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Extended Reality (XR) Resistance or Exploration? Unlocking the Psychological Mechanism

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Abstract:

Building on resilience theory, this study examines how tourists' personal and technology barriers influence their adaptive coping, leading to extended reality (XR) resilience and exploration in attraction and accommodation settings. Using a quantitative research design, involving two empirical studies, data were collected from tourists (N=228) and hotel customers (N=218) in China. Structural equation modeling and multi-group analysis were used to test hypotheses. Findings of both studies showed that personal and technology barriers negatively affect adaptive coping, which in turn positively influences participants' XR resilience and exploration. Aesthetic value moderated the relationship between technology barriers and adaptive coping. In particular, the negative impact of technology barriers was weaker when perceived aesthetic value was high in the attraction context, but the moderating effect reversed in the accommodation context. This study pioneers a novel extended XR research framework, demonstrating that tourism practitioners can enhance tourists' coping, resilience, and exploration by reducing XR barriers through targeted guidance, support, and context-specific design strategies.

Keywords: Extended reality, Resilience theory, Psychological barriers, Resistance to change, Aesthetic value

1. Introduction

Extended reality (XR) combines computer and wearable devices to merge virtual and real environments through human-machine interaction (Rauschnabel et al., 2022). Encompassing augmented reality (AR), virtual reality (VR), and mixed reality (MR), XR creates immersive, interactive experiences that transcend physical limitations (Li et al., 2024; Lin et al., 2025; Shin & Kang, 2024; Singgalen, 2024) and revolutionize traditional travel by engaging multiple senses (Kumlu et al., 2024). Compared to traditional tourism experiences, XR-aided tourism offers significant benefits to both business operators and travelers (Lim et al., 2024; Orús et al., 2021), with China's XR market projected to reach US\$12.4 billion by 2029 (Statista, 2025).

Despite the well-documented benefits of XR technologies, tourists' opinions in adoption of XR are divided, with around 49% resisting the changes, while the rest are open to adopting these innovations (Cham et al., 2024; Guo et al., 2024; VIVE Post-Wave Team, 2023). Even among adopters, some individuals avoid certain experiences due to perceived barriers, such as personal barriers and technology barriers (Seyfi et al., 2025). Personal barriers reflect general adoption obstacles that stem from individuals' emotions and attitudes toward technology (Cham et al., 2022; Yazdani-Darki et al., 2020). In contrast, technology barriers arise from functionality, usability, and complexity issues, typically requiring redesign, technical improvements, or organizational investment to overcome (Cham et al., 2022; Fu et al., 2022). These barriers constitute adversity—situations involving physical, emotional, or social stressors that individuals perceive as challenging or difficult to cope with, regardless of whether participation is voluntary, according to Resilience Theory (Manning & Bouchard, 2020). Resilience theory suggests that individuals can overcome these barriers through adaptive coping, defined as dynamic cognitive and behavioral strategies to manage barriers arising from the individual or environment (Han et al., 2022), ultimately yielding

resilient and often better-than-expected outcomes through adaptive coping (Luthar, 2015; Van Breda, 2018). The widespread application of digital technologies necessitates that tourists develop digital resilience, or the ability to withstand disruptions, employ adaptive coping with new technologies, and successfully transition to a stable state (Boh et al., 2023). Unfortunately, existing studies have yet to fully explore the specific nature of these barriers and the psychological mechanisms through which they affect adoption decisions (Cham et al., 2024; Seyfi et al., 2025). Little is known about whether and how this psychological adaptive coping process operates in tourists' XR technology adoption, and what mediation and moderation mechanisms facilitate the development of technological resilience. As XR becomes increasingly prevalent in tourism operations, understanding how individuals overcome barriers to adopt these innovations is essential.

