the dependent variable and place identity is examined as a moderating factor influencing their relationship.

Data collection involved structured questionnaires administered to parents residing in selected representative neighbourhoods. The choice of a quantitative approach enables transparent and objective statistical testing of hypothesised relationships. The methodological steps include identifying and operationalising dimensions based on validated scales and relevant theoretical constructs, conducting a pilot study for preliminary reliability and validity checks (exploratory factor analysis and Cronbach's alpha), followed by confirmatory factor analysis (CFA) to validate measurement structures and

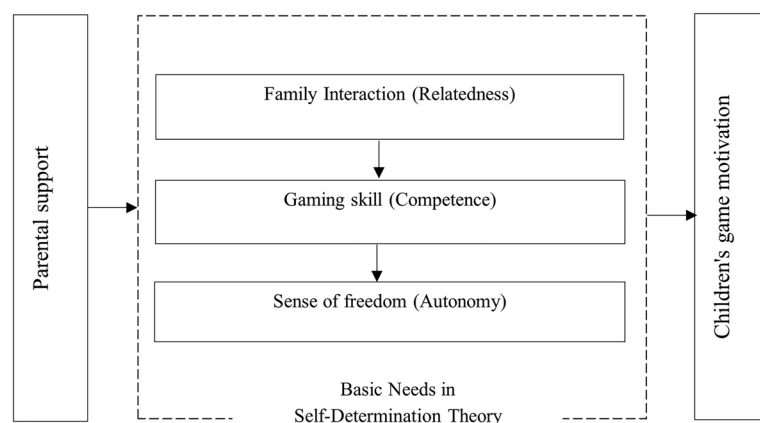


Figure 2. The mechanism of parental support in enhancing children's motivation for folk games under Self-Determination Theory.

moderation analysis, including the Johnson-Neyman technique to identify regions of significance for the moderating effect using SPSS 26 and AMOS 24 software. This comprehensive methodological approach provides robust empirical evidence to inform community environmental design and support children's participation in folk games.

3.2. Survey instrument

Specific dimensions related to the research questions were first identified, guided by insights gained from existing scales and relevant theories, with minor modifications and item reductions to enhance clarity and relevance to this study. These dimensions subsequently served as the basis for the rating scale structure used to test their relationships. Specifically, a five-point Likert scale was employed, ranging from 1 ('strongly disagree') to 5 ('strongly agree'). These identified dimensions provided insights into diverse aspects of children's play, including parental support, place identity and suitability of engagement in folk games. The following analysis details the sources and rationales for measurement items across various dimensions. The measurement questionnaire has received ethical approval, fully complying with the relevant guidelines for protecting research participants. For specific test items, refer to [Table 1](#).

The parental support (PS) dimension was developed to assess parental involvement in children's play, drawing on theoretical and methodological foundations provided by previous studies (Jia et al., 2022; Prochaska et al., 2002; Schoeppe et al., 2017). This dimension captures both emotional and behavioural aspects of parental support, including presence during play, participation in shared activities, transmitting cultural traditions and positive reinforcement. These items were designed to reflect how parents foster engagement, strengthen emotional bonds and promote their children's development through active involvement in play. By integrating these facets, the parental support dimension provides a comprehensive framework to evaluate the multifaceted nature of parental support in the context of children's play.

The place identity (PI) dimension was developed to evaluate individuals' emotional and psychological connections to their neighbourhood environment, building on prior studies (Elabd & Hallowell, 2013; Richardson et al., 2019). This dimension reflects key aspects of place identity, such as feelings of safety, familiarity, belonging and emotional connections to and love for the local environment. The items capture how individuals perceive their neighbourhood as integral to their sense of identity and connectedness to their surroundings. The study selected aspects closely related to the research theme to assess parents' emotional connections to the local environment.

The dimension engagement in folk games (EF) was developed to evaluate how conducive the neighbourhood environment is for children to participate in folk games, based on insights from previous studies (Andrade et al., 2012; Beard & Ragheb, 1980; Unger & Kernan, 1983). This variable reflects how external conditions support or hinder children's engagement in such activities. The naming of this variable is rooted in its focus on two aspects: 'suitability', which highlights the appropriateness and

Table 1. Adapted scale items for measuring with sources.

