RESEARCH AND DEVELOPMENT OF A CULTURAL INTELLIGENCE MEASUREMENT INSTRUMENT FOR PEOPLE IN WORLD HERITAGE SITES

Pannika Ngamcharoen[1], Naksit Sakdapat[2]* Duchduen Emma Bhanthumnavin[3]

[1]College of Creative Agriculture for Society, Srinakharinwirot University, Thailand.
ORCID iD: https://orcid.org/0009-0000-0369-1191, Email: pannika@g.swu.ac.th
[2]Faculty of Humanities, University of the Thai Chamber of Commerce, Thailand.
ORCID iD: https://orcid.org/0000-0002-8689-4046, Email: naksit_sak@utcc.ac.th
[3]Graduate School of Social Development and Management Strategy, National Institute of Development Administration, Thailand.
ORCID iD: https://orcid.org/0009-0009-2490-4278, Email: duchduen.bha@nida.ac.th

Abstract

This study is a quantitative research endeavour focused on the development and assessment of a cultural intelligence measurement tool. The aim was to investigate and validate the elements, framework, and reliability of the measurement tool. The sample comprised 850 persons living in five Thai regions recognised as UNESCO World Cultural Heritage Sites. The sample size was determined with the G*Power software, and participants were chosen through multi-stage quota random sampling. The preliminary version of the measurement instrument, created by the researchers, comprised 100 components. The instrument was subjected to a five-step item analysis process: 1) Item quality assessment, 2) Exploratory factor analysis, 3) Confirmatory factor analysis, 4) Structural equation modelling, 5) Correlation coefficient evaluation. The research findings corroborated all five theories. The principal outcomes are as follows. The exploratory factor analysis performed on the initial dataset identified four valid components comprising 20 items, with a reliability coefficient of 0.880. The components consist of five elements each of cultural knowledge, cultural awareness and contextual sensitivity, adaptation and behavioural communication skills, and community participation. The measurement instrument accounted for 60.677% of the variance in cultural intelligence. The confirmatory factor analysis performed on the second dataset indicated that the measurement model exhibited a satisfactory fit with the empirical data, as evidenced by fit indices that met established criteria: χ^2 = 78.362, df = 68, p-value = 0.127, RMSEA = 0.036, GFI = 0.968, AGFI = 0.959, CFI = 0.976, TLI = 0.973, SRMA = 0.055. The validity analysis conducted on the third dataset demonstrated significant positive intercorrelations among components, thereby affirming the construct validity of the measurement. The constructed measurement tool can be utilised in forthcoming study to examine cause and outcome variables associated with diverse behavioural characteristics within the tourist domain. This method can also be utilised to evaluate cultural knowledge in communities with analogous situations or in experimental research comparing pre- and post-training results of cultural tourism initiatives in Thailand. The results may facilitate the development of social indicators. The instrument can be used into training programs designed to improve comprehension and encourage sustainable cultural heritage preservation practices among the public.

1. INTRODUCTION

Culture is regarded as a manifestation of affluence transmitted through generations via lifestyles. Culture denotes human creations that can be modified or transformed via the evolution of life activities. It embodies thoughts, emotions, and behaviours, and is conveyed as a societal heritage. Particular cultural forms transmitted across generations become significant heritage for specific populations or for humanity as a whole. This culture is termed cultural heritage. Subsequently, the term "heritage" was employed in the realms of conservation and development (Di Giovine, 2008). The United Nations Educational, Scientific and Cultural Organisation (UNESCO) defines a "heritage site" as a location that embodies values and/or attributes deserving of preservation (Rössler Chief, 2006). Cultural heritage possesses relevance and worth at all societal levels, ranging from individual families and communities to bigger entities such as cities, nations, and the global community. It cultivates pride and identity, differentiates groups, and enhances economic development and income via cultural activities. Consequently, ancient towns and historical cities constitute a sort of cultural heritage. Thailand presently boasts five UNESCO-designated cultural World Heritage Sites: 1) Historic Town of Sukhothai and Associated Historic Towns in Sukhothai and Kamphaeng Phet provinces, 2) Historic City of Ayutthaya in Phra Nakhon Si Ayutthaya province, 3) Ban Chiang Archaeological Site in Udon Thani province, 4) Ancient Town of Si Thep in Phetchabun province, and 5) Phu Phra Bat Historical Park in Udon Thani province (Limsamphancharoen et al., 2025). These sites function as repositories of cultural heritage that illustrate the interrelation of both tangible and intangible cultural elements.

In recognition of the importance of cultural heritage, nations with notable archaeological sites, such as Italy and Egypt, have implemented strategies and frameworks for the preservation of historic cities since the late 18th century. These methodologies underscore conventional historical values alongside the cultural context of communities adjacent to historic urban locales (Gates & Goldman, 2024). In Asia, significant instances are Japan and Cambodia, which commenced the implementation of conservation mechanisms and initiatives in the late 18th century, integrating universal concepts of heritage conservation and urban heritage management (Meskell et al., 2015). These principles also include the notions of sustainable development and stakeholder engagement. In addition to symbolising a site's significance and exceptional worth, inclusion on the World Heritage List also yields economic advantages, notably enhanced tourism revenue. Nevertheless, swift transformations have prompted enquiries about the extent of engagement and comprehension among local communities regarding the significance of cultural assets. Miura (2010) noted that World Heritage sites frequently evolve into novel community forms, influenced by social spaces and values, often resulting in conflicts among stakeholders, including local residents and tourists. This matter has emerged as a prominent subject of research necessitating integrative methodologies (Caust & Vecco, 2017). Despite the swift rise in the number of nominated sites and the significant issues stemming from these nominations, there has been a paucity of thorough research on the transformative processes preceding and following inscription. Furthermore, enquiries have emerged concerning the impact of designating an area as a community and cultural World Heritage site on both physically connected and culturally cognisant communities. Research methodologies can be categorised based on interactions among local, provincial, national, regional, or worldwide communities, with internal community activities that enhance cultural comprehension (Engelhardt et al., 2012). Another concern pertains to the collaboration among conservation specialists, tourism professionals, and community development practitioners (Labadi, 2013).

In World Heritage sites, local communities serve as essential stakeholders, actively participating in various aspects, including historical knowledge, perspectives on ancient heritage tourism sites, local traditions, traditional societies, and the local economy (Abdul Aziz et al., 2023). The actions and customs of local inhabitants inevitably impact the sustainability of tourism and the preservation of cultural assets. As indigenous populations, these communities are intrinsically linked to the heritage sites (Jaafar & Rasoolimanesh, 2016) and function as essential reservoirs of local knowledge and cultural resources. Furthermore, local inhabitants are instrumental in the production of cultural commodities, the organisation of community-centric events, and the facilitation of cultural experiences for visitors. These contributions exemplify the cultural authority of local communities in delineating and conveying the significance of World Heritage sites.