To address the research gaps, this study draws upon the resilience theory to investigate tourists' XR technology adoption behaviors. Our study proposes that hospitality and tourism customers' personal barriers and technology barriers are adversities that could trigger the adaptive coping process. We propose a moderated mediation process of adaptive coping influenced by an individual-level factor (i.e., resistance to change, defined as opposition to new technologies due to anticipated adverse consequences) and an environmental-level factor (i.e., aesthetic value, defined as visual and emotional experience evoked by an appealing digital environment), and this coping process leads to two positive outcomes of XR resilience and exploration. In addition, although attractions and accommodations are key components of the tourism product, few studies examine how XR experiences vary between these contexts (Jiang et al., 2023). Therefore, it is timely to explore the psychological process through which individuals overcome personal and technological challenges to become more resilient and receptive to XR technologies across different tourism

settings. This research's dual-context design is theoretically grounded in divergent experiential processes: attraction-focused XR (e.g., simulated destination explorations) fosters destination imagery and affective engagement (Susilowati et al., 2025), whereas accommodation-focused XR (e.g., enhanced lodging previews) prioritizes experiential congruence and functional decision-making (McLean & Barhorst, 2022). Empirically, XR bolsters attraction intent via amplified presence (Ying et al., 2022) and refines accommodation selections through interactive personalization (Huang et al., 2025), demonstrating that these contexts operate through different psychological pathways that warrant separate investigation rather than a single multi-context model.

This study makes four significant theoretical contributions. First, it addresses a critical gap by examining digital resilience—an emerging yet understudied concept in tourism contexts (Boh et al., 2023; Qamaria et al., 2025; Seyfi et al., 2025)—through the lens of resilience theory, providing a psychological perspective on how tourists adapt to and overcome barriers posed by XR technologies. Second, the study extends resilience theory by establishing adaptive coping as the central mediating mechanism through which tourists transform adversity (personal and technology barriers) into positive outcomes (XR resilience and exploration), responding to calls for understanding individual coping processes with new tourism technologies (Hall et al., 2023; Han et al., 2022; Qamaria et al., 2025). Third, the framework integrates individual-level factors (resistance to change) and environmental-level factors (aesthetic value) as critical moderators of adaptive coping, advancing understanding of how psychological and environmental influences shape digital resilience in the complex, dynamic tourism system. By distinguishing between attraction and accommodation contexts, this study enhances contextual specificity and methodological rigor (Kim et al., 2022), establishing a robust theoretical foundation for digital

resilience research in tourism and hospitality. Lastly, the findings inform the development of inclusive, user-centric XR solutions that enhance guest experiences and guide tourism and hospitality operators in designing strategies that facilitate technology adoption and build digital resilience among tourists.

2. Literature review

2.1. Theoretical foundations

Resilience theory depicts how individuals, organizations, or communities thrive when facing adversities, challenges, or stressful situations (Van Breda, 2018). It features a dynamic, positive adaptation and active coping process to adverse situations to achieve positive outcomes, such as resilience and enhanced capacities (Almedom, 2013; Han et al., 2022; Van Breda, 2018). Three components are essential to resilience theory (Van Breda, 2018): adversity, mediating processes, and (better than expected) outcomes. Adversity refers to the harmful impact of challenging life experiences, such as technology-induced anxiety, stress, or difficulties (Qi & Yang, 2024). The mediating process involves actions that lead to positive outcomes by actively confronting adversity, rather than merely accommodating it (Van Breda, 2018). Outcomes refer to a person or social system that is “resilient” because he/she or it delivers better-than-expected outcomes in the face of adversity (Van Breda, 2018; Figure 1).

(Insert Figure 1 here)

Although resilience theory is gaining scholarly importance, it remains underexplored in hospitality and tourism research and warrants further investigation (Mishra et al., 2024). Previous studies on resilience have predominantly focused on understanding how tourism destinations and firms respond to extreme disruptions (e.g., Chowdhury et al., 2024; Traskevich & Fontanari, 2023).