Dimensions	Items	References
Parental support (PS)	I'm always around when the kids are playing. I enjoy playing folk games with my kids in the neighbourhood. I would teach my children the folk games I played as a child in our neighbourhood. I will share my childhood play experiences with my children. I will praise my child's performance in play activities.	(Davison & Jago, 2017; Jia et al., 2022; Prochaska et al., 2002; Schoeppe et al., 2017)
Place identity (PI)	I love the environment of the neighbourhood where I live. The neighbourhood environment makes me feel safe. The environment of the neighbourhood makes me feel connected. The environment of the neighbourhood felt familiar to me. The neighbourhood environment gives me a sense of belonging.	(Williams, 1989; Richardson et al., 2019)
Engagement in folk games (EF)	The neighbourhood environment is perfect for my children's folk games. My kids get to play various folk games in the neighbourhood. The neighbourhood environment offers suitable conditions for children to play folk games. My children are rarely disturbed by outside factors when playing folk games in my neighbourhood. My kids are rarely restricted by the neighbourhood environment when playing folk games.	(Andrade et al., 2012; Beard & Ragheb, 1980; Unger & Kernan, 1983)

favourability of the neighbourhood environment and ‘engagement’ emphasising the specific activity being assessed. This combination ensures that the variable captures the environmental factors, such as safety, availability of space and absence of disturbances, that enable or restrict children’s participation in folk games. This dimension integrates these elements to evaluate how well the neighbourhood supports children’s cultural and recreational activities.

3.3. Study area selection

The research site is in Taiyuan, the capital of Shanxi Province in northern China. Taiyuan is one of China’s 27 provincial capitals and among the 91 cities with populations exceeding 5 million, ranking 10th in per capita GDP among provincial capitals. It boasts a rich historical tapestry and was recognised as a famous historical and cultural city by the state in 2011. With over 3259 residential neighbourhoods, four representative residential neighbourhoods were selected from the urban area as research samples, including Forestry Department Community (FDC), Yifen Garden (YG), Baitong Garden (BG) and Evergrande Oasis West Area (EOWA), showcasing their representativeness in terms of spatial types and periods of construction. As shown in Table 2, from open spaces in the 1980s to luxury residential areas by 2010, these neighbourhoods offer diverse settings for studying children’s play behaviours. On the other hand, the targeted neighbourhoods have high concentrations of school-age children, making them ideal for examining outdoor play activities.

3.4. Sampling and data collection procedures

The study participants are parents residing in four selected residential neighbourhoods in Taiyuan. This underscores the need for parents to gather data on children’s folk games through surveys, as their more profound knowledge and experience help minimise the risk of information loss (Ivid & MarJanovid, 1985; Obeng et al., 2022; Pyper et al., 2016).

This study involved only adult participants, specifically parents of children aged 3 to 12. Written informed consent was obtained from all participants prior to data collection. Participants’ children under three were excluded due to limited independent play abilities and those over 12 due to academic pressure and growing interest in sports (Buszard et al., 2014; Z. Ma et al., 2021; Zhou et al., 2022). Participants were informed about the study’s purpose and their right to withdraw at any time without consequences. The confidentiality and anonymity of all responses were ensured. This study received ethical approval from the Ethics Committee of Universiti Putra Malaysia (Approval No. JKEUPM-2023-1425).

In determining an appropriate sample size and considering Taiyuan’s population of 5.4 million, a sample of 384 is generally considered sufficient for populations larger than one million (Krejcie & Morgan, 1970). Data collection was scheduled from mid to late December, including weekdays (Monday–Thursday, 8 am–7 pm) and weekends (Friday–Sunday, 8 am–8 pm), to capture diverse user experiences. Surveys were planned according to weather conditions and location logistics to increase response rates. Within four selected neighbourhoods, questionnaires were randomly distributed to participants after obtaining

Table 2. Descriptions of selected neighbourhoods.

Neighbourhood name	FDC	YG	BG	EOWA
Neighbourhood type	Department preparation	Government projects	Commercial gated communities	Commercial gated communities
Built year	1986	1994	2005	2016
Gated/ungated	Gated	Ungated	Gated	Gated
Number of floors	6	6, 9	6, 11	22, 26
Number of buildings	18	18	10	21
Households number	725	4035	584	5663
Sharing public spaces		*	*	*
Green spaces		*	*	*
Children playground		*	*	*
Sports fields			*	*
Fitness equipment		*	*	*
Shops	*	*	*	*
Low maintenance greening		*		

Note: Asterisks (*) in the table denote the availability of the respective functional attributes in neighbourhoods.