The notion of stakeholder involvement underscores the need of allowing local citizens to voice their ideas, engage in collaborative learning, and partake in policy decisions about area management within the framework of community

engagement. This methodology acknowledges local populations as legitimate proprietors of heritage places, cultivating a feeling of place attachment that can transform into community-led tourist management, enhancement of local livelihoods, and increased stewardship of World Heritage sites (Li et al., 2020). When local populations are relegated to the status of service providers or passive beneficiaries of tourist effects, the interplay between conservation and tourism may devolve into conflict, potentially resulting in the long-term erosion of cultural values (Jaafar & Rasoolimanesh, 2016). Therefore, acknowledging local citizens as partners in cultural tourism destinations embodies social justice and serves as a strategic basis for sustainable growth across cultural, economic, and power dynamics among the state, private sector, and communities. Cultural knowledge is essential for a profound comprehension of cultural heritage, especially in heritage tourist regions populated by traditional communities. These local folks are not only inhabitants but also stewards of ancestral information transmitted through customs, rituals, language, architecture, and localised wisdom. Their link to cultural knowledge is evident in various dimensions (Bortolotto, 2015), including the historical dimension, which reflects the community's existence and progress, and the identity dimension, which demonstrates ownership and pride in cultural heritage. Nevertheless, if local cultural information is not appropriately contextualised or is misconstrued, it may result in the neglect of diverse cultural significances and foster a sense of alienation among populations involved in development activities. Research conducted by Siddiqui et al. (2023) indicates that tourist engagement and cultural intelligence in sustainable conservation are significantly constrained. Incorporating local cultural knowledge as indigenous competence is a crucial technique to validate cultural tourism management and improve the sustainability of heritage conservation. This information not only safeguards heritage identity (Robertson-von Trotha & Hauser, 2010) but also equilibrates development, tourism, and local livelihoods, establishing a basis for significant and sustainable heritage management. Furthermore, the investigation into the creation of a cultural intelligence evaluation tool is directly aligned with the United Nations' Sustainable Development Goals (SDGs), especially SDG 4, which advocates for quality education that fosters knowledge and comprehension of culture and sustainable development. The created tools may measure training outcomes in cultural knowledge at both individual and community levels, establishing a crucial foundation for sustained human capital development. This pertains to SDG 11 concerning sustainable cities and communities, wherein such instruments might furnish databases for policy formulation in the conservation and promotion of cultural heritage at the local level. Moreover, these tools can guide the development of initiatives that elevate community awareness in culturally distinct environments (Katila et al., 2019). This research advances the development of psychological and behavioural science instruments and serves as a practical tool for policy formulation, educational media, and social initiatives aligned with sustainable development goals across various dimensions.

The examination of pertinent research publications revealed that standardised tools for assessing cultural intelligence on a global scale are scarce. Many current tools fail to adhere to academic norms, perhaps resulting in mistakes when utilised, particularly concerning Thailand's cultural world heritage sites. These locations exhibit distinct cultural attributes and markedly divergent social settings. The researchers want to perform a study and create a cultural intelligence evaluation tool tailored for the Thai setting, especially in culturally varied world heritage sites. The objective is to create an instrument that fulfils rigorous academic standards for validity, reliability, and precision, and is broadly recognised. This instrument will provide thorough and accurate assessment of cultural intelligence. Furthermore, the produced instrument possesses the capacity to function as a database to advance and augment knowledge, comprehension, and skills pertaining to cultural intelligence within the target populations. This will foster harmonious coexistence within a culturally diverse society. Furthermore, the technique can be proficiently utilised in both evaluative and developmental research moving forward.

2. LITERATURE REVIEW

World Heritage Sites are locations or monuments designated by UNESCO for its cultural, historical, scientific, or other value, and are safeguarded by international agreements. These landmarks are deemed valuable to all of humanity. Each World legacy Site, while owned by the respective country, is considered a component of the global legacy, with the entire community sharing the responsibility for its preservation. This concept is intricately linked to the Convention on the Protection of the World Cultural and Natural Heritage. Turtinen's (2000) study characterises heritage sites as ancient settings, including architectural works, sculptures, paintings,

or archaeological areas that possess distinctive qualities. These may encompass artificial landmarks or archaeological sites with exceptional historical, artistic, anthropological, or scientific significance. As per the Convention Concerning the Protection of the World Cultural and Natural Heritage, Cultural Heritage encompasses the following elements. Monuments are architectural structures or locations of exceptional worldwide significance from historical, artistic, or scientific viewpoints. Collections of edifices are distinct or interconnected constructions that possess exceptional universal significance due to their architectural design or the surrounding landscape. Sites encompass human creations or the amalgamation of natural and human elements, including archaeological locations that signify notable accomplishments in history, aesthetics, ethnicity, or anthropology. Thailand presently possesses five cultural World Heritage Sites officially acknowledged by UNESCO, as enumerated in Table 1.

Table 1: Cultural World Heritage Sites in Thailand.

Provinces	Cultural World Heritage Sites	Year of UNESCO Inscription	Key Historical Significance
Sukhothai Province Kamphaeng Phet Province	Historic Town of Sukhothai and Associated Historic Towns	1991	Sukhothai was the first capital of the Siamese people during the 13th and 14th centuries.
Phra Nakhon Si Ayutthaya Province	Historic City of Ayutthaya	1991	Founded in 1350, Ayutthaya was the second capital of the Siamese kingdom.
Udon Thani Province	Ban Chiang Archaeological Site	1992	One of the most important prehistoric settlement sites ever discovered in Southeast Asia
Phetchabun Province	Ancient Town of Si Thep and Dvaravati-era Monuments	2023	A significant area of Dvaravati culture during the 6th – 10th centuries.
Udon Thani Province	Phu Phra Bat Historical Park	2024	Phu Phra Bat Historical Park and the cultural site of Sema from the Dvaravati period

The concept of cultural intelligence pertains to an individual's capacity to adapt proficiently in unfamiliar cultural environments (Wang & Goh, 2020). It is a collection of competencies that facilitates efficient cross-cultural management through the understanding of the intricacies of diverse cultures and practices across nations. It furthermore functions as a foundational model that fosters trust amidst variety in culturally distinct circumstances (Ott & Michailova, 2018). This corresponds with Ng et al. (2009), who define cultural intelligence as the competencies and skills that allow individuals from one culture to analyse and comprehend the unexpected behaviours and circumstances of persons from another culture. It entails comprehending and adjusting to various cultures, managing cultural disparities, and possessing the ability to study, understand, accept, and respect these distinctions. This enables individuals to coexist harmoniously with others. It encompasses the ability and adaptability to comprehend culture by initially acquiring cultural knowledge, subsequently analysing various situations, progressively cultivating culturally informed thoughts and emotions, and modifying behaviour accordingly. Furthermore, Livermore and Soon (2015) characterise cultural intelligence as an individual's capacity to function adeptly in culturally varied contexts. Culture encompasses not only national culture but also ethnic, organisational, and several other aspects of culture. Bogilović et al. (2016) present an alternative viewpoint, characterising cultural intelligence as the ability to evaluate, integrate, reason, and execute suitable tasks in varied cultural contexts. Thomas and Inkson (2007) define cultural intelligence as the ability and adaptability necessary to comprehend and acquire knowledge about cultures via contact. It entails progressively adapting one's mindset to comprehend culture and altering behaviour suitably to engage with persons from diverse cultural backgrounds. Cultural intelligence comprises three elements. 1) Knowledge: Individuals possessing cultural intelligence must acquire cultural knowledge, which constitutes the basis for intercultural engagement. They must comprehend the distinctions among cultures and how these variations affect behaviour. 2) Mindfulness: Individuals must possess the ability to engage constructively in culturally varied contexts. 3) Behavioural competencies: They must possess the abilities and capacity to behave suitably in many cultural contexts. Peterson (2004) delineates cultural competency as comprising three elements. Knowledge include comprehension of facts or details pertaining to other cultures, including geography, politics, cuisine, customs, and more. Awareness involves recognising the distinct attributes of one's own culture as well as those of others. Skill refers to the capacity to act suitably in various cultural situations, exemplified by the Thai custom of "wai"

(joining palms in greeting) as opposed to the Western handshake. Earley and Mosakowski (2004) elucidate that cultural intelligence necessitates the capacity to adapt to different languages and cultures, consisting of three interconnected components. The cognitive aspect encompasses the processes of thinking, perceiving, and acquiring knowledge regarding cultural ideas, customs, and taboos. The physical aspect encompasses employing body language to demonstrate respect for cultural variances. The heart or emotion pertains to the emotional ability to acclimatise to diverse cultures. The enhancement of cultural intelligence about cultural knowledge entails the acquisition of cultural insights and an awareness of the variances among different cultures. This understanding includes three fundamental features. 1) Comprehending the influence of many cultures entails acknowledging that culture comprises collective norms, traditions, and values. Comprehending cultural disparities is crucial for fostering reciprocal cultural awareness, recognising distinct traits, attitudes, and frameworks. It also include convictions and sentiments. Cultural knowledge encompasses the capacity to differentiate between universal behaviours, culturally influenced behaviours, and behaviours arising from specific personality features. Comprehending the essential demands inside one's culture encompasses its cultural systems. The fundamental ideals of a culture must be acquired.

