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The Role of Phased Retirement in Transferring Knowledge to Younger Generations in Iran's Heritage Tourism Sector

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Abstract

The transmission of cultural knowledge plays a pivotal role in preserving cultural identity and promoting the sustainable development of heritage tourism. However, this form of knowledge is primarily tacit and transferred informally across generations, which makes its preservation increasingly challenging, particularly in light of the sudden retirement of experienced experts and the consequent loss of invaluable expertise. This study examines phased retirement as an innovative managerial strategy to facilitate cultural knowledge transfer. Grounded in Nonaka and Takeuchi's SECI model, which conceptualises knowledge transfer through the stages of socialisation, externalisation, combination, and internalisation, the research employed a descriptive-analytical design using document analysis, field investigations, and a researcher-designed questionnaire. A total of 220 tourism industry professionals participated, and data were analysed with SPSS and Smart PLS, employing AVE, Fornell-Larcker, factor loadings, Cronbach's alpha, and structural equation modelling. The findings reveal that phased retirement enhances cultural knowledge transfer by fostering intergenerational interaction, facilitating documentation, and strengthening the competencies of younger employees. The study recommends that tourism managers and policymakers adopt phased retirement strategies to improve cultural sustainability and enhance the quality of heritage tourism services.

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Introduction

Indigenous and cultural knowledge is widely recognized as a fundamental pillar in the preservation of cultural identity and the promotion of sustainable tourism development (Nguyen et al., 2024).

This form of knowledge often tacit in nature and accumulated through lived experiences across generations is particularly vital in the realm of heritage tourism, where it functions as an intangible yet profoundly valuable asset (Shaw & Williams, 2004; Shrestha & L'Espoir, 2025).

Iran, with its rich cultural heritage and remarkable diversity of historical sites, possesses a unique and exceptional potential to capitalize on this knowledge (Fallahi et al., 2022). Nevertheless, the transmission of such inherited knowledge to younger generations is increasingly constrained by significant challenges—chief among them, the abrupt retirement of experienced professionals and the lack of institutionalized mechanisms to safeguard and perpetuate this intellectual capital (Richards, 2007; Wang et al., 2024; Nyaupane & Timothy, 2010).

In the absence of effective and institutionalized mechanisms, the gradual or abrupt departure of skilled professionals in key domains such as tour guiding, heritage site management, and traditional handicrafts without any foresight for documenting and transmitting their expertise has led to the erosion and gradual depletion of tacit knowledge within the field of heritage tourism (Markazmalmiri, 2023).

This trend not only undermines the overall quality of tourism services but also exacerbates intergenerational gaps and weakens knowledge-sharing across age cohorts (Gustafson, 2002; Tripp, 2013). In response to these challenges, phased retirement has emerged as an innovative managerial solution. By gradually reducing retirees' working hours and responsibilities while simultaneously providing training opportunities for younger employees, this approach facilitates a structured and sustained transmission of cultural knowledge (Wang & Shultz, 2009).

The phased retirement model not only helps preserve and disseminate tacit knowledge but also creates a platform for intergenerational engagement, enabling retirees to participate actively in mentoring and training processes (Falckenthal et al., 2025). These interactions foster the transfer of not only technical and operational skills but also the cultural and social values embedded within heritage practices (Richards, 2002; Trunfio et al., 2022).

Global best practices such as phased retirement programs in Japan and Sweden demonstrate the effectiveness of this model as a strategic tool for safeguarding cultural knowledge and enhancing long-term cultural sustainability (Su & Teo, 2009).

Given Iran's significant potential in the heritage tourism industry and the existing challenges surrounding the transmission of cultural knowledge, this study was designed to explore the role of phased retirement in addressing these issues. To construct the theoretical framework, the research adopts Nonaka and Takeuchi's (1995) model of organizational knowledge transfer, which conceptualizes knowledge

creation and dissemination through four sequential processes: socialization, externalization, combination, and internalization. Based on this framework, the study pursues the following objectives:

1. Analyzing Intergenerational Interactions (Socialization): To identify the informal and social means by which retirees interact with younger generations to transfer tacit knowledge.
2. Examining Documentation Methods (Externalization): To investigate the tools and methods through which retirees convert their tacit knowledge into explicit, transferable formats for use by new employees.
3. Designing Knowledge Integration Mechanisms (Combination): To develop strategies for integrating retirees' cultural knowledge with contemporary knowledge and applying it within the tourism sector.
4. Assessing Learning Outcomes among Younger Generations (Internalization): To evaluate how younger professionals acquire and operationalize cultural knowledge in practical tourism settings.

Focusing on Iran's cultural and heritage tourism sector, this study aims to design a practical model for implementing phased retirement that facilitates knowledge transfer, enhances the sustainability of heritage resources, and improves the quality of tourism services. The findings are expected to inform tourism policymakers and managers in developing supportive retirement frameworks and intergenerational training programs.

Theoretical Framework

Knowledge transfer particularly in industries reliant on indigenous and cultural knowledge such as heritage tourism is regarded as a critical process for safeguarding cultural identity and achieving sustainable development (Momeni & Hashemi, 2023). This type of knowledge, which encompasses deep-rooted skills, values, and traditions, is predominantly tacit in nature and is commonly passed down through social interaction and hands-on experience shared by seasoned individuals (Guo & Ahn, 2023).