Source: Taiyuan Real Estate Network (2023).

informed consent. Due to low on-site participation, the sample was expanded to 23 additional residential areas. Each newly included neighbourhood was assigned to one of the four previously determined outdoor environment categories, identified using online spatial layouts and satellite imagery (Cheriyadat, 2014). Before answering, participants were given an overview of the study and examples of children's folk games to avoid confusion or bias. This approach clarified the focus on specific folk games and helped obtain more accurate feedback (Damen et al., 2021).

3.5. Pilot study

The pilot study used field-based random sampling across four residential communities, with 167 participants recruited based on household proportion to test the measurement scale. Parents of children were recruited at community entrances and public spaces, with eligibility confirmed. Snowball sampling was also used. Data were collected throughout the week at various times to ensure diversity. The sample showed a balanced gender ratio and normal age and income distributions, indicating good representativeness. This small sample was collected and subjected to exploratory factor analysis (EFA) to determine whether the items related to parental support, place identity and engagement in folk games align with theoretical expectations. Additionally, Cronbach's alpha was calculated to assess the scale's internal consistency. The Kaiser-Meyer-Olkin (KMO) measure verified the sampling adequacy (KMO = 0.900, which is above the acceptable threshold of 0.7), and Bartlett's test of sphericity confirmed the appropriateness of the factor analysis ($\chi^2 = 2235.83$, $p < .001$). These results indicate that the dataset is suitable for factor analysis, supporting the validity of the EFA approach for this research. Principal component analysis identified three independent factors explaining 78.387% of the variance, using an eigenvalue greater than 1 for extraction. Additionally, factor loadings that met the criteria were predominantly above 0.6, indicating strong explanatory power for the variables (Costello & Osborne, 2019).

Following the factor analysis, a separate reliability analysis was conducted for the identified dimensions: PS, PI and EF. The Cronbach's alpha values were 0.892, 0.933 and 0.954, respectively, indicating that all dimensions have satisfactory internal consistency, with each dimension achieving a Cronbach's alpha above the commonly accepted threshold of 0.7 (DeVellis, 2021).

4. Results

4.1. Sample characteristics

Following the preliminary analysis of the pilot study, 434 valid questionnaire responses were collected. The number of parents recruited from the four neighbourhood categories was 87, 113, 102 and 132, respectively, representing the selected neighbourhoods and others of similar types. Most parents who responded to the questionnaire were between 31 and 40 years old, making up about 70% of the entire group. Within this group, 42.9% were male and 57.1% were female. In addition, roughly 80% reported incomes ranging from 3000 to 20,000 RMB (Chinese Yuan), showing a broad economic spread (see Table 3).

4.2. Measurement model and structural model

In the formal research phase, a larger sample will be used to conduct confirmatory factor analysis (CFA) using IBM AMOS 24.0 to evaluate how well the model conforms to the actual data, thereby confirming the statistical validity and the appropriate construction of the model. The measurement model will be defined based on EFA results and then estimated using maximum likelihood (ML) and standard fit indices. Reliability and validity will be assessed through factor loadings, composite reliability and average variance extracted, ensuring both convergent and discriminant validity.

Table 4 presents comparative results for three different confirmatory factor analysis (CFA) model configurations. It utilises several statistical measures to evaluate the goodness of fit for the models. When χ^2/df is between 0 and 3, the model fit is reasonable; when the similarity index (IFI, CFI, NFI) is more significant than 0.900 and closer to 1, the data fit the model better. When the dissimilarity index (RMSEA, SRMR) is less than 0.080, the model has a better goodness of fit (Shi et al., 2019). By comparing the

Table 3. Participant demographic information.