Hirsch (1983) introduced the notion of Cultural Literacy in his work, Cultural Literacy: What Every American Needs to Know, which emphasises the significance of basic cultural knowledge in society. He championed a fundamental comprehension of critical cultural material. Superior cultural literacy can improve interpersonal comprehension and communication within society. Hirsch described cultural literacy as a collection of shared background information that everyone within a culture must have to communicate effectively and engage fully in civic life. This corpus of knowledge encompasses history, literature, science, geography, civic engagement, and modern culture. A study of the literature and research on cultural intelligence yields the following main results. Cultural knowledge denotes an awareness of cultural distinctions, including conventions, values, belief systems, behaviours, and practices of diverse populations. This information underpins the interpretation and comprehension of circumstances in cross-cultural environments. Cultural awareness/mindfulness refers to the recognition of cultural disparities between one's own culture and others, along with the

capacity to self-regulate during intercultural engagements. It entails abstaining from forming judgements or being preoccupied with a singular, egocentric viewpoint. Behavioural and interpersonal skills pertain to the capacity to articulate oneself and modify behaviours suitably across diverse cultural contexts, encompassing body language, expressions of respect, communication, and suitable reactions to cross-cultural scenarios. 4) Motivation/Emotional Intelligence encompasses intrinsic motivation and the readiness to interact with others from diverse cultures, emotional adaptability, receptiveness to learning about new cultures, and a dedication to comprehending and coexisting with variety in a seamless and peaceful manner.

Cultural intelligence among local populations in World Heritage sites can substantially aid in the preservation and promotion of cultural diversity in these regions. By adapting and acquiring suitable practices in culturally diverse contexts, such as comprehending differing beliefs, customs, and non-verbal cues within the community, individuals with cultural knowledge are more adept at interpreting and understanding the behaviours of both community members and outsiders. Awareness of cultural differences and the capacity to adjust for constructive contact fosters understanding and trust between local communities and individuals from diverse cultures. Furthermore, acquiring suitable communication and expression techniques facilitates more seamless and successful collaboration inside World Heritage locations. Cultural intelligence is intrinsically linked to community participation, defined as the active engagement of stakeholders across all phases of development projects. Participation must be organised such that those undergoing development are active agents in the process, rather than mere passive recipients. This methodology fosters authentic and lasting advancement. Consequently, engagement may differ in degree and type based on the social context and the nature of the issues involved (Ripp & Rodwell, 2018). The engagement of stakeholders across all sectors, guaranteeing equitable inclusion based on their roles and responsibilities. Participation thus serves as a mechanism via which citizens can access the advantages offered by the state. Currently, involvement has transformed into novel modes of collaboration across all industries. Turner and Tomer (2013) delineated four categories of participation. Volunteer engagement entails the encouragement, support, and enhancement driven by the voluntary intent of stakeholders, whether as people or groups/organizations. 2) Action participation refers

to stakeholders engaging out of intrinsic interest, with their involvement constrained by scope, duration, and intent. Collective or connected involvement refers to individuals or groups acting autonomously to fulfil their own purposes, while the results collectively advance a shared goal. Purposeful collaboration entails that all stakeholders engage actively to support, advocate for, and act towards collectively established outcomes. This style of participation possesses transformative potential and can result in substantial societal change. Bhaskara (2015) classified degrees of participation into five tiers, ranging from the lowest to the highest. Information provision denotes the fundamental level of engagement characterised by unidirectional communication, governed by the message's sender. Consultation entails citizen engagement through the provision of information, data, and perspectives to facilitate decision-making. The public offers feedback, whereas governmental bodies maintain decision-making power. 3) Involvement signifies that individuals are afforded opportunity to engage in all decision-making processes. There is a reciprocal exchange of ideas and information between accountable authorities and the public. Collaboration entails an elevated degree of engagement in which citizens and accountable agencies jointly participate in the decision-making process. Empowerment denotes the utmost degree of engagement, wherein persons possess the authority to make decisions independently. This encompasses modalities such as referendums. Participation at this level signifies the acknowledgement of citizen or community decision-making authority by the pertinent agencies. Nonetheless, such engagement necessitates capacity-building initiatives to empower citizens to make educated judgements. This encompasses the enhancement of skills in data analysis and problem-solving. Engagement at this level indicates a significant degree of citizen empowerment. Cultural knowledge facilitates the comprehension and acknowledgement of the significance of local cultural heritage. Participation is thus predicated on knowledge, comprehension, and pride in one's cultural heritage. This corresponds with Otero's (2022) research, which asserts that cultural legacy, besides serving as historical proof, significantly contributes to the enhancement of tourism value. Comprehending conservation is not solely the responsibility of officials; community members or hosts also play a crucial role in participating in conservation initiatives. Cultural knowledge and intelligence are essential components for maintaining future sustainability. The notion of public involvement is associated with cultural knowledge by highlighting the significant role of communities in safeguarding and conveying their cultural values.

The creation of measurement instruments is essential in behavioural and social scientific research, as it facilitates the conversion of abstract concepts like ideas, attitudes, or behaviours into quantifiable and systematically analysable data. High-quality measurement tools facilitate researchers' access to comprehensive information about individuals or sample groups and establish the basis for generating trustworthy knowledge applicable in real-world scenarios. In the realm of research and the formulation of a measurement tool for Cultural Intelligence among the populace at World Heritage sites in Thailand, noted for their cultural diversity, rich histories, and diverse cultural beliefs, the development of an instrument that precisely captures individuals' capacities to comprehend and adjust to various cultural contexts presents a considerable challenge. A thorough psychometric methodology is essential for instrument creation. An effective measurement equipment must encompass a minimum of three essential components.

Validity and Reliability: The development process must commence with a precise conceptual description of cultural intelligence, anchored in a suitable theoretical framework. The subsequent phase is the development of assessment items that encompass the fundamental elements of cultural intelligence: Cognitive, Metacognitive, Motivational, and Behavioural. Content validity must be evaluated by a minimum of five experts. Structural validity must be verified by factor analysis, while reliability should be assessed using techniques such as Cronbach's alpha coefficient or split-half reliability. These techniques guarantee the instrument's precision and efficacy for utilisation in both research and practical applications.2) Standardisation: The creation of a standardised measuring tool facilitates its use across different World Heritage communities with varied social and cultural circumstances. A tool with well-defined scoring criteria, interpretation instructions, and uniform formats guarantees the comparability of results across various places and timeframes. This comparability aids in tracking behavioural trends and the evolution of cultural intelligence at both community and national levels. A assessment of cultural intelligence must accurately represent the actual behaviours of individuals in their daily lives within specific cultural contexts. This encompasses skills such as engaging with tourists, adapting to multicultural contexts, and fostering an open disposition towards cultural variety. The measurement instrument must be developed in

accordance with the distinct contexts of Thailand's World Heritage sites, including Sukhothai, Ayutthaya, and Udon Thani, each characterised by unique historical and cultural identities, multicultural societies, and social transformations driven by tourism and globalisation. Thus, the research and development of a cultural intelligence assessment for citizens in Thailand's World Heritage sites beyond the mere formulation of a generic tool. It entails the creation of a culturally sensitive tool that differentiates socio-cultural comprehension, is firmly based on theoretical frameworks, and passes a stringent quality assurance process. This method enables the tool to evaluate, foster, and improve individuals' ability to coexist creatively amid cultural variety. Furthermore, it facilitates the enduring conservation and advancement of World Heritage sites. According to the studied literature, a conceptual framework for the development and assessment of cultural intelligence measurement is illustrated in Figure 1.