In this context, Polanyi's (1966) theory highlights that tacit knowledge, due to its undocumented and intangible nature, can only be transmitted effectively through close human relationships and direct interpersonal engagement. This characteristic is of particular importance in the tourism industry, where such knowledge contributes significantly to cultural identity formation and the enhancement of service quality (Rao et al., 2024).

In the case of Iran, this process holds exceptional significance in UNESCO World Heritage Sites, where the successful transmission of tacit knowledge can serve as a foundational mechanism for ensuring the sustainability and preservation of the nation's invaluable cultural heritage.

In this regard, one of the most prominent theoretical frameworks for explaining the process of knowledge transfer is the Nonaka and Takeuchi (1995) model, which conceptualizes knowledge creation and transmission as a dynamic, four-stage process.

The first stage, socialization, involves the transfer of tacit knowledge through direct interpersonal interactions, observation, and shared experience. The second stage, externalization, refers to the articulation of tacit knowledge into explicit forms, such as written documents or verbal communication. The third stage, combination, entails the integration of various sources of explicit knowledge to generate new insights. Finally, the internalization stage involves the absorption and embodiment of this newly created knowledge through practical application, ultimately becoming embedded in both individual behavior and organizational routines (Nonaka & Takeuchi, 1995; Polanyi, 1966).

This model provides a valuable lens through which to understand the effective intergenerational transmission of knowledge particularly in the field of cultural tourism where preserving cultural capital is both a strategic priority and a foundational condition for long-term sustainability.

Given the critical role of tacit knowledge in safeguarding cultural heritage, phased retirement has emerged as an innovative approach in human resource management, offering a structured opportunity to capitalize on the experiential expertise of veteran employees (Thumiki & Magd, 2021). This strategy enhances the effective transmission of such knowledge to younger generations within dynamic and culturally embedded work environments (Tokarz & Jerzy, 2024).

The phased retirement model, as proposed by Wang and Shultz (2009), suggests that this approach not only contributes to the retention of tacit knowledge within organizations, but also fosters intergenerational engagement and mitigates the psychological stress commonly associated with the retirement transition.

Nevertheless, the effectiveness of this model is contingent upon the integration of principles of distributive, procedural, and interactional justice within the organizational structure (Beehr & Bennett, 2015).

In the domain of heritage tourism—an area heavily reliant on lived experiences and indigenous knowledge the phased retirement model holds particular significance. Retirees, as primary custodians of tradition and cultural knowledge, are uniquely positioned to contribute to intergenerational knowledge transfer. In this context, the “living heritage” model underscores the necessity of dynamic, face-to-face engagement between generations to ensure the effective preservation and transmission of cultural knowledge (Bui et al., 2020).

Active participation of retirees in informal education, tour guiding, and the documentation of local traditions and skills creates a fertile ground for transferring tacit knowledge that is often difficult to record or formalize, and can only be conveyed through personal experience and direct human interaction.

Within the framework of the living heritage model, such knowledge transmission is conceived as a dynamic, intergenerational reproduction of cultural wisdom a process that fosters deeper connections between past and present in the face of globalization and cultural erosion.

Studies by Bui et al. (2020) and Duarte da Silva Lima et al. (2019) emphasize that the active involvement of retirees in heritage-related activities not only contributes to the preservation of cultural authenticity, but also promotes sustainable tourism through indigenous education, cultural storytelling, and

the enhancement of tourists' cultural awareness. From a knowledge management perspective, such engagement represents a form of living cultural capital, the effective utilization of which requires the implementation of supportive and incentive-driven policies.

(Duarte da Silva Lima et al., 2019)

In this context, the participation of retirees in activities such as education, tour guiding and the documentation of lived experiences plays a vital role in safeguarding local and cultural values (Chhabra, 2009). This process holds particular relevance in Iran, especially in areas such as handicrafts, heritage site management, and the training of tourism professionals.

Intergenerational interaction, as one of the core variables of this study, plays a crucial role in facilitating the transmission of cultural knowledge. According to the intergenerational interaction theory proposed by Wang and Shultz (2009), communication between generations can help bridge generational divides, foster mutual trust, and create opportunities for synergy and shared learning.

In the tourism industry, such interactions may be cultivated through training workshops, formal meetings, and informal dialogues between retirees and younger professionals. In the context of Iran, intergenerational engagement holds considerable potential for expansion, particularly in the sustainable management of heritage sites and the preservation of traditional crafts (Usmaedi et al., 2024; Jafari-Sadeghi, 2022).

Ultimately, cultural sustainability as a fundamental objective of heritage tourism refers to the preservation and reinforcement of cultural identity through the sustained transmission of indigenous knowledge and skills to future generations. Hofstede's (2001) theory of cultural sustainability underscores that maintaining and passing on cultural identity requires deliberate planning to strengthen intergenerational interaction and to document cultural knowledge systematically (Tata & Prasad, 2015).

Furthermore, domestic studies have shown that retirees, through their participation in phased retirement programs, can serve as valuable mentors in safeguarding and transmitting cultural traditions.

Taken together, the theoretical foundations of this research highlight the pivotal role of phased retirement in facilitating the transfer of cultural knowledge. By focusing on intergenerational engagement, tacit knowledge transmission, and cultural sustainability, this study aims to propose a comprehensive model for preserving cultural identity and enhancing the quality of services in the heritage tourism sector.

Conceptual Model of the Research

The conceptual model of this study is developed based on Nonaka and Takeuchi's (1995) SECI framework, illustrating how phased retirement shapes intergenerational interactions and facilitates cultural knowledge transfer.