Little is known about how tourists use resilience to cope with changes brought about by digital technology, such as XR. To the best of the research team's knowledge, no research has applied resilience theory to depict the dynamic coping process of individuals' adoption of tourism technologies. Individual differences and technology features may affect the coping outcomes, but limited information is known on how the dynamic coping process happens and what factors may influence the coping outcomes, which warrants the necessity of examining the adaptive coping mechanisms through the lens of the Resilience Theory. Confronted by the stress and challenges associated with using XR technology, it is important to investigate how tourists' resilience is influenced by various factors.

Therefore, building on resilience theory (Van Breda, 2018), we propose an adaptive coping process of individuals' experience with XR technologies in tourism when facing personal and technological barriers. In particular, we suggest that personal and technological barriers (adversities) trigger an adaptive coping process which is influenced by individuals' resistance to change and the aesthetic value (environmental factor) offered by XR technologies, leading to XR resilience and XR exploration (better than expected outcomes). The proposed model advances resilience theory by integrating multilevel moderators into the adaptive coping (mediation) process, emphasizing the dynamic interplay between the individual and the environmental factors. The framework unlocks the psychological mechanisms of adaptive coping in digital resilience, enriching the understanding of how travellers achieve adaptability, resilience, and exploration in complex systems when facing barriers.

2.2. Key Concepts and Variables

Resilience research encompasses three interconnected components—adversity (barriers), outcomes, and mediating factors—where resilience processes operate during ongoing adversity exposure (Manning & Bouchard, 2020; Van Breda, 2018). In the following section, we identified and explained personal and technological barriers, which play the role of adversity in the resilience theory model; adaptive coping, resistance to change and aesthetic values, which serves as key variables in the mediating (and moderating) mechanism, and XR resilience and exploration as (often better than expected) outcomes.

Personal and technology barriers

Personal barriers are mainly related to negative feelings about advanced technologies—such as anxiety, fear, and frustration (Cham et al., 2024; Jang et al., 2024). Personal barriers arise when the benefits of innovation conflict with users’ values, perceptual and cultural beliefs, and social norms (Cham et al., 2024). Prior tourism and hospitality researchers have identified technology barriers as a major challenge affecting consumers’ adoption of AR and VR technology (Cham et al., 2024; Lee et al., 2019). Technology barriers arise when users perceive an innovation as relatively difficult and complex to understand and use (Vishwakarma et al., 2020). Users may lack confidence in implementing XR technology or question the value of the time and financial investment required (Chuah, 2018).

Adaptive coping, XR Resilience, and XR Exploration

Adaptive coping refers to “the cognitive and behavioral efforts exerted by users to manage specific consequences associated with a significant IT event that occurs in their work environment.” (Beaudry & Pinsonneault, 2005, p. 496). When individuals face a demanding situation, they first appraise potential consequences, decide whether it presents challenges or threats as well as outcomes associated with the situation, and subsequently evaluate their available coping actions.

These coping actions encompass both cognitive and behavioral efforts (Lazarus & Folkman, 1984), and successful coping often leads to enhanced resilience.

XR resilience refers to users' capacity to cope with uncertainty, setbacks, or disruption in XR contexts and adapt positively to change (Boh et al., 2023), whereas XR exploration reflects a proactive tendency to engage with XR, seek new experiences, and discover its potential applications (Mahrous & ElSabry, 2025). In other words, resilience is a reactive coping capability triggered by challenge (Karman, 2020), while exploration is a proactive discovery-oriented behavior driven by curiosity and opportunity (Cortellazzo et al., 2025). A growing body of research emphasizes the role of resilience in exploring change within innovation contexts (Su et al., 2024). Resilience is particularly crucial in uncertain environments, where it can yield better-than-expected outcomes and motivate users to embrace innovative changes.