No.	Variables	<i>n</i>	Percentage
1	Gender		
	Male	186	42.9%
	Female	248	57.1%
2	Age		
	Below 30 years	12	2.8%
	31–35 years	131	30.2%
	36–40 years	172	39.6%
	41–45 years	70	16.1%
	Above 45 years	49	11.3%
3	Monthly income		
	Below 3000 RMB	49	11.3%
	3001–8000 RMB	250	57.6%
	8001–20,000 RMB	104	24.0%
	Above 20,000 RMB	31	7.1%
4	Name of the residential neighbourhood		
	Forestry Department Community	87	20.1%
	Yifen Garden	113	26.0%
	Baitong Garden	102	23.5%
	Evergrande Oasis West Area	132	30.4%
5	Total	434	100%

Table 4. Fit indices for measurement and structural models.

Constructs	X ² /df	RMSEA	SRMR	CFI	IFI	NFI
PS; PI; EF	1.220	0.023	0.032	0.994	0.994	0.966
PS+EF; PI	5.653	0.104	0.074	0.864	0.865	0.840
PS+PI+EF	11.177	0.153	0.109	0.699	0.700	0.680

Note: χ^2/df : ratio of chi-square to degrees of freedom; RMSEA: root mean square error of approximation; SRMR: standardised root mean square residual; CFI: comparative fit index; IFI: incremental fit index; NFI: normed fit index.

three-factor model with the combination of one to three factors (by combining the dimensions with higher correlation coefficients), the three-factor model has the highest degree of fit and is in good agreement with the research data ($\chi^2/\text{df} = 1.220$, RMSEA = 0.023, SRMR = 0.032, CFI = 0.994, IFI = 0.994, NFI = 0.966), indicating that the scale has a good model fit. Therefore, the scale for children's folk games is a model with three dimensions: PS, PI and EF.

Table 5 presents the validity and convergence validity of the three dimensions of the children's folk game engagement scale. The Cronbach's alpha coefficients (0.866, 0.872 and 0.851) and Composite reliability (0.867, 0.873 and 0.852) are significantly greater than 0.7, indicating high overall consistency and internal consistency within the dimensions (Amini et al., 2017). In the study, Average Variance Extracted (AVE) was used to assess the convergent validity of the three factors. The AVE values (0.567, 0.578, 0.535) all exceed 0.5, indicating that the latent variables explain a substantial amount of variance compared to the measurement error (Yalın-Uçar et al., 2024). This confirms a strong correlation between most observed variables and their corresponding latent factors, demonstrating the model's robust representational fidelity (Birgin & Yilmaz, 2023).

Discriminant validity refers to the low correlations or significant differences between the latent traits represented by different latent variables (Henseler et al., 2015). Table 6 demonstrates the discriminant validity of the PS, PI and EF dimensions by comparing the square roots of the Average Variance Extracted (AVE) values with their inter-dimensional correlation coefficients. Specifically, the AVE square roots for PS (0.753), PI (0.760) and SE (0.731) are notably higher than the correlation coefficients among these dimensions. For example, the highest correlation for EF is 0.608 (with PS), which is much lower than its AVE square root (0.731). These differences confirm the strong discriminant validity of the dimensions, showing that each captures distinct constructs. The confirmatory factor analysis results confirmed that the final measurement scale includes three validated dimensions: PS, PI and EF. A complete list of items is provided in Supplementary Appendix A.

4.3. Assessment of regression and moderation effects

This section explores whether PS significantly enhances EF and if place identity moderates this relationship. Before the regression and moderation analysis, demographic variables were analysed and showed

Table 5. Reliability and convergence validity examination.

Dimensions	Items	B	S.E.	Z value	<i>p</i>	Factor loadings	Cronbach's α	Composite reliability	AVE
PS	PS1	1				0.758	0.866	0.867	0.567
	PS2	0.888	0.059	15.143	***	0.744			
	PS3	0.826	0.054	15.419	***	0.757			
	PS4	0.866	0.057	15.067	***	0.74			
	PS5	0.893	0.057	15.596	***	0.765			
PI	PI1	1				0.77	0.872	0.873	0.578
	PI2	0.965	0.061	15.757	***	0.758			
	PI3	1.022	0.064	16.005	***	0.769			
	PI4	0.936	0.062	15.216	***	0.734			
	PI5	1.013	0.063	16.061	***	0.771			
EF	EF1	1				0.818	0.851	0.852	0.535
	EF2	0.769	0.05	15.356	***	0.713			
	EF3	0.741	0.048	15.301	***	0.711			
	EF4	0.76	0.051	14.896	***	0.695			
	EF5	0.742	0.048	15.407	***	0.715			

Note: ***indicates a *p* value less than .001.