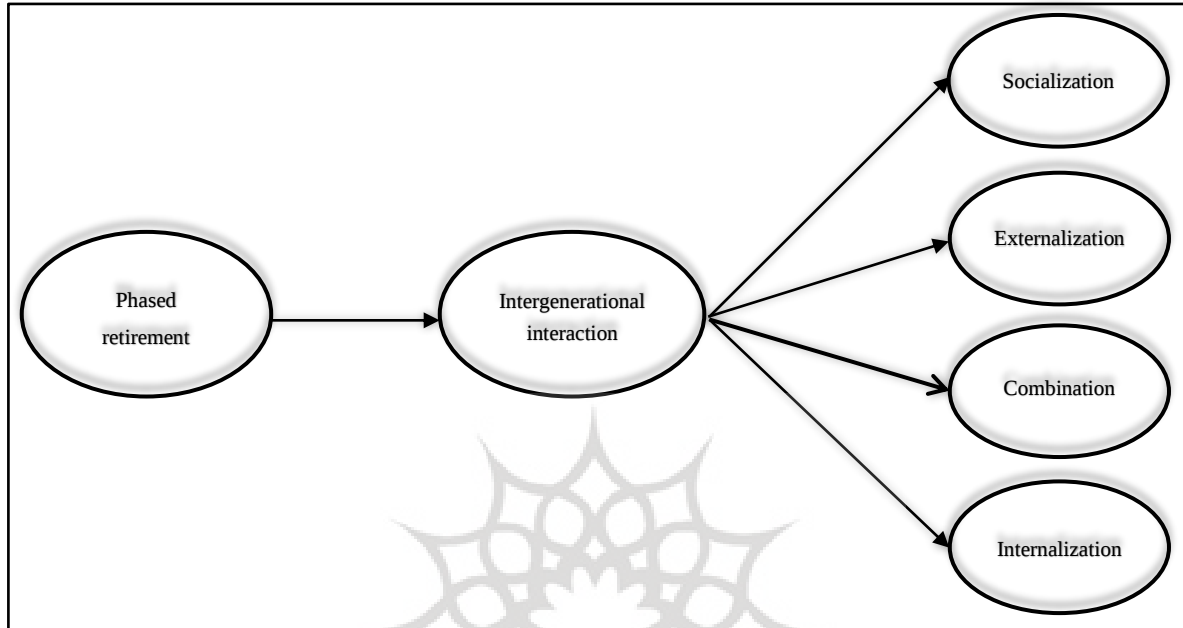


Figure 1. Conceptual Model of the Research (Source: Adapted from Nonaka & Takeuchi, 1995)

Literature Review

In recent years, a growing body of research has explored phased retirement and the transfer of cultural knowledge within the tourism sector. These studies have examined the role of retirees in preserving and transmitting both tacit and explicit knowledge, offering a range of theoretical frameworks and practical approaches to support this process.

Wang et al. (2024), in a study on the intergenerational transformation of intangible cultural heritage through tourism development in Hangzhou, China, employed a qualitative methodology using in-depth interviews with 30 tourism stakeholders. The research examined the role of retirees in transmitting intangible cultural heritage across generations. Findings revealed that retirees, by sharing their lived experiences, not only preserve and reinforce cultural values but also contribute to the sustainability of heritage resources. As repositories of cultural knowledge, they enable younger generations to understand and integrate cultural values into tourism practices through personal narratives and the reenactment of traditions. Such knowledge transfer fosters innovative and practical forms of cultural heritage that can be carried forward to future generations.

In another study, Jamal and Stronza (2009) employed theoretical analysis and case studies to examine the role of intergenerational collaboration in conservation areas. Their findings reveal that retirees play a

crucial role in preserving both natural environments and cultural heritage by passing on cultural knowledge and experiential insights to younger generations. This transfer of knowledge not only strengthens the connection between generations and cultural heritage but also contributes to enhancing the quality of sustainable tourism in such regions. Retirees, particularly in educational and guiding roles, raise awareness among younger generations about the importance of protecting natural and cultural resource.

In a related study, Sie et al. (2016) explored educational tourism perceptions among retired adults using a mixed-methods approach. Their findings revealed that retirees play a significant role as instructors and advisors in the context of educational tourism, especially within informal learning settings. By educating younger generations in areas such as heritage conservation and local historiography, retirees help foster cultural awareness and strengthen heritage-related values among youth. The study suggests that retirees can effectively transfer their knowledge and skills through structured educational and mentoring programs, thereby preparing the next generation for active participation in the tourism sector.

In a related study, Otero (2024) explored the nexus of tacit knowledge and cultural cognition through theoretical analysis and empirical trials. The results highlight the vital role of retirees' tacit knowledge—typically transmitted through experience and cultural participation—in safeguarding cultural heritage. This form of knowledge often conveyed informally or orally, plays an influential role in the informal learning processes of younger generations, particularly within cultural and heritage contexts. Through their involvement in ceremonies, festivals, and other cultural activities, retirees help acquaint younger individuals with cultural values, thereby preserving the authenticity of heritage.

The issue of retiree migration has also been examined in the context of knowledge transfer. In a seminal study, Williams et al. (2000) examined international retirement migration in Europe and found that retirees, through their interactions with local communities, act as key agents in the cultural knowledge transmission process. Retirees, by establishing social and cultural networks in host countries, facilitate cross-generational exposure to diverse cultures and heritage values. These interactions, particularly in educational and cultural domains, help preserve and strengthen cultural identity. As a result, younger generations—especially those engaged in tourism and sustainable development—benefit from the insights and lived experiences of older adults.