Cultural Intelligence Measurement (CIM) ⟶	Quality of the measurement
Cultural knowledge	Item quality test
Cultural awareness/Mindfulness	Exploratory factor analysis
Behavioral adaptation and Communication skills	Confirmatory factor analysis
Community participation	Correlation analysis

Figure 1: Conceptual Framework.

Hypotheses

Hypothesis 1: The Exploratory Factor Analysis of the Cultural Intelligence Measurement must yield at least four components, with each component comprising a minimum of four items. The results must meet five standard psychometric criteria (Cudeck, 2000; Fabrigar & Wegener, 2011; Hair et al., 2017).

Hypothesis 2: The Second-order Confirmatory Factor Analysis of the Cultural Intelligence Measurement should retain the same components identified in the Exploratory Factor Analysis. Each component must demonstrate a reliability coefficient of no less than 0.50 (Brown & Moore, 2012; Hair Jr et al., 2010; Harrington, 2009).

Hypothesis 3: The Cultural Intelligence Measurement should be able to explain at least 60% of the total variance (O'Grady, 1982).

Hypothesis 4: Confirmatory Factor Analysis must confirm that the model has good model fit with empirical data and must meet the standard criteria across all nine model fit indices (Brown & Moore, 2012; Hair Jr et al., 2010; Harrington, 2009).

Hypothesis 5: The correlation coefficients among the components of the Cultural Intelligence Measurement must be positively correlated in the same direction, with a minimum correlation coefficient of 0.30 (Cohen et al., 2013).

3. METHODOLOGY

3.1. Research Design

This is a quantitative research study utilising behavioural science instrument development approach. The main goal is to create and assess a cultural intelligence metric that adheres to academic norms and is contextually suitable for tourism cities recognised as World Cultural Heritage sites. The research encompasses five principal types of analyses: 1) Item quality assessment, 2) Exploratory factor analysis, 3) Confirmatory factor analysis, including second-order confirmatory factor analysis, 4) Structural equation modelling to evaluate the model's fit with empirical data, and 5) Correlation coefficient analysis to investigate the strength and direction of relationships among variables. The Human study Ethics Committee has examined and approved this study project, with certification number HREC0085. The research was executed in rigorous compliance with ethical standards. All research protocols were executed meticulously to safeguard the rights of all participants. Informed consent was secured from all participants before their engagement in the study to guarantee voluntary participation. Confidentiality and anonymity were rigorously upheld throughout the investigation. Furthermore, all data were utilised solely for research reasons. Sample

The study's sample population consisted of people from five Thai provinces recognised as UNESCO World Cultural Heritage sites: Sukhothai, Kamphaeng Phet, Phra Nakhon Si Ayutthaya, Udon Thani, and Phetchabun. The sample size was determined utilising the G*Power software, with an alpha error probability (α err prob) of 0.05 and a statistical power of 0.95 (refer to Table 2). The sampling procedure comprised three primary phases as outlined below: 1. Item quality analysis: The minimum requisite sample size was 150 participants. 2. Exploratory factor analysis: A minimum sample size of 300 individuals was necessary. 3. Confirmatory factor analysis: According to the 10-times rule (Hair et al., 2017; Kock & Hadaya, 2018), a

minimum sample size of 400 participants was necessary. The aggregate sample size necessary across all stages was roughly 850 people. The sample was allotted proportionally by a quota sampling approach, comprising around 170 individuals from each province. Two inclusion criteria were implemented. 1) Participants must have lived in the province for a minimum of three years. 2) Participants must be aged between 23 and 60 years. To mitigate potential data inaccuracies stemming from subpar responses, the researchers augmented the sample size by around 10% over the determined minimum.

Table 2: Shows Details of the Sample Size Used and the Analysis Process.

Stages of sample application	1st stage (N=150)	2nd stage (N=300)	3rd stage (N=400)
Analysis	Item quality test	Exploratory factor analysis	Confirmatory factor analysis
Population used	**1 – 150**	**151 - 300**	**301 - 700**

The researchers employed a multi-stage quota random sampling method to encompass a substantial sample group systematically and extensively (Burger & Silima, 2006), which included the following sequences: 1) Stratified random sampling of five areas within the population residing in various sub-districts of the Mueang district, 2) Stratified random sampling of five areas within the population residing in local districts of the province, 3) Affiliated agencies. The purposive selection method was employed, categorising participants into four groups: government, private, private enterprise, and others. A total of 912 individuals were recruited for this research, of which only 850 who completed the questionnaire were selected. 56% of the population were male, while 44% were female. The mean age was 37.5 years, with a standard deviation of 9.68. Table 3 presents the preliminary data of the sample group.

Table 3: Preliminary Data of the Sample Group Used in Data Analysis.

Preliminary data of the sample group				
Sample size	Using G*Power (Alpha = 0.05, Power = 0.95) program with the results from the calculation of **850** people			
Data collection areas	The cultural world heritage area of Thailand consists of 5 provinces			
Province	Sukhothai Province	Kamphaeng Phet Province	Phra Nakhon Si Ayutthaya Province	Udon Thani Province	Phetchabun Province
Sample Count	**170** people	**170** people	**170** people	**170** people	**170** people
Question Set	A and B	C and D	A and C	A and D	B and C
Data Collection	Data were collected from **912** people. Only data from the questionnaires that were completely answered and of good quality were selected, remaining **850** people.			
Average Age (Years)	**37 years 6 months SD = 9.68**			
Gender	**476** men (**56**%)		**374** women (**44**%)	
Education Level	Bachelor's degree and higher **391** people (**46**%)		Bachelor's degree or lower **459** people (**54**%)	
Affiliated agencies/occupation	Public sector **383** people (**45.10**%)	Private sector **273** people (**32.10**%)	Private business **141** people (**16.60**%)	Others **53** people (**6.20**%)
Frequency of World Heritage Tourism	More than **10** trips a year **417** people (**49.10**%)	6 – 10 trips a year **359** people (**42.20**%)	3 – 5 trips a year **70** people (**8.20**%)	Less than **3** trips a year **4** people (**0.50**%)
Reasons for World Heritage Tourism	Learning Thai History and Culture **318** people (**37.40**%)	Photography and Cultural Tourism **279** people (**32.80**%)	Religious and Spiritual Motivation **131** people (**15.40**%)	Personal Experiences and Inspiration **122** people (**14.40**%)

Note: *missing value is not counted.

3.2. Instruments

The study employed a cultural intelligence measurement instrument created by the researchers. The preliminary version comprised 100 items, encompassing four fundamental components: 1) Cultural knowledge, 2) Cultural awareness/ Mindfulness, 3) Behavioural adaptability and communication skills, and 4) Community participation. Each item was evaluated on a 6-point summated rating scale, spanning from "Most True" to "Not at All True." The mean reliability of the measurement, consisting of 56 items, was 0.879. All items were subjected to stringent quality control in accordance with established standards for the development of behavioural science instruments in tourism contexts, specifically ensuring 1) Validity, 2) Reliability, 3) Objectivity, 4) Efficiency, 5) Standardisation, and 6) Realism (Kimberlin & Winterstein, 2008). The instrument's development adhered to six fundamental stages:1) Articulate the measuring target using behavioural terminology. Perform an extensive literature study, identify underlying features, establish theoretical and operational definitions, delineate measuring components, and develop hypotheses.2) Create a structural layout of the measurement with four components. Each component initially had 25–30 items, featuring an equitable distribution of positively

and negatively phrased topics.3) Perform content validation by presenting all items to five subject matter experts (refer to Table 4) for evaluation. Items were modified according to expert opinion to guarantee content validity and subsequently evaluated for face validity. The Index of Item-Objective Congruence (IOC) was computed to assess the correspondence between each item and its designated objective/content. Subsequently, the trial study was executed using a pilot sample of 150 people mirroring the real target population. This phase guaranteed uniformity regarding aims, content, theoretical underpinnings, conceptual precision, and measurement fidelity (Kemper, 2020; Sireci, 1998).