Resistance to change and Aesthetic Value

Resistance to change is defined as a general opposition to change, stemming from anticipated adverse consequences, such as uncertainty or unexpected technological errors (Tsai et al., 2020). It arises primarily from personal cognitive-affective processes, such as conflicting beliefs regarding technology, which generate uncertainty, nervousness, and discomfort (Sheth, 1981; Mani & Chouk, 2018; Cham et al., 2022, 2024). Studies show that individuals with high resistance to change exhibit lower cognitive flexibility and ability to cope with change (Hon et al., 2014). However, resilience involves multilevel processes through which systems achieve better-than-expected outcomes when facing adversity, occurring across multiple levels of the person-in-environment rather than exclusively at the individual level (Van Breda, 2018).

As one factor of the external environment, aesthetic value can influence anticipated emotional experiences (Li et al., 2022). According to Apaolaza et al. (2020), aesthetic value

reflects the visual and emotional experience elicited by a beautiful or pleasant atmosphere. It helps shape customers' attitudes and behavioral outcomes (Apaolaza et al., 2020; Gallarza et al., 2019; Hou & Pan, 2023). The advancement of technologies has spurred research interest in the infusion of aesthetic value in technological innovations (Li et al., 2022; Lv et al., 2022). Nonetheless, existing studies have predominantly treated aesthetic value merely as a design-added attribute but have overlooked its potential to operate as a psychological and experiential resource that actively interacts with other critical factors (e.g., barriers) within user experience. There is a gap in how aesthetic value interacts with adversities and influences consequent adaptation mechanisms within a resilience process.

3. Hypotheses development

3.1 The effects of personal and technology barriers on adaptive coping

Personal barriers have been recognized as critical determinants of technology adoption (e.g., Cham et al., 2022, 2024). However, engagement with cutting-edge technology transcends initial adoption and involves ongoing adaptive actions and interactions (Bala & Venkatesh, 2016; Muhammad et al., 2021), particularly in tourism (Allal-Chérif, 2022). We propose that personal barriers, characterized by negative feelings about advanced technologies—such as anxiety, fear, and frustration (Cham et al., 2024; Jang et al., 2024)—impede tourists' adaptive coping in relation to XR technology. These barriers are often rooted in a perceived lack of control over new technology (Troisi et al., 2022). The coping model of user adaptation proposed by Beaudry and Pinsonneault (2005) posits that individuals' adaptation to technology depends on their appraisal of the level of control over that technology. Following this logic, such personal barriers negatively impact individuals' adaptive coping with XR technology. Furthermore, personal barriers may elicit

negative emotional responses, including perceptions of threat, restlessness, and depression (Dogra et al., 2023), resulting in adverse adaptive responses to novel technology (Muhammad et al., 2021). Additionally, these barriers undermine individuals' confidence and self-efficacy (Kim et al., 2022), which are essential for their initial engagement with and exploration of XR technology (Jalo & Pirkkalainen, 2024). Thus, we hypothesize as follows:

H1: Personal barriers negatively influence individuals' adaptive coping.

Technology barriers, e.g., the complexity of the technology and the challenges in learning and using it, are crucial factors—alongside individual barriers—that may relate to tourists' adaptive coping with XR. To facilitate adaptive coping, individuals undergo an appraisal process that considers effort expectancy when interacting with technological systems (Beaudry & Pinsonneault, 2005). If individuals find the technical system difficult to use, this can further reinforce frustration and stress, hindering their adaptive coping (Fadel & Brown, 2010; Marakhimov & Joo, 2017). User-friendly interfaces and systems are key to reducing cognitive overload and enhancing willingness to learn and engage in XR technology (Kim & Ryu, 2024). The application of XR technology in tourism is often intricately complex due to its inherently interactive and experiential nature (Jia et al., 2025), potentially leading to strong avoidance and discouraging continuous learning and adaptation. For example, sensory conflict—such as a mismatch between the visual perception of movement and physical motion—can induce dizziness, nausea, headaches, and disorientation (Kourtesis, 2024). Moreover, despite XR's rich interactivity, its complexity may result in frustration or reluctance, particularly among less tech-savvy individuals, thereby hindering engagement and adoption (Jain, 2024). Therefore, we hypothesize as follows:

H2: Technology barriers negatively influence individuals' adaptive coping.