Table 6. Discriminant validity of measured dimensions.

Dimensions	EF	PI	PS
EF	0.731		
PI	0.571	0.760	
PS	0.608	0.493	0.753

Note: The bold diagonal elements are the square roots of each AVE; construct correlations are shown off-diagonal.

no significant differences in the EF variable, confirming they do not confound the results (Ansong et al., 2017). Therefore, the study proceeds directly with analysing the key variables.

The research findings initially confirm the positive impact of PS on EF. The model demonstrates a good fit, with an adjusted *R*-squared value of 0.274, indicating that the independent variables included in this regression analysis account for 27.4% of the variability in the dependent variable. This suggests that the regression model effectively identifies the factors influencing EF. Regression models with a low *R*-squared are good if some of the explanatory variables are statistically significant, assuming that the *R*-squared is the only decision rule considered. In social science empirical modelling, a low *R*-squared of at least 0.10 is acceptable if some or most explanatory variables are statistically significant (Peterson, 2023). The linear regression model with an *F*-value of 164.148 and a *p* value less than .001 indicates that the independent variable PS significantly affects the dependent variable EF. Specifically, PS has a significant positive effect on SE with a coefficient of 0.663 ($t=3.054$, $p<.001$), which implies that an increase in PS by one unit increases EF by 0.663 units. The regression analysis adheres to critical assumptions necessary for valid results: The Durbin-Watson statistic is 1.962, indicating no concerning serial correlation and falling within the acceptable range of 1.5 to 2.5 (Akter, 2014). Additionally, despite slight deviations, the histogram of the standardised residuals generally conforms to normality. The central limit theorem supports the validity of the inferences, suggesting that minor deviations do not impact the analysis significantly in large samples (Faraway, 2002; Hadi, 2006). These results collectively confirm the model's reliability in accurately reflecting the causal relationships between the variables.

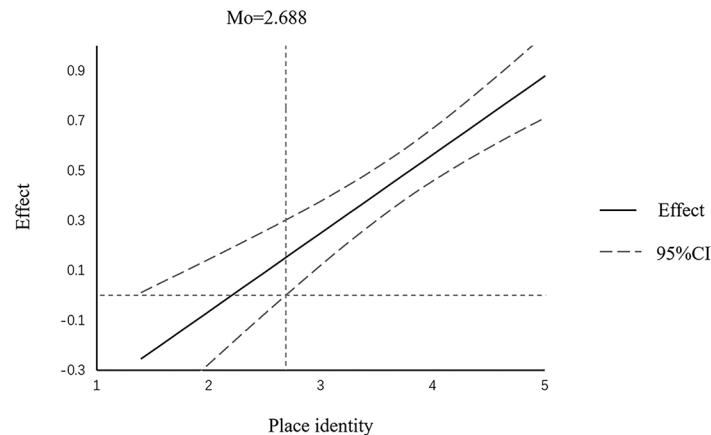
Table 7 analyses the moderating effect of Place Identity (PI) on the relationship between Parental Support (PS) and Engagement in Folk Games (EF). Model 1 demonstrates that both PS ($B=0.483$, $p<.001$) and PI ($B=0.430$, $p<.001$) have significant positive effects on EF, explaining 36.1% of its variance ($R^2 = 0.361$). Model 2 incorporates the interaction term (*M*, the product of PS and PI) to test the moderating role of PI. The interaction term has a significantly positive impact on EF ($B=0.314$, $p<.001$), confirming PI as a moderator. This indicates that higher levels of PI strengthen the positive relationship between PS and EF. However, the independent effects of PS ($B=-0.695$, $p=.001$) and PI ($B=-0.753$, $p<.001$) turn negative, suggesting their combined influence (via interaction) is more critical than their individual effects. After that, the normality test of the residuals for the linear regression model, where EF is the dependent variable, indicated that the residuals conform to a normal distribution. Therefore, further analysis using the Johnson-Neyman technique to identify the ranges of the moderating effect, thereby avoiding reliance on a single and vague description for research findings (Carden et al., 2017).

Table 7. Analysing place identity's moderating effect.