Table 4: Quality Control Procedures and the Component Diagram of the Cultural Intelligence Measurement.

Diagram of the Cultural Intelligence Measurement				
Code	A	B	C	D
Components	Cultural knowledge	Cultural awareness/Mindfulness	Behavioral adaptation and communication skills	Community participation
Number of default items	**25** items	**25** items	**25** items	**25** items
Positive statements	**12** items	**13** items	**12** items	**12** items
Negative statements	l**3** items	**12** items	**13** items	**13** items
Evaluate the quality of each item by **5** qualified persons (**1**st round)				
Number of items	**18** items	**17** items	**16** items	**17** items
Total	**68** items, evaluation results (IOC ≥ **0.60 – 1.00**)			
The questions were revised until they were completed and sent back to five experts for further review (**2**nd round).				
Number of items	**14** items	**15** items	**14** items	**13** items
Total	**56** items, evaluation results (IOC ≥ **0.80 – 1.00**)			

The data gathered from a sample of 150 people was utilised to assess item quality, comprising two components. Item Discrimination Analysis was performed via the Independent Sample t-test employing the 30% method. The criterion for selection of each item was a t-value exceeding 2.00, as established by Sedgwick (2010). For this research, the threshold was modified to a t-value exceeding 3.00. This modification facilitated a more precise and statistically significant comparison and assessment of item discrimination between high-scoring and low-scoring groups for each question item. Item-Total Correlation Coefficient Analysis was performed to ascertain the correlation between the score of each item and the overall test score, eliminating the item in question. The standard recommendation is for the r-value to exceed 0.20. In this investigation, the quality criterion was elevated to an r-value exceeding 0.30. In instances of inadequate items in specific dimensions, selections were made mostly based on the t-value criterion. The r-value solely indicates the alignment of an item with others in the same dimension, failing to represent the item's capacity to effectively differentiate the feature being assessed (Marianti et al., 2023; Obilor & Amadi, 2018). 5) Exploratory factor analysis was employed to assess construct validity by investigating the underlying structure of the measurement instrument, specifically to discover its components, their characteristics, and the items that are interrelated and categorised under the same component. Each element signifies the structural dimensions of the measurement equipment (Flora & Flake, 2017). The analysis utilised principal component analysis with varimax orthogonal rotation. The standard criteria for the analysis, as outlined by Fabrigar and Wegener (2011) and Hair et al. (2017), included the following. The Kaiser-Meyer-Olkin measure of sample adequacy must be 0.600 or more. The chi-square value must exhibit statistical significance. Each acceptable component's eigenvalue must be 1.00 or above. The factor loading for each item must be 0.500 or above. All components collectively must account for a minimum of 60% of the overall variance (O'Grady, 1982). Confirmatory factor analysis was executed (Brown & Moore, 2012; Hair Jr et al., 2010; Harrington, 2009) to do a second-order confirmatory factor analysis for the evaluation of construct validity (Smith, 2005). This method evaluates the alignment of the measurement structure with the theoretical framework. It is utilised to verify that the created instrument, grounded on theoretical concepts, accurately represents the intended construct. The analysis evaluates whether the gathered data aligns with the established factor structure (Flora & Flake, 2017). The assessment of model fit to empirical data relies on nine fit indices: 1) Chi-square statistics (McHugh, 2013), 2) Degrees of freedom (Benkler, 2016), 3) p-value (Huber, 2016), 4) Root mean square error of approximation (Browne et al., 2002), 5) Goodness of fit index (Hair Jr et al., 2010), 6) Adjusted goodness of fit index (Hair Jr et al., 2010), 7) Comparative fit index (Hair Jr et al., 2010), 8) Tucker-Lewis index (Cai et al., 2023), and 9) Standardised root mean square residual (Pavlov et al., 2020).

3.4. Data Analysis

This study, which sought to create and assess a

measurement, utilised three forms of statistical analysis. The initial category comprised statistics employed to evaluate the quality of individual items, including the independent-sample t-test (Sedgwick, 2010) and item-total correlation coefficient analysis, which examines the relationship between each item's score and the overall score of the measurement, removing that item (Marianti et al., 2023). The second type was factor analysis utilised to investigate the dimensions or structure of item characteristics, comprising 1) Exploratory factor analysis (Cudeck, 2000; Fabrigar & Wegener, 2011) and 2) Confirmatory factor analysis (Harrington, 2009). The third category encompassed Inferential statistics, which included 1) Correlation analysis (Cohen et al., 2013) and 2) Structural equation modelling analysis (Stein et al., 2012).

3.5. Data Collection

The researchers created four versions of the

measurement apparatus, consisting of sets A, B, C, and D. The order of items was altered in each iteration (see Table 5) to reduce confounding variables, minimise response bias, and decrease errors that may result from answering preceding or subsequent items. Before participants began the questionnaire, the researchers clarified the objectives, research methods, relevant legal and ethical considerations, and the expected benefits of the study. Data collection transpired from June to December 2024.

Table 5: Arrangement of Internal Components for Each Version of the Measurement.

Set	Internal Components of Cultural Intelligence Measurement			
A	1	2	3	4
B	2	3	4	1
C	3	4	1	2
D	4	1	2	3
Note: **1** = Cultural knowledge, **2** = Cultural awareness/Mindfulness, **3** = Behavioral adaptation and communication skills, **4** = Community participation				

5. RESULTS

Table 6: Preliminary Item Quality Assessment Using Inferential Statistics.

Number	Code	Inferential Statistics: Parametric Statistics			
		t-test	r	Cronbach's alpha	Communalities
1st component: Cultural knowledge					
1.	A1	5.068	0.354	0.877	0.727
2.	A4	8.491	0.367	0.880	0.709
3.	A5	7.545	0.319	0.879	0.692
4.	A7	4.601	0.475	0.878	0.660
5.	A8	9.145	0.513	0.876	0.643
2nd component: Cultural awareness/Mindfulness					
1.	B4	4.937	0.321	0.875	0.712
2.	B5	3.396	0.339	0.883	0.725
3.	B6	5.187	0.465	0.868	0.524
4.	B8	9.624	0.343	0.880	0.520
5.	B10	3.293	0.302	0.884	0.561
3rd component: Behavioral adaptation and communication skills					
1.	C5	4.894	0.397	0.876	0.770
2.	C9	9.270	0.355	0.881	0.757
3.	C10	3.137	0.404	0.884	0.732
4.	C13	5.435	0.312	0.876	0.858
5.	C14	3.739	0.383	0.882	0.712
4th component: Community participation					
1.	D2	5.327	0.376	0.898	0.810
2.	D5	5.115	0.389	0.875	0.773
3.	D9	7.830	0.375	0.882	0.723
4.	D11	3.445	0.393	0.884	0.845
5.	D14	4.102	0.347	0.885	0.659
Note: This research places greater emphasis on the t-value than the r-value, with the item selection criteria being t ≥ 3.00 and r ≥ .30.					

The findings from the item quality analysis of the initial data set, comprising 150 participants, utilised items evaluated in the second round of the index of objective congruence assessment conducted by a panel of five experts: three in behavioural sciences, one in history and archaeology, and one in tourism management. The IOC scores varied between 0.80 and 1.00, with 56 items fulfilling the requirements. The

mean reliability coefficient of the measurement was 0.879. The items were further evaluated for quality by inferential statistics, employing an independent-sample t-test (Sedgwick, 2010) and item-total correlation coefficient (Marianti et al., 2023). The study revealed the presence of all four components; nevertheless, only 20 items satisfied the set criteria (refer to Table 6), thus corroborating Hypothesis 1. The mean reliability

coefficient of the measurement was 0.880. The communalities ranged from 0.520 to 0.858, signifying that all questions were pertinent to the examined components of cultural knowledge and had strong internal consistency. The components containing items that fulfilled the requirements were: 1) Cultural knowledge comprising 5 items, 2) Cultural awareness/Mindfulness consisting of 5 items, 3) Behavioural adaptability and communication skills encompassing 5 items, and 4) Community participation featuring 5 things.