The relationship between heritage tourism and retirees in developing countries has been examined by Nyaupane and Timothy (2010). Drawing on data from 150 interviews with tourism professionals and government officials across various developing nations, the study demonstrates that retirees significantly contribute to strengthening cultural values and improving tourism quality by transferring their knowledge and skills to younger generations. The findings suggest that retirees serve as a bridge between older and younger generations, thereby playing a crucial role in the transmission of cultural and heritage knowledge and reinforcing the foundation for sustainable tourism development.

Lastly, Zhang et al. (2024) address the issue of alienation and authenticity in intangible heritage tourism. Employing a mixed-methods approach, the study explores how intergenerational interactions

between retirees and younger individuals influence the preservation of cultural authenticity and enhance the overall visitor experience. The results indicate that sustained engagement between retirees and youth strengthens cultural authenticity and improves tourist satisfaction. Through their participation in educational initiatives and the transfer of tacit knowledge, retirees support the preservation and revitalization of local cultures. These findings underscore the potential of intergenerational exchange to positively affect both cultural sustainability and the long-term vitality of heritage tourism destinations.

Recent research in the fields of phased retirement and cultural knowledge transfer in tourism has increasingly highlighted the vital role of retirees in preserving and disseminating both tangible and intangible cultural heritage. Findings suggest that retirees, as custodians of both tacit and explicit knowledge, contribute to cultural authenticity and tourism sustainability through a variety of mechanisms—including personal storytelling, participation in cultural ceremonies, informal education, and intergenerational interaction.

For instance, studies such as Wang et al. (2024) and Zhang et al. (2024) emphasize that retirees help keep intangible heritage alive by re-enacting traditions and sharing lived experiences, thereby passing on cultural assets in innovative and contextually relevant formats. Similarly, research by Jamal and Stronza (2009) and Nyaupane & Timothy (2010) illustrates that intergenerational collaboration in protected areas and developing countries fosters the preservation of natural environments and supports the growth of sustainable tourism.

Moreover, the contributions of retirees to tourism education (Sie et al., 2016) and their role in international migration (Williams et al., 2000) have been identified as opportunities for intercultural exchange and the formation of social and cultural networks. These interactions not only enhance young generations' awareness of heritage values but also enrich the overall visitor experience.

Nonetheless, challenges remain—including the lack of structured programs to systematically utilize retirees' knowledge and the need to integrate digital technologies into the knowledge transfer process. Addressing these gaps is essential for maximizing the potential of intergenerational knowledge exchange in sustaining cultural heritage through tourism.

Overall, the reviewed studies demonstrate that retirees, as “intergenerational bridges,” can play a pivotal role in shaping sustainable tourism policies, safeguarding cultural heritage, and reinforcing social identity. To fully harness this potential, it is recommended that institutions involved in tourism and cultural heritage develop structured programs aimed at promoting the active participation of retirees through consultancy, education, and cultural events.

Moreover, future research could explore the impact of emerging technologies, such as virtual reality, in facilitating intergenerational knowledge transfer, as well as examine the evolving role of retirees within the context of digital tourism.

Research Methodology

Intergenerational interaction in the process of cultural heritage knowledge transfer. In terms of purpose, the research is classified as applied, while from a methodological perspective, it adopts a descriptive-analytical approach. Data collection took place during the winter of 2024.

The statistical population consisted of retired professionals active in the heritage tourism sector and young employees currently working in the Cultural Heritage, Tourism and Handicrafts Organization of Iran. Retirees were considered the primary sources of knowledge, whereas younger participants were regarded as the recipients of this knowledge. These two groups operate within the same organizational context, and in addition to workplace collaboration, they also engage in planned meetings and training sessions facilitated by the Tour Guides Association, which provide opportunities for structured interaction and direct knowledge transfer. The total population was ... individuals, of which 220 were selected as the study sample.

To determine the sample size, the statistical population of the study was first clarified. Although a considerable number of licensed tour guides formally hold valid membership cards, a large proportion of them have long withdrawn from professional activities and continue to renew their licenses merely to retain certain ancillary benefits. Consequently, a substantial gap exists between the officially registered and the actually active population, making it impossible to determine the precise size of the active community. In such circumstances, it becomes necessary to rely on scientifically recognized estimation techniques. Accordingly, Schaffer's formula was employed as a valid and widely accepted method when the exact population size is unknown. Based on this approach, and considering a 95% confidence level, an estimated population proportion of $p = 0.5$, and a margin of error of 6.6% ($d = 0.066$), the required sample size was calculated to be 220 participants.

Although the official statistics reported by the Ministry indicate a large number of licensed tour guides, there is a considerable gap between these figures and the actual number of active professionals. Drawing on the author's professional experience and direct involvement in this field, the main strata of the population including retired guides, guides eligible for retirement but still active and currently employed guides were identified. This approach made it possible to apply stratified random sampling even in the absence of precise statistical data.

The primary data collection instrument was a structured questionnaire developed based on the theoretical framework of the study. The questionnaire comprised two main sections. The first section gathered demographic information from respondents, including age, gender, education, type of involvement in cultural heritage, and marital status. The second section contained items measuring the key variables of the study, including phased retirement, intergenerational interactions, and the four dimensions of the SECI model: socialization, externalization, combination, and internalization.