Model	Variable	B	S.E.	Beta	T	p	R ²	ΔR ²
1	Constant	−0.416	0.238		−1.748	.081	0.361	0.046 ($p < .001$)
	PS	0.483	0.054	0.382	8.981	.000		
	PI	0.430	0.056	0.330	7.741	.000		
2	Constant	3.911	0.771		5.074	.000	0.407	0.046 ($p < .001$)
	PS	−0.695	0.207	−0.550	−3.357	.001		
	PI	−0.753	0.208	−0.577	−3.615	.000		
	M	0.314	0.053	1.571	5.881	.000		

Dependent variable: EF

Note: M represents the interaction term (product) of variables PS and PI.

**Figure 3.** Johnson-Neyman visualisation of conditional effects across moderator levels. Note. Mo = 2.688 indicates that the moderator effect becomes significant.

Further analysis uses the Johnson-Neyman technique to visualise intervals of moderating effects. This method first sets a critical threshold for statistical significance of the regression coefficients between independent and dependent variables ($p = .05$). It then identifies specific values where the moderating variable significantly influences this relationship. We conducted this analysis using the PROCESS macro in SPSS to perform simple slope tests (see Figure 3).

The diagram illustrates how the moderating variable, Place Identity (Mo), impacts the relationship between the independent variable PS and the dependent variable SE across different Mo values. When Mo is below 2.688, there is no significant moderating effect of Mo on the influence of PS on EF, suggesting that within this range, changes in PS do not significantly affect EF. Above this threshold, the effect of PS on EF becomes positive, indicating that higher Mo values enhance the positive impact of PS on EF. The 95% confidence interval, represented by the dashed lines, shows significant variability in the relationship between PS and SE at different levels of Mo, illustrating that the influence of PS on EF is dependent on the specific value of Mo.

5. Discussion and conclusion

5.1. Parental support and spatial context

Increasing parental support for folk games requires broader social efforts to raise awareness of their developmental benefits. Prior studies have noted that many parents of school-aged children tend to prioritise academic achievement over holistic well-being, including physical activity and social-emotional development (Fang et al., 2022; Y. Ma et al., 2018). Given their low cost and high accessibility, folk games provide a valuable platform for promoting children's peer interaction, emotional regulation and connection to natural elements (Jamoliddinzoda, 2022). Policy-level initiatives and family education programs that emphasise traditional play's psychosocial and environmental value may help shift parental perceptions and encourage more active engagement.

From the parental perspective, a strong sense of place identity contributes to a more profound emotional attachment to residential environments. Such attachment is often shaped by personal

developmental experiences and childhood memories (Scannell & Gifford, 2017). When these memories are activated—particularly in contexts of emotional disconnection—parents may become more motivated to engage in folk games with their children as a means of cultural continuity. This affective engagement, rooted in place-based memory, has been shown to enhance parental involvement in play and promote intergenerational interaction (Manzo & Perkins, 2006; Rico & Jennings, 2012). The findings of this study suggest that when psychological identification with place is strong, parents are more likely to support children's folk game participation in meaningful ways.

In examining the role of place identity in parental support for children's play, it is important to consider the richness of natural environments and the spatial and rule-based structures embedded in traditional folk games. Many games, such as hopscotch or hide-and-seek, depend on fixed configurations and culturally embedded rules, creating consistent play experiences and evoking parents' childhood memories. When residential environments contain spatial cues reminiscent of these games, they can stimulate nostalgic recognition and enhance parental engagement. This interplay between memory, space and intergenerational experience reinforces place identity and promotes family-level cultural transmission (Nicholson et al., 2016). Accordingly, integrating these spatial features into neighbourhood design via tailored surfaces or interactive landscape elements can enhance children's access to culturally meaningful play while fostering stronger emotional bonds between parents and place.

5.2. Theoretical and practical implications

This study applies Self-Determination Theory to highlight the importance of parents' internally driven autonomy in children's folk games. It considers multiple forms of parental support, such as safety support, interactive engagement, instructional guidance, cultural transmission and emotional support, to provide a comprehensive understanding of how parents influence children's participation in these games. By examining parental support in different residential settings, the study further explores how the environmental attributes of folk games affect children's play behaviour. Unlike traditional research that employs Social Cognitive Theory (Boxberger & Reimers, 2019) and primarily focuses on the influence of significant others' actions, this study places greater emphasis on children's autonomy and motivation in engaging with folk games. Children's intrinsic drive is shown in their spontaneous play and parents' enthusiastic support, yet prior research often overlooks the intrinsic motivation behind parental support and the importance of fostering children's autonomous play (Holt et al., 2017; Lee et al., 2015; Loprinzi & Trost, 2010).