3.2 The effects of adaptive coping on XR resilience and XR exploration

Both coping and resilience address stress management; they are distinct, yet interconnected concepts (Han et al., 2022). Coping involves cognitive and behavioral strategies employed by individuals in stressful situations (Beaudry & Pinsonneault, 2005). For instance, when dealing with unfamiliar innovations, individuals may make extensive efforts to adapt to the technology. These adaptive coping strategies, selected based on an assessment of the situation, help to acquire additional resources, increase adaptability, and minimize losses during stressful events (Hossain et al., 2023; Simione & Gnagnarella, 2023). Conversely, resilience is defined as the ability to respond positively to adversity and is a dynamic process enhanced by effective coping. Through successfully implementing coping strategies, individuals can bolster their resilience, thereby enhancing or safeguarding their psychological resources throughout the adversity response process. Existing literature on resilience suggests that adaptive coping mechanisms can activate and foster resilience when addressing stressful situations caused by innovation (Ameis et al., 2020). Thus, we propose that tourists' ability to adapt positively and respond to XR innovations is positively affected by adaptive coping, hence the following hypothesis:

H3: Individuals' adaptive coping positively influences XR resilience.

Individuals employ various coping strategies, including cognitive and behavioral strategies, to master, tolerate, reduce, or minimize unfamiliar or stressful situations (Beaudry & Pinsonneault, 2005; Lazarus & Folkman, 1984). When individuals implement the adaptive coping strategy, they often seek additional resources to increase adaptability and minimize losses during stressful events

(Hossain et al., 2023). According to the limited literature, technology exploration is often associated with individuals' intrinsic motivation to learn how to use the technology (Jang et al., 2024). Robitschek and Cook (1999) argued that an individual's coping strategy significantly contributes to their exploration of new things. In terms of applying the coping strategy in the new technology context, the coping strategy adopted by consumers directly influences their beliefs and indirectly affects their attitudes toward the new technology product (Cui et al., 2009). Furthermore, Jang et al. (2024) verified the relationship between attitudes toward new technologies and exploration of new technologies. Based on the discussion above, we propose:

H4: Individuals' adaptive coping positively influences XR exploration.

3.3 The moderating effects of resistance to change and aesthetic value

The moderating effect of resistance to change is grounded in its impact on adaptive coping mechanisms. According to resilience theory, individuals' capacity to adapt and recover from adversity is influenced by their psychological resources and cognitive flexibility (Burhan et al., 2024; Luthar, 2015). High resistance to change reflects a lack of cognitive flexibility, making individuals more susceptible to the negative effects of XR-related personal barriers such as fear, anxiety, and frustration. This, in turn, impedes their ability to engage in adaptive coping strategies. Research by Masry-Herzalah et al. (2022), demonstrating that high resistance hinders the transformation of personal technology competency into successful technology use, offers partial evidence for the detrimental role of resistance in adaptation processes. Furthermore, scholars indicated that high resistance to change is associated with conscious avoidance, rejection, and opposition (Sanchez et al., 2020), making it even more difficult for individuals to develop or utilize effective coping strategies. Conversely, individuals with low resistance to change tend to approach

change with greater openness and flexibility, rather than resistance (Haesevoets et al., 2022). Even when they encounter personal barriers, their willingness to adapt and experiment with new strategies can mitigate the negative effects of these barriers on adaptive coping. Therefore, we hypothesize that:

H5: Resistance to change moderates the effect of personal barriers on adaptive coping. Specifically, the negative impact of personal barriers on adaptive coping will be stronger for individuals with high resistance to change than those with low resistance to change.