All items were measured using a five-point Likert scale, and each core variable was assessed through four to six indicators. To evaluate the content validity of the instrument, the initial version of the

questionnaire was reviewed by a panel of experts in knowledge management and heritage tourism, and revisions were made based on their feedback. Construct validity was assessed through confirmatory factor analysis (CFA) using Smart PLS software.

The reliability of the questionnaire was examined via Cronbach's alpha, with all variables scoring above the threshold of 0.70.

Data analysis was conducted at both descriptive and inferential levels. At the descriptive level, demographic characteristics and research variables were examined using means and standard deviations. At the inferential level, Structural Equation Modeling (SEM) was employed to assess the relationships among the variables. This analysis was carried out using Smart PLS, which allowed for the estimation of both direct and indirect effects between constructs.

Despite the relatively large sample size ($n = 220$), Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected for this study based on two primary considerations: First, the exploratory nature of the conceptual model, which integrates behavioral, social, and technology-oriented variables; and second, the high predictive validity and flexibility of the PLS method in analyzing both reflective and formative constructs.

Given the characteristics of the data specifically, the non-normal distribution of certain variables and the complex interrelationships among constructs PLS-SEM, a variance-based modeling technique, was deemed more appropriate than covariance-based SEM (CB-SEM).

To assess the significance of relationships, the bootstrapping technique was employed, and key indicators such as factor loadings, path coefficients, and validity and reliability metrics were examined.

The methodological design of the study aimed to identify key factors influencing cultural heritage knowledge transfer and to provide a foundation for policy development in the field of heritage tourism. Based on the conceptual framework—which focuses on the impact of phased retirement and intergenerational interaction on the transmission of cultural heritage knowledge through the four stages of the SECI model (socialization, externalization, combination, internalization) the following hypotheses were formulated:

1. **H1:** Informal and social interactions between retirees and younger generations have a positive and significant impact on the transfer of tacit cultural heritage knowledge within the tourism industry.
2. **H2:** The documentation methods employed by retirees have a positive and significant effect on the transformation of tacit knowledge into explicit knowledge in the tourism sector.
3. **H3:** The integration of retirees' cultural knowledge with modern knowledge positively influences the improvement of heritage and cultural tourism processes.
4. **H4:** The learning and application of cultural knowledge by younger generations positively affect their performance quality in operational tourism environments.

Table 1. Variables and Items Used in the Research (Source: Authors)

Variable	Item
Phased Retirement	To what extent can planning for the gradual reduction of experienced employees' roles help preserve organizational knowledge?
	Do you think reducing working hours gradually can provide sufficient time for training new staff?
	In your opinion, how effective is the involvement of retirees in training processes for skill transmission?
	How much do you believe that well-designed phased retirement can motivate individuals to transfer knowledge?
	Do you think the sudden elimination of responsibilities may lead to the loss of valuable knowledge?
Intergenerational Interaction	To what extent do you believe communication between experienced staff and new employees enhances organizational performance?
	Do you think daily interaction between different generations can improve workplace learning?
	In your view, what factors can facilitate interaction between different generations?
	How much do you think joint work opportunities between young employees and retirees help increase knowledge?
	To what extent do you believe that generational gaps can be reduced by creating communication opportunities?
Socialization	How much do you believe that informal conversations in the workplace can facilitate the transfer of practical experience?
	In your opinion, how effective is informal interaction in improving young employees' understanding of work processes?
	Do you think participating in informal meetings or events can support the learning of cultural knowledge?
	How much do you believe retirees' experiences are naturally transferred to new staff through daily interaction?
Externalization	To what extent do you think documenting knowledge and experiences can help prevent their loss?
	Do you believe organizing training workshops for young employees improves knowledge transfer?
	How useful do you think documented knowledge is for future generations?
	Do you think organizations should provide more tools for documenting knowledge?
Combination	To what extent do you think transferred knowledge from retirees can be used in designing new processes?
	Do you believe that combining previous knowledge with new ideas accelerates innovation?
	How effective do you think brainstorming sessions are in combining existing and transferred knowledge?
	In your opinion, how much does integrating retirees' experience with young employees' knowledge contribute to organizational success?
Internalization	How effective do you think training provided by retirees is in improving the practical skills of new staff?
	Do you believe applying transferred knowledge in daily activities can improve work quality?
	In your opinion, how much is cultural knowledge reflected in the behaviors and decisions of young employees?
	To what extent do you think transferred knowledge can help preserve cultural values and strengthen organizational identity?

Research Findings

In the descriptive findings section, the demographic characteristics of the sample were examined. The statistical population consisted of 220 professionals active in the tourism sector. Results show that 57.3 percent ($n = 126$) of the respondents were female and 42.7 percent ($n = 94$) were male.

In terms of age groups, the highest proportion of participants were between 25 and 35 years old, accounting for 68.9 percent ($n = 151$). This was followed by individuals aged 36 to 45 with 25.74 percent ($n = 57$), and those aged 46 to 55, who represented the smallest group with 5.94 percent ($n = 13$).

Regarding educational attainment, the majority of respondents held a bachelor's degree (71.2 percent, $n = 156$), followed by those with a master's degree (23.7 percent, $n = 52$), and a doctoral degree (5.1 percent, $n = 12$).

From an occupational standpoint, 82.5 percent ($n = 181$) of participants were tour guides, and 10.2 percent ($n = 22$) were tourism professionals. Together, these two groups accounted for 92.7 percent of respondents classified as private sector workers. The remaining 7.3 percent ($n = 16$) were employees of the Ministry of Cultural Heritage or university faculty members in tourism, representing the public sector.