From a practical perspective, the study highlights the value of natural and semi-natural outdoor environments as enablers of folk game experiences. Seasonal and weather-related variations, such as rain, snow, or plant cycles, play a central role in shaping the types and rhythms of play (Zuo et al., 2023). These features accommodate physical activity and resonate with parents' formative experiences, reinforcing intergenerational continuity. When residential design and property management preserve natural landscape dynamics, opportunities for meaningful play are enhanced (Lu, 2024). The findings also offer practical implications for community management and family education. Raising awareness through family education initiatives and policy-level support may help promote more balanced parenting approaches that value academic achievement and play. Folk games typically require minimal material resources; they present a cost-effective strategy for supporting children's social development, emotional well-being and connection to their immediate environment, making them particularly relevant for community-level planning and parent engagement programs.

5.3. Study limitations and future directions

Several limitations of this study should be acknowledged. First, the study relied on parental reports due to children's limited knowledge of folk games and the expressive challenges younger age groups face. While parents are generally familiar with their children's play behaviours, their observations may be shaped by subjective perceptions, potentially affecting data objectivity (Fleming et al., 2017). This concern is supported by prior research indicating that parents' self-reports often diverge from actual behavioural

observations (Bellhouse, 2001), that parental communication may subtly influence children's recollections (McWilliams & Goodman, 2019) and that parent-observer discrepancies are widespread in families facing functional or contextual challenges (Moens et al., 2018). Future research should aim to engage children directly as respondents, particularly as peer-to-peer transmission of folk games becomes more prevalent.

Second, the geographic scope of the sample was restricted due to funding constraints. Although the selected communities varied in size and character, the findings may not be fully generalisable across different regions and cultural contexts. Replication studies with broader geographic representation and diverse sociocultural backgrounds are recommended to improve the external validity of the results.

Finally, as children's familiarity with folk games evolves, further investigation is warranted to explore how participation patterns change over time. In contexts where children increasingly initiate and sustain play autonomously among peers, the nature of parental support may shift from active engagement to more observational or facilitative roles (Inamdar et al., 2024). Understanding this transition will be important for future policy and design strategies to sustain cultural continuity in children's play practices.

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Author contributions

CRedit: **Xin Zhao**: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft; **Norhuzailin Hussain**: Funding acquisition, Supervision, Writing – review & editing; **Shureen Faris Abdul Shukor**: Funding acquisition, Supervision, Writing – review & editing.

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About the authors

Xin Zhao (zhaoxin19825@gmail.com) is a PhD candidate at Universiti Putra Malaysia, Faculty of Design and Architecture. His research concentrates on utilising formalised design and elements of space to create precise and stimulating outdoor play environments that encourage children's social interactions and contact with nature. His Ph.D. research investigates the influencing factors and adaptable designs for children's folk games in residential neighbourhoods. The study is grounded in a theoretical framework comprising Affordance, Arousal Modulation and Self-determination theories, which collectively guide exploring environmental, behavioural and psychological aspects of family members in these settings.

Norhuzailin Hussain (zailin@upm.edu.my) is a Senior Lecturer in the Department of Landscape Architecture at the Faculty of Design and Architecture, Universiti Putra Malaysia. Her research interests focus on the usability of green

spaces, recreational forest use and experience and the impact of gender, age groups and ethnicity on recreational spaces. She can conduct multidisciplinary research across these areas, integrating various aspects of landscape architecture and social sciences.

Shureen Faris Abdul Shukor (shureen@upm.edu.my) is an Associate Professor in the Department of Landscape Architecture at the Faculty of Design and Architecture, Universiti Putra Malaysia. Her area of expertise focuses on designing restorative green environments for healthcare facilities, creating healing gardens for Down's Syndrome children and integrating therapeutic landscapes into hospitals to improve patients' and staff's physical and psychological health.

ORCID

Xin Zhao  <http://orcid.org/0009-0007-2855-7897>

Data availability statement

The data supporting this study's findings are available from the corresponding author, N.H., upon reasonable request.

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