The exploratory factor analysis results of the second data set, which utilised a sample of 300 individuals, applied principal component analysis with varimax orthogonal rotation (Hair et al., 2017) (refer to Table 7). Twenty items were identified as

meeting the requirements, with factor loadings of no less than 0.500 and eigenvalues exceeding 1. The factor loadings varied between 0.511 and 0.799, corroborating Hypothesis 2. These components accounted for 60.677% of the variance in the cultural intelligence measurement, hence corroborating Hypothesis 3. The Kaiser-Meyer-Olkin measure of sampling adequacy yielded a score of 0.868, surpassing the conventional criterion. Bartlett's Test of Sphericity yielded a score of 1183.535, signifying that the 20 items satisfying the standard requirements are connected and orientated in the same direction within the assessment. The outcomes of the exploratory factor analysis adhered to all five established criteria (Hair et al., 2017).

Table 7: Cumulative Percentage and Factor Loadings of Measurement.

Code	Questions that pass the standard criteria	Anti Image	Factor Loading		
			F1	F2	F3
1st component: Cultural knowledge					
A1 +	I understand and can explain the differences in customs and values of tourists from different cultures.	0.578	0.799		
A4 -	Cultural differences are not important when providing services to tourists.	0.520	0.783		
A5 -	I think I do not have sufficient knowledge about how to behave toward tourists from different countries.	0.519	0.768		
A7 +	Having knowledge about different cultures helps me communicate with tourists effectively.	0.511	0.737		
A8 +	I can adapt and behave appropriately according to the behaviors of tourists from diverse cultural backgrounds.	0.454	0.715		
2nd component: Cultural awareness/Mindfulness					
B4 +	Tourists from other regions have a way of life that is different from my community.	0.597	0.698		
B5 +	I value appropriate expression and respect both my own culture and the culture of tourists from other regions.	0.589	0.687		
B6 -	I feel uncomfortable when I see tourists doing things that are not in line with my culture.	0.586	0.668		
B8 +	I can use reason to explain when there are cultural disagreements with tourists.	0.582	0.629		
B10 -	I believe that my community's culture is superior and should not be changed to accommodate tourists.	0.580	0.628		
3rd component: Behavioral adaptation and communication skills					
C5 +	When meeting tourists from different cultures, I can confidently communicate or use gestures that are appropriate to their culture.	0.467		0.613	
C9 -	I feel annoyed or uncomfortable when tourists behave differently from my own culture.	0.328		0.612	
C10 +	I understand and accept cultural differences of tourists and try to adapt myself appropriately to the situation.	0.346		0.601	
C13 -	I do not see the need to adjust my behavior to align with the culture of visitors.	0.324		0.585	
C14 +	I often use body language such as smiling, placing my palms together in a respecting manner, or bowing, to show respect and express identity to tourists from other cultures.	0.311		0.574	
4th component: Community participation					
D2 +	I feel proud to be involved in cultural conservation activities in my community.	0.534			0.564
D5 +	My community plays an important role in managing and developing World Heritage tourism sites.	0.525			0.563
D9 -	I feel that the opinions of local people are rarely heard by the authorities responsible for World Heritage sites.	0.518			0.554
D11 +	Community participation helps promote knowledge and understanding of local culture.	0.514			0.517
D14 -	I do not believe that community participation has any impact on the management or conservation of cultural heritage sites.	0.502			0.511
Initial Eigenvalues			3.677	2.057	1.035
% of Variance			30.645	17.140	12.892
Cumulative %			30.645	47.785	60.677
Kasier-Meyer-Olkin Measure of Sampling Adequacy			0.868		
Bartlett's Test of Sphericity			1183.535		
df			86		
Cronbach's Alpha (20 Items)			**0.880**		

The confirmatory factor analysis utilised data from a sample of 400 people. The analysis indicated that the model exhibited a strong alignment with the empirical data, satisfying all nine conventional fit indices criteria (Harrington, 2009) (refer to Figure 2 and Table 8). This corroborated Hypothesis 4. Furthermore, the standardised path coefficients demonstrated the relative strength of the latent

constructs within the model, arranged from highest to lowest; 1) Third Component: Behavioural adaptation and communication abilities ($_\beta$ = 0.843) with a coefficient of determination (R^2) = 0.836. First Component: Cultural knowledge with a standardised regression weight ($_\beta$ = 0.757) and a coefficient of determination (R^2) = 0.763. Fourth Component: Community participation with a

standardised regression weight (β) of 0.718 and a coefficient of determination (R²) of 0.785. The construct with the least influence was the second component: cultural awareness and sensitivity, with a standardised regression weight (β) of 0.654 and a coefficient of determination (R²) of 0.637.
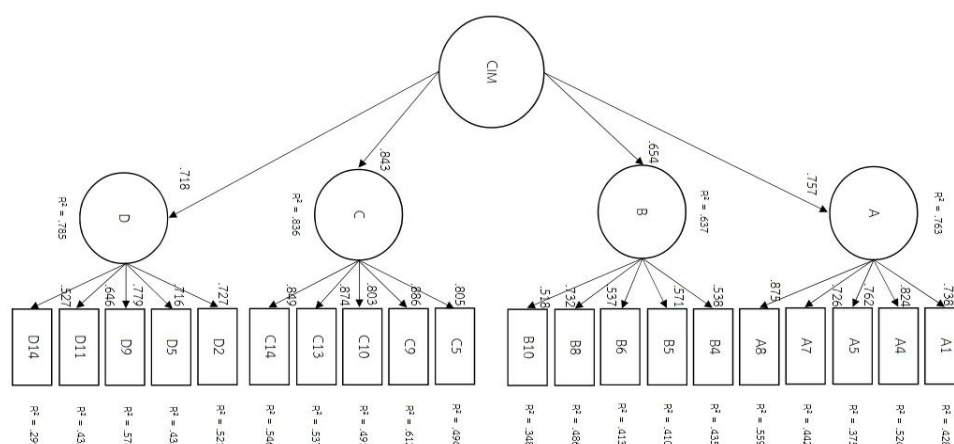

Figure 2: The Structural Equation Model of the Cultural Intelligence Measurement Using Second-Order Confirmatory Factor Analysis.

Table 8: Goodness-of-Fit Indices of the Cultural Intelligence Measurement.

Statistics	Criteria	Statistics in the model (Total group)	Results of consideration
Chi-Square Value	Without statistical significance	78.362	Accepted
Degrees of Freedom	Without statistical significance	68	Accepted
p-value	Without statistical significance	0.127	Accepted
Root Mean Square Error of Approximation	≤ 0.06	0.036	Accepted
Goodness of Fit Index	≥ 0.90	0.968	Accepted
Adjusted Goodness of Fit Index	≥ 0.90	0.959	Accepted
Comparative Fit Index	≥ 0.95	0.976	Accepted
Tucker – Lewis Index	≥ 0.95	0.973	Accepted
Standardized Root Mean Square	≤ 0.08	0.055	Accepted

Table 9: Correlation Coefficients of Internal Components of the Cultural Intelligence Measurement.