In terms of income, the lowest frequency was reported among individuals earning more than 200 million IRR per month, with only 2.8 percent ($n = 6$) falling into this category. In contrast, the majority of respondents (82.5 percent, $n = 181$) reported a monthly income between 150 and 200 million IRR.

To accurately assess the process of knowledge transfer, the statistical population was defined in two distinct groups. The first group included retirees as holders of cultural knowledge, and the second group comprised younger professionals working in tourism, especially tour guides, as the recipients of that knowledge. Since the SECI model requires evaluation of the perception and application of knowledge in the combination and internalization stages, the emphasis on responses from individuals aged 25 to 35 was an intentional component of the methodological design. Therefore, the higher proportion of young participants in the data reflects a purposeful focus on assessing the effectiveness of knowledge transfer, rather than the exclusion of retirees from the study.

Sampling Adequacy Test

The Kaiser Meyer Olkin (KMO) measure of sampling adequacy was calculated at 0.751, indicating that the data are suitable for factor analysis and that the correlation structure among the variables is of acceptable quality. Additionally, the Bartlett's test of sphericity yielded a chi square value of 321.299 with 15 degrees of freedom and a significance level of 0.000, leading to the rejection of the null hypothesis and confirming the statistical significance of the correlation matrix. These results suggest

that the necessary conditions for identifying underlying structures and conducting factor analysis are satisfactorily met.

Model Fit and Structural Analysis

Following the evaluation of the measurement model and confirmation of the validity of indicator loadings, the structural model was analyzed using the Partial Least Squares Structural Equation Modeling (PLS SEM) approach via SmartPLS software. The primary objective of this analysis was to assess the influence of phased retirement and intergenerational interaction on the various stages of cultural knowledge transfer as conceptualized in the SECI framework, which includes socialization, externalization, combination, and internalization.

The construct Phased Retirement was measured using four indicators. Factor loadings ranged from 0.665 to 0.869, indicating an acceptable level of correlation between the indicators and the latent variable. The direct effect of this variable on intergenerational interaction was reported as 0.536, reflecting a substantial role for retirees in fostering effective engagement with younger staff and facilitating knowledge transmission.

The variable Intergenerational Interaction, defined by five items, showed the highest factor loading for item B3 (0.914) and the lowest for item B4 (0.436). This significant discrepancy suggests a need to revise or refine the lower-performing items to enhance the internal consistency of the construct.

Among the structural paths, Socialization received the highest influence from intergenerational interaction, with a path coefficient of 0.634. This finding underscores the importance of direct human interaction in the effective transmission of tacit knowledge.

The path coefficient from intergenerational interaction to externalization was 0.160, to combination was 0.114, and to internalization was approximately 0.170. These relatively low values suggest that additional structural support, formal training, or technological tools may be required to strengthen these dimensions.

Most factor loadings for other variables were within an acceptable range. In particular, items C1 to C4 under Socialization ranged from 0.857 to 0.911, and items F1 to F4 under Internalization ranged from 0.898 to 0.935, indicating strong reliability and alignment with the conceptual constructs. However, some indicators under Externalization, such as D1 and D2, had loadings below 0.600 and may require further revision.

Based on the model results, it can be concluded that phased retirement, mediated by intergenerational interaction, exerts its greatest influence on the socialization stage of knowledge transfer. This highlights that the active participation of retirees in interpersonal engagements is the most effective pathway for preserving and transmitting cultural heritage.

Overall, the results of the structural model analysis validate the coherence and reliability of the conceptual model and emphasize the need for supportive policy frameworks to utilize the capacities of retirees in the cultural heritage tourism industry.

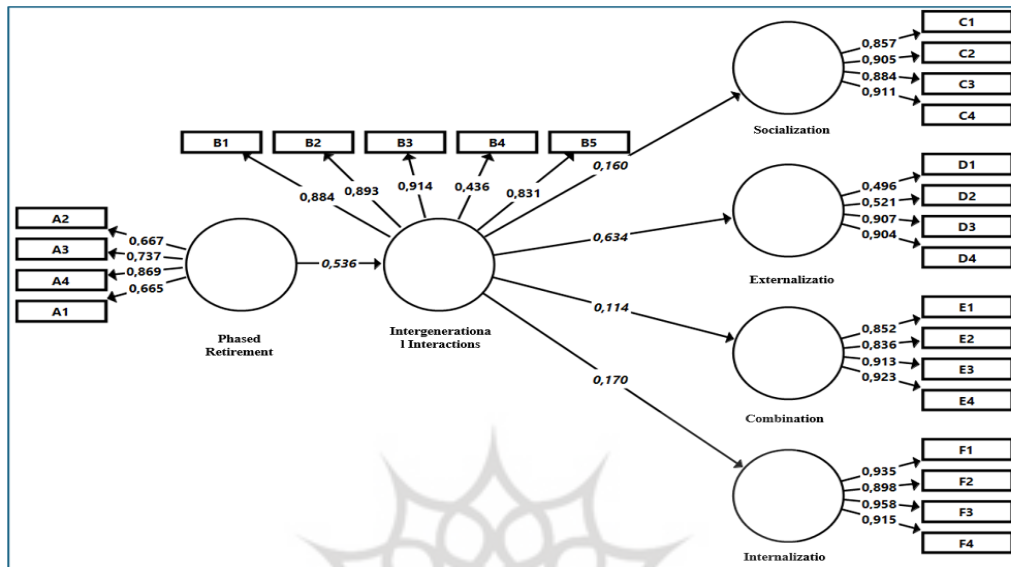


Figure 2. Model Fit of the Conceptual Framework (Source: Research Findings)

Measurement Model Evaluation

Following the structural model analysis and confirmation of path coefficients and factor loadings, the significance of the relationships was assessed using t-value analysis through bootstrapping in SmartPLS software. The objective of this analysis was to evaluate the reliability of the observed effects in the model.