Aesthetic value is a pivotal environmental factor in enticing users and fostering their interest and enjoyment in engagement, building psychological resources, particularly in technology use (Cai et al., 2024; Kirillova, 2023). Drawing on resilience theory, which emphasizes the dynamic interplay between stressors, protective resources, and adaptive outcomes (Masten, 2001; Luthar, 2015), aesthetic value may function as a resource-building mechanism that buffers against technology barriers. When users perceive high aesthetic value, they experience positive emotions (e.g., curiosity, enjoyment) that not only facilitate engagement (Kirillova et al., 2023; Wong et al., 2023) but also accumulate psychological resources (e.g., optimism, self-efficacy) that enhance adaptive coping capacity over time (Fredrickson, 2001). Furthermore, prior evidence highlights that aesthetic value is a core component of hedonic value (Yang & Han, 2021), which in the XR technology domain significantly outweighs utilitarian value in driving continued use intentions (Yang & Han, 2021). Thus, aesthetic values are more likely to facilitate adaptive coping with technology barriers when using XR technology. Conversely, if the XR technology lacks aesthetic value, users will hardly encounter these positive sensory and emotional experiences. As a result, the negative impact of technology barriers on adaptive coping is more pronounced, as

users are less motivated to overcome difficulties and may be more likely to disengage. Therefore, we hypothesize that:

H6: Aesthetic value moderates the effect of technology barriers on adaptive coping. Specifically, the negative impact of technology barriers on adaptive coping will be weaker for the high aesthetic value of XR technology than the low aesthetic value.

The conceptual framework with all hypotheses is demonstrated in Figure 2.

(Insert Figure 2 here)

4. Research Method

4.1 Research design

Two empirical studies were conducted to test the proposed research model in distinct yet complementary tourism contexts (Smith, 1994): Study 1 focused on attractions, while Study 2 examined accommodations. Both studies employed a cross-sectional survey design, which is recognized as an effective method for examining perceptual constructs and testing hypothesized relationships within structural models (Hair et al., 2019).

The rationale for employing two context-specific studies is threefold. First, it provides a comparative test of the theoretical model across distinct tourism experiential paradigms (attractions vs. accommodations), examining whether the core relationships hold in both settings. For instance, attractions (e.g., heritage sites, museums, and theme parks) are primarily experience-centric, designed for immersive engagement (Iftikhar et al., 2023; Lin et al., 2025; Sun et al., 2024), whereas accommodations (e.g., hotels) are more service-oriented, emphasizing functionality and personalization (Lim et al., 2024). Second, it serves as a cross-context replication that mitigates single-setting bias and strengthens confidence in the robustness and external validity of the

estimated paths. Third, comparing patterns across contexts helps refine the theoretical framework by explicitly defining its boundary conditions and scope, moving from a general proposition to a more precise, context-aware understanding. This multi-context approach is well-established in tourism research (e.g., Kim et al., 2022; Su et al., 2020) for generating nuanced insights and enhancing theoretical validity (Ferguson, 2004; Wong & Lai, 2022).

4.2 Questionnaire development and measurement

A questionnaire was developed based on validated measurements from prior research. To ensure translation accuracy, each question item was translated into Chinese, followed by a back-translation (Brislin, 1970). Three experts proficient in both English and Chinese checked the translations for consistency and accuracy to ensure that the translated items accurately conveyed the intended meaning of each construct. All items in these sections were measured using a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree).

All constructs were adapted from previous studies with necessary wording modifications to suit our contexts. *Personal barriers* were measured using four items from Cham et al. (2024). *Technology barriers* were assessed with four items from Jang et al. (2024). *Adaptive coping* was evaluated using four items from Zheng et al. (2021). *XR Resilience* was measured with four items from Zheng et al. (2021), while *XR exploration* was measured with four items from Jang et al. (2024). *Resistance to change* was assessed via three items from Cham et al. (2024). Additionally, *aesthetic value* was measured by using three items (i.e., I think the XR virtual environment is aesthetically appealing; I think the atmosphere of the XR virtual environment is wonderful; I think the atmosphere of the XR virtual environment makes me feel comfortable and relaxed) (Cai et al., 2024). Participants' demographic information (e.g., gender, age, education level, marital status,

occupation, and annual income) and frequency of using XR technology in the last 12 months were collected.