Variables	Mean	SD	1	2	3	4
Cultural knowledge	21.32	1.98	1			
Cultural awareness/Mindfulness	19.87	2.05	.562**	1		
Behavioral adaptation and communication skills	21.36	1.41	.743**	.436**	1	
Community participation	20.59	1.42	.704**	.425**	.711**	1
Remark: *p<0.05, **p<0.01						
Variable Code: 1 = Cultural knowledge, 2 = Cultural awareness/Mindfulness, 3 = Behavioral adaptation and communication skills, 4 = Community participation						

The correlation coefficient analysis of the cultural intelligence measurement indicated a strong link among the components (Table 9). The strongest association was seen between cultural knowledge and behavioural adaption and communication abilities, with a value of 0.743 (p<0.01). The weakest connection, albeit statistically significant, was observed between cultural awareness and sensitivity and community participation, with a value of 0.425 (p<0.01). The overall standard deviation (SD) was minimal, signifying that the sample scores were closely clustered, indicating that the respondents possessed generally uniform perspectives or degrees of knowledge. This study corroborates that the measurement possesses construct validity, hence

substantiating Hypothesis 5. All components exhibited a positive and significant correlation at the 0.01 level, suggesting that the four components tend to evolve in a congruent manner, consistent with the paradigm established by Cohen et al. (2013). The theoretical framework of the measurement is positively aligned in the same way.

6. CONCLUSION AND DISCUSSION

This study entailed the creation and assessment of a cultural intelligence metric. The comprehensive analysis results corroborated all five possibilities. The researchers elaborated on each point as follows. The approach commenced with the creation of 100 items over four components, informed by a comprehensive

analysis of theoretical frameworks and pertinent literature. This encompassed the examination of latent traits, theoretical factors, and operational variables. Particular emphasis was placed on the meticulousness of document screening to extract pertinent knowledge for formulating questions that precisely assess cultural knowledge. The researchers subsequently presented the measurement to five specialists specialising in behavioural science, history and archaeology, and tourism management. These areas of expertise thoroughly encompass the field of cultural knowledge assessment. The initial round of expert evaluation examined content validity through the Index of Item-Objective Congruence, resulting in 68 items satisfying the criterion of IOC ≥ 0.60 – 1.00. Subsequently, the researchers amended and enhanced the items, subsequently submitting them for a second round of expert evaluation. This round identified 56 items that met the elevated threshold of IOC ≥ 0.80 – 1.00. These findings correspond with the research of Gullino and Larcher (2013), who performed a comparative analysis of the idea of integrity within UNESCO World Heritage Sites, developing a metric for understanding the worth of historical and heritage sites. The research conducted by Rao et al. (2022) amalgamated the Theory of Planned Behaviour with Self-Congruity Theory to forecast tourists' intentions to participate in ecologically sustainable practices, specifically at cultural heritage sites. Their assessment of environmental behaviour employed identical IOC evaluation standards. Additionally, the study by Guo and Zhu (2023) examined the determinants affecting visitors' purchasing intentions for intangible cultural heritage souvenirs, employing a measurement instrument and quality assessment technique aligned with the methods utilised in this research.

The quality examination of the items employed selection criteria of t-value ≥ 3.00 and item-total correlation (r) > .30. Consequently, merely 20 items from the 4 components satisfied the criteria, yielding a reliability coefficient of 0.880. The components comprised: 1) Cultural knowledge encompassing 5 things, 2) Cultural awareness/Mindfulness consisting of 5 items, 3) Behavioural adaptability and communication skills featuring 5 items, and 4) Community participation included 5 items. The application of stringent criteria, specifically t-value > 3.00 and r ≥ .30, establishes a demanding and elevated benchmark for item selection. This method guarantees the retention of just those questions that can successfully differentiate between high- and low-scoring groups based on item means, hence enhancing item quality. This approach corresponds with the findings of Hildesheim and Sonntag (2020), who

investigated the assessment and evaluation of quality culture across six dimensions: quality-oriented commitment, leadership, communication, responsibility, participation, and shared values. Rios and Hambleton (2016) developed a thorough statistical approach for assessing measurement equivalence in cross-cultural research. Their research underscored the necessity of precise translation and adaption of instruments to facilitate equitable and accurate comparisons among culturally and linguistically varied populations. The results align with the study conducted by Han et al. (2019), which examined measurement invariance to assess cultural knowledge among groups with varying socio-demographic characteristics, including gender, age, education level, occupation, income, and residential context. The exploratory factor analysis indicated that the items satisfied the requirement with a factor loading of at least 0.500. This work utilised a more stringent criterion for factor loading of 0.500, above the widely accepted threshold of 0.300 (Fabrigar & Wegener, 2011). This elevated criterion guarantees that only academically rigorous things are preserved. Nonetheless, an elevated criterion may lead to an increased number of items being omitted. In total, 20 items satisfied the requirement and were preserved, representing 60.677% of the variance in the Cultural Intelligence Measurement. This outcome aligns with O'Grady's (1982) guidelines for measurement and explained variance in factor analysis. The Kaiser-Meyer-Olkin (KMO) metric of sample adequacy was 0.868, surpassing the established criterion. The Bartlett's test of sphericity produced a result of 1183.535, indicating that the retained 20 items are substantially correlated and exhibit congruent movement throughout the assessment. Furthermore, the outcomes of the exploratory factor analysis satisfied all five established criteria. This analytical method is extensively employed by modern researchers, especially in the creation of high-quality, globally acknowledged measurement instruments (Hair et al., 2017). The results align with the study conducted by Pentony et al. (2001), which assessed the validity and reliability of a cultural literacy exam aimed at measuring the cultural knowledge essential for comprehending academic content and communication within American society. Likewise, Dobni (2008) employed exploratory factor analysis to methodically develop and evaluate the framework of a cultural measuring instrument. This corroborates the findings of Watkins (2018), who reported that exploratory factor analysis effectively delineates the structure of observed variables. The determination of the number of factors must take into account many

criteria, such as theoretical significance, data congruence, and the application of factor rotation to enhance clarity and interpretability of results. The confirmatory factor analysis indicated that the model aligns effectively with the empirical data, as all indices satisfy the established requirements; χ^2 = 78.362, df = 68, p-value = 0.127, RMSEA = 0.036, GFI = 0.968, AGFI = 0.959, CFI = 0.976, TLI = 0.973, SRMA = 0.055. These findings align with prior studies investigating the assessment of cultural knowledge within the realm of tourism (Hsueh et al., 2005); Milfont and Duckitt (2004); (Ngamcharoen et al., 2025; Schwartz & Boehnke, 2004). The correlation analysis among the four variables demonstrated substantial statistical correlations at p < .01, affirming the interrelated structure of the Cultural Intelligence test. The first component, Cultural knowledge, exhibited significant associations with other factors, notably with Behavioural adaptation and communication skills (r = 0.743) and Community participation (r = 0.704). This suggests that persons with robust cultural knowledge typically exhibit superior adaptive communication skills and engage more actively in communal cultural practices. A moderate association exists between cultural knowledge and cultural awareness/ mindfulness (r = 0.562), indicating that cultural information aids in fostering a good disposition towards social laws and norms. The third component, behavioural adaptation and communication skills, served as a significant mediator, demonstrating a robust connection with community engagement (r = 0.711). This discovery underscores that comprehending cultural background and origins might enhance engagement and admiration for diverse cultures. This aligns with the research conducted by Pentony et al. (2001), which identified a statistically significant positive link between scores on the Cultural Literacy Test (CLT) and academic success in history courses. Their factor analysis validated that the CLT structure corresponds with the notion of cultural knowledge. The study determined that the CLT is an effective tool for evaluating students' cultural knowledge. The second component, Cultural Awareness/Mindfulness, exhibited moderate relationships with all other factors. Despite the correlation levels being inferior to those of other components, the associations remained statistically significant. This may imply that the acceptance of social standards reflects a thorough comprehension of cultural background, rather than arising from a singular factor. This finding aligns with the research conducted by Wasaya et al. (2024), which shown that social norms strongly impact tourists' cultural behaviour, especially in influencing cultural tourism