The t-value for the path between Phased Retirement and Intergenerational Interaction was 10.848, which is well above the critical threshold of 1.96 at the 95 percent confidence level. This indicates a statistically strong and significant influence of phased retirement on enhancing intergenerational engagement.

Among the four paths linking Intergenerational Interaction to the SECI model dimensions, the highest t-value was observed for the path to Externalization, with a value of 14.871. This reflects a highly significant statistical effect of intergenerational interaction on the transformation of tacit knowledge into explicit knowledge.

The path from Intergenerational Interaction to Socialization had a t-value of 1.706, which falls short of the 1.96 threshold and is therefore not statistically significant at the 95 percent level, although it may reach significance at a lower level such as 90 percent.

The path to Combination showed a t-value of 1.651, suggesting that the relationship may not be statistically significant. In contrast, the path to Internalization showed a t-value of 3.044, exceeding the 1.96 threshold and indicating a positive and statistically significant effect.

It is also noteworthy that the t-values for the indicators associated with Internalization were all above 20, reflecting a very strong alignment between the indicators and the latent construct.

Structural Model Assessment

To evaluate the reliability and validity of the measurement model, several indicators were examined, including Cronbach's Alpha, Rho-A, Composite Reliability (CR), and Average Variance Extracted (AVE) for the six primary constructs. According to the results, all variables exceeded the standard thresholds, indicating the adequacy and validity of the constructs within the research model.

The highest level of reliability was observed in the construct of Internalization, with a Cronbach's Alpha of 0.946 and Composite Reliability of 0.961, demonstrating a strong internal consistency. Furthermore, its AVE value was 0.859, reflecting excellent convergent validity.

The Socialization construct also exhibited highly satisfactory metrics, with a CR of 0.938, AVE of 0.792, and Cronbach's Alpha of 0.924, suggesting that the associated items comprehensively capture the underlying concept.

The construct of Intergenerational Interaction achieved acceptable levels of internal consistency and validity, with a Cronbach's Alpha of 0.859 and AVE of 0.659, surpassing the minimum recommended standards.

Although the constructs of Phased Retirement, Externalization, and Combination yielded slightly lower values of AVE and CR in comparison with the other variables, all remained within acceptable ranges and thus were statistically valid and reliable.

Table 2. Construct Reliability and Validity (Source: Research Findings)

Title	Alpha ($\alpha > 0.7$)	Rho-A	CR (> 0.7)	AVE (> 0.5)
Socialization	0.924	0.986	0.938	0.792
Phased Retirement	0.732	0.801	0.826	0.546
Externalization	0.754	0.901	0.813	0.539
Combination	0.910	0.954	0.933	0.777
Intergenerational Interaction	0.859	0.909	0.902	0.659
Internalization	0.946	0.979	0.961	0.859

Correlation Analysis

To evaluate the degree of distinction between the constructs and to ensure that each latent variable correlates more strongly with its own indicators than with those of other constructs, the Fornell and Larcker criterion was applied. Based on the results, nearly all constructs demonstrated appropriate levels of discriminant validity. For example, the construct of internalization, with a square root of AVE equal to 0.927, showed the highest level of differentiation, as it exceeded all its correlations with other constructs. Similarly, the constructs of intergenerational interaction (0.812), combination (0.882), externalization (0.743), and socialization (0.890) also satisfied this criterion, indicating a desirable level of discriminant validity. However, the only exception in this regard was the construct of gradual retirement. The square root of its AVE was calculated as 0.739, which is lower than its correlation with the construct of socialization (0.890), suggesting a potential overlap.

Table 3. Fornell-Larcker Criterion Test (Source: Research Findings)

Construct	Socialization	Gradual Retirement	Externalization	Combination	Intergenerational Interaction	Internalization
Socialization	0.890					
Gradual Retirement	0.072	0.739				
Externalization	-0.080	0.264	0.743			
Combination	0.269	-0.059	-0.113	0.882		
Intergenerational Interaction	0.160	0.536	0.234	0.114	0.812	
Internalization	0.456	0.196	0.354	0.409	0.170	0.927

Discussion

The findings of this study indicate that gradual retirement, as an organizational strategy, can play a significant role in enhancing intergenerational interactions and facilitating the transfer of tacit cultural knowledge within the heritage tourism industry. The first hypothesis, which emphasized the impact of informal and social interactions between retirees and younger generations on the transmission of tacit knowledge, was supported with a moderately strong path coefficient (0.634) and a t-value of 1.706 at a 90 percent confidence level. Although this result did not reach statistical significance at the 95 percent level, the magnitude of the effect highlights the importance of human relations and direct interactions in fostering informal and experiential learning processes. However, the lack of formal structures to guide and sustain such interactions may partly explain the reduced statistical significance. It is recommended that formal programs such as intergenerational dialogue sessions, narrative-based workshops, and the

active involvement of retirees in the training of new staff be developed and implemented to increase the effectiveness of these interactions.

The second hypothesis, which examined the impact of knowledge documentation by retirees on the conversion of tacit knowledge into explicit knowledge, was fully supported with a path coefficient of 0.160 and a very high t-value (14.871). This finding suggests that the use of formal documentation tools—including structured forms, instructional videos, written narratives, and other recording methods—can effectively transform accumulated tacit knowledge into accessible and usable intellectual capital for others. It is recommended that cultural tourism authorities design systems for collecting, archiving, and disseminating retirees' experiences, and consider employing them as experience documentation consultants.

Regarding the third hypothesis, which addressed the integration of retirees' cultural knowledge with modern knowledge systems, the path coefficient was 0.114 and the t-value was 1.651. This indicates that the relationship was statistically significant only at the 90 percent confidence level. The relative weakness of this relationship may be attributed to the lack of technological infrastructure, generational gaps in digital literacy, and the absence of effective mechanisms to mediate between traditional and modern knowledge. The statistical weakness observed in this hypothesis (knowledge combination) may stem from the disconnection between traditional expertise and the contemporary tools of the tourism industry. This highlights a key challenge faced by retirees as cultural knowledge holders—their difficulty in articulating and transmitting knowledge in technology-driven formats.

To strengthen this dimension, the following innovative approaches are recommended:

Digital storytelling: Integrating traditional narratives into podcasts, videos, augmented and virtual reality to create engaging content for younger audiences.

Intergenerational co-creation workshops: Bringing together retirees and tourism technology professionals to reframe traditional knowledge into new formats such as mobile apps, interactive brochures, and digital tours.

Collaborative platforms: Developing Wiki-like systems or localized software platforms for documenting, merging, and evolving experiential knowledge in real time.

Additionally, the role of knowledge facilitators should be institutionalized—individuals who serve as bridges between retirees and digital-native staff. Future interdisciplinary research could explore these mediating variables and form the basis for designing an integrated "Retiree–Knowledge–Technology" framework.

Finally, the fourth hypothesis, which posited that the learning and application of cultural knowledge by younger generations would positively affect their performance in tourism contexts, was fully supported with a path coefficient of 0.170 and a t-value of 3.044. This result indicates that when cultural

knowledge is effectively transferred to younger professionals, they become more capable of delivering professional, insightful, and culturally responsive services to tourists. Enhanced historical understanding, narrative competence, and cultural sensitivity are among the benefits of such learning. It is therefore recommended that the training curriculum for tour guides be redesigned to include experiential learning, mentorship by retirees and deep cultural interaction as core components.

In conclusion, the findings of this study reveal that gradual retirement, through the activation of intergenerational interactions, serves as an effective mechanism for the transfer of tacit knowledge and the preservation of intangible cultural heritage. However, the full realization of this process requires precise policymaking, institutional structuring, enhancement of documentation systems, and attention to generational challenges in tourism environments. Of the four hypotheses tested, three were confirmed at varying levels of significance, each reflecting a distinct and critical dimension of the cultural knowledge transfer process in heritage tourism. These insights can inform the development of human resource policies within tourism-related organizations, particularly those responsible for UNESCO heritage management.

Conclusion

This study aimed to examine the role of phased retirement and intergenerational interactions in the transfer of tacit knowledge within the context of heritage tourism. The findings clearly demonstrated that phased retirement, by creating opportunities for human interaction, can significantly facilitate the transmission of experiential and indigenous knowledge to younger generations. Among the four stages of the SECI model, the *socialization* phase had the strongest association with intergenerational interaction, highlighting the crucial role of human relationships in the transfer of tacit knowledge.

In contrast, the influence of intergenerational interactions on the other three stages of knowledge transfer (*externalization*, *combination*, and *internalization*) was more limited and required additional structural and technological support. These results emphasize that enhancing knowledge transfer processes in heritage tourism demands not only the facilitation of intergenerational relationships but also the institutionalization of formal documentation, targeted training, and the integration of knowledge into the professional practice of younger staff.

Overall, this research, by proposing an integrated model combining intergenerational interaction, phased retirement, and the stages of knowledge transfer, shows that leveraging the capacities of retirees is not only effective in preserving cultural traditions and values but can also contribute meaningfully to the sustainable development of the heritage tourism sector.

Theoretical Implications

- This study contributes to the literature by introducing phased retirement as an effective mechanism for enhancing the SECI model of knowledge transfer in heritage tourism.
- The findings also clarify the conceptual distinction between phased retirement and related constructs such as socialization, thereby expanding the theoretical understanding of intergenerational cultural knowledge transfer.

Managerial Implications

- Establish a formal framework for phased retirement in the heritage tourism sector, enabling retirees to officially participate as guides, mentors, and knowledge documenters.
- Organize intergenerational workshops between retirees and younger professionals to strengthen socialization and facilitate informal experience sharing.
- Utilize localized and culturally adapted technologies for documenting cultural knowledge.
- Develop incentive policies to engage experienced retirees in the sustainable management of heritage sites, particularly UNESCO-listed destinations such as Persepolis and Susa.

Limitations and Recommendations for Future Research

- Measurement instruments related to phased retirement should be revisited and refined to more clearly distinguish this construct from overlapping dimensions such as socialization.
- Given the relatively low factor loadings for some items in the externalization construct, future studies are encouraged to redesign these indicators by incorporating more concrete examples, using digital documentation tools, and applying confirmatory factor analysis (CFA).

Future research should also extend beyond a single regional context, explore cross-cultural comparisons, and examine the role of emerging technologies—such as virtual reality—in facilitating intergenerational knowledge transfer.

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