practices. This aligns with the research conducted by Prapasawasdi et al. (2018), which investigated cultural tourism behaviour, emphasising tourists' impressions of Thai traditional cuisine in Chiang Mai. Their findings underscored that local cuisine is essential for the preservation of cultural heritage and the support of the local economy. The research revealed four principal factors: attitude, subjective norm, perceived value, and expectation, which positively correlated with tourists' cultural perception. Furthermore, Heinrichs et al. (2006) discovered that individuals from Western and Eastern cultures interpret social norms distinctively. The significant relationships between cultural knowledge and several factors, including behavioural adaptation, communication skills, and community participation, suggest that cultural knowledge is essential for promoting the understanding and expression of cultural identity. This finding aligns with the research conducted by McKercher and Du Cros (2002), which examined strategies for managing cultural tourism. They underscored the significance of establishing relationships wherein local populations at cultural sites must have historical knowledge intertwined with heritage protection principles. This comprehension cultivates a respect for cultural values, which are fundamental to efficient management, and necessitates transparent communication and the exchange of information to guarantee that development does not undermine cultural foundations. Their research advocated a collaborative framework between cultural institutions and tourism management agencies, emphasising the development of partnerships. The findings are corroborated by Ramírez-Gutiérrez et al. (2018), who examined how tourists articulate their experiences at heritage sites. Their research demonstrated that social communication facilitates the construction of meaning and emotions linked to cultural sites. Tourist feedback frequently manifested as personal, emotive narratives, illustrating individual perspectives of historic encounters. The study by Sančanin (2019) investigated the influence of historical heritage on cultural tourism development, emphasising that legacy assets can confer a competitive advantage to places via exceptional and unique presentations. Historical legacy is recognised as a significant asset that can draw tourists and stimulate interest in locations. Consequently, the advancement of cultural tourism must prioritise both sustainability and the conservation of historical assets. The theoretical implications of the observed connections endorse the idea that cultural knowledge is a multifaceted construct consisting of interdependent components. Individuals with expertise in one cultural

domain frequently cultivate abilities in several domains. This indicates a progression: from cultural knowledge to understanding, to awareness and sensitivity to cultural context, to behavioural adaptation and communication skills, to community participation, and finally to cultural conservation and sustainable preservation. This concept aligns with Wasela's (2023) study, which highlighted the essential importance of cultural heritage in fostering understanding among local communities within World Heritage Sites. The study indicated that this understanding cultivates awareness that facilitates the advancement of sustainable cultural tourism, wherein community involvement is crucial for achieving equilibrium between tourism expansion and cultural conservation. The developmental process of cultural knowledge can be encapsulated in four interconnected stages; 1) Knowledge: Gaining fundamental insights into culture, including the history, traditions, values of various cultural groups, and social conventions. 2) Understanding: Acquiring a profound knowledge of the significance of cultural data, encompassing the fundamental motivations behind cultural behaviours and beliefs. 3) Acceptance: Demonstrating open-mindedness and respect for cultural differences, devoid of judgement or comparison, while acknowledging the worth and advantages of cultural diversity. 4) Effective Communication: Utilising gained information, comprehension, and acceptance in real-world interactions, particularly when interacting with others from diverse cultural backgrounds. This encompasses employing respectful language, engaging in active listening, refraining from culturally offensive statements, and modifying speech or body language when conversing across cultures. The four stages align with Gillman's (2010) results, which explored the role of tourism in cultural heritage preservation via historical awareness, appreciation of ancient monuments, acknowledgement of national identity, storytelling, and interpretation of significant or sacred locations. His research underscored the significance of engaging local communities in conservation initiatives and enhancing tourists' comprehension of indigenous lifestyles. This paradigm is consistent with Boniface (2013), who emphasised the significance of quality management in cultural tourism. Boniface underscored the equilibrium between legacy preservation and the increasing expectations of tourists desiring genuine cultural experiences, encompassing history, architecture, arts, gastronomy, and community lifestyles. Effective practices for tourists encompass offering educational resources to foster cultural respect and understanding, as well as promoting tourist involvement in community-based

tourism development, thereby ensuring long-term sustainability and enhancing the quality of visitor experiences and cultural preservation.

6.1. Limitations

Limitations of content and cultural context: Thailand's World Heritage Sites exhibit a diversity of historical, cultural, and natural value, exemplified by Ayutthaya, Sukhothai, and natural sites like Khao Yai. The diversity poses a barrier in creating a generally applicable measurement tool for all sites. The distinctive characteristics of each site necessitate context-specific instruments, hence constraining the generalisability of any singular tool. The abstract and intrinsic nature of cultural knowledge, often intertwined with local ideas, values, and lifestyles, complicates its definition and assessment in concrete terms.

Limitations of the sample population: Variations in educational backgrounds and cognitive capacities among populations in specific regions may influence respondents' comprehension of the questionnaire. Despite the researchers' diligent attempts to meticulously screen volunteers to guarantee a group with at least a reasonable level of cultural and historical knowledge, discrepancies persisted. Moreover, employing standard Thai in the questionnaire may not have accurately reflected participants' genuine comprehension, particularly if the instrument was not tailored to local dialects or culturally relevant communication strategies.

Methodological limitations: Evaluating cultural knowledge may necessitate the use of qualitative data to yield a more thorough comprehension. Qualitative methods, including in-depth interviews, focus group discussions, and participant observation, can provide profound insights into respondents' viewpoints and interpretations that quantitative approaches may overlook.

6.2. Future Research Directions

Future research should focus on developing and validating this measurement instrument across diverse sample populations and/or utilising more sophisticated methodological approaches. This may involve the utilisation of advanced statistical models, such as the latent state-trait model or the integrated state-trait model. Furthermore, researchers may utilise the produced instrument on a broader range of populations, placing significant attention on varied forms of validity testing to assure its robustness. Subsequent study should concentrate on developing culturally sensitive assessment instruments customised for specific local contexts, such as Ayutthaya, Sukhothai, or Ban Chiang. Considering

the distinct historical and cultural attributes of each heritage location, integrating local languages or indigenous cultural media into the instrument might improve respondent understanding and involvement. Subsequent study may additionally differentiate among categories of cultural knowledge, including historical knowledge, symbolic knowledge, and practical knowledge. There is a necessity for research investigating the correlation between cultural knowledge and conservation behaviours. Research could examine the impact of cultural knowledge on participation in heritage site conservation or analyse its function in shaping attitudes, local pride, and a sense of ownership among community members. Comparative analyses at both local and national levels may yield significant insights. For example, analysing cultural knowledge disparities between inhabitants of World Heritage sites and those in adjacent non-heritage communities, or investigating variations across age demographics, professions, or educational attainment. Furthermore, this research ought to be amalgamated with public policy studies, including the examination of methods to integrate local cultural content into educational curricula within heritage areas, as well as the formulation of guidelines for local authorities to employ the measurement tool in the planning of community-based activities and sustainable tourism policies. The questionnaire items could be transformed into an application or knowledge manual to facilitate training and enhance

capacity-building in cultural knowledge. This will enhance public understanding of Thailand's cultural World Heritage sites, aligning with the Tourism Authority of Thailand's strategy emphasis on increasing tourism in secondary cities. These methods would bolster resilience and capability within historic communities, especially in the five provinces analysed in this study, and facilitate long-term sustainable tourist development. Researchers planning to utilise this measurement instrument for evaluating cultural knowledge must first consider three essential factors to ensure its suitable application in particular contexts:

What is the purpose of employing the instrument? How does the operational definition of cultural knowledge correspond with the research objectives? This necessitates a comprehensive literature assessment and explicit correlation to the instrument's framework, along by a rationale for the methodologies employed to substantiate the conceptual relationships.

What makes this specific instrument appropriate for the research? Researchers must elucidate the context, methodology, and collaborators involved in the tool's application, as well as its suitability for the intended demographic. Should these three concerns be thoroughly resolved, the measurement tool can be suitably modified. This methodology aligns with the research framework established by Ziegler (2020), who underscored the significance of creating and assessing psychological assessment instruments to improve the scientific rigour of research.

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