Two versions of the questionnaire were designed, targeting the tourist attraction and accommodation settings, respectively. Respondents were then recruited and assigned to only one of these two contexts accordingly. The core survey instrument remained consistent across both studies to ensure comparability, measuring the same constructs. However, to accurately capture context-specific experiences, the questionnaire was explicitly framed within each setting. For Study 1, all instructions and item stems referenced “using XR technology at a tourist attraction.” For Study 2, the same items were framed in the context of “using XR technology at an accommodation.” This design ensured that participants’ responses were anchored in the intended setting.

4.3 Data collection and data analysis

Data were collected by Credamo, a well-known online marketing research platform in China (Ma & Li, 2024; Xu et al., 2024). Credamo has a large and diverse respondent pool, spanning various demographic backgrounds (Xu et al., 2024). Since this study targeted respondents who had prior experience using XR technology at least once in a tourist attraction (Study 1) or accommodation (Study 2) before completing the questionnaire, Credamo undertook a screening process to recruit qualified participants. Only respondents who reported having travel experience within the past 12 months were qualified to take part in the main survey. Then, the participants were presented with a description of XR technology (see Appendix A) and asked a context-specific screening question: “Have you used the XR technology described in the above materials during your travels at a tourist attraction (Study 1) / at an accommodation (Study 2) during your travels?”

To ensure the quality of responses, the platform provides attention check questions, which we included in our survey to identify and exclude inattentive or careless responses. A total of 503 respondents completed Study 1 (256) and Study 2 (247) through Credamo. After screening, 228 valid responses for Study 1 and 218 valid responses for Study 2 remained.

4.4 Normality test and common method bias

We assessed both univariate and multivariate normality following established procedures (Xu & Wang, 2021). To identify multivariate outliers, we calculated the Mahalanobis squared distance for each observation. Observations with Mahalanobis distances exceeding the critical value of $p < 0.001$, based on the chi-squared distribution with the appropriate degrees of freedom, were classified as outliers (Kline, 2016). Consequently, 8 outliers from Study 1 and 17 outliers from Study 2 were identified and excluded prior to further analyses. Therefore, the final sample comprised 220 participants for Study 1 and 201 participants for Study 2.

Univariate normality was assessed by examining the skewness and kurtosis values for all observed variables. For Study 1, the absolute values of skewness ranged from 0.08 to 1.392, while kurtosis values ranged from 0.068 to 1.293. For Study 2, the absolute values of skewness ranged from 0.009 to 1.435, and kurtosis values ranged from 0.08 to 1.392. All values fell within the commonly accepted thresholds (i.e., absolute skewness < 2 , absolute kurtosis < 7 ; Curran et al., 1996), indicating that the assumption of normality was met.

We used both procedural and statistical remedies to minimize common method bias (Podsakoff et al., 2024). Procedural remedies included assuring respondents of anonymity and confidentiality, emphasizing that there were no right or wrong answers, and stating that responses would be used only for academic research. Reverse-coded items for a construct in the survey were

used. These measures aimed to reduce social desirability bias (Podsakoff et al., 2024). We also used clear and concise language in the questionnaire to minimize task difficulty and encourage accurate responses (Podsakoff et al., 2024). We assessed potential common method bias by adopting two statistical remedies. First, we conducted confirmatory factor analyses with Harman's single-factor model, loading all measurement items onto a single factor (Podsakoff et al., 2024). The single-factor model exhibited significantly poorer fit compared to the hypothesized measurement model in both the attraction and accommodation contexts. Second, we applied the unmeasured latent method factor approach recommended by Malhotra et al. (2017), incorporating a latent method factor into the CFA model. The results showed no substantial improvement in model fit for the attraction ($\Delta\text{CFI} = .005 < .10$; $\Delta\text{TLI} = .003 < .10$; $\Delta\text{IFI} = .004 < .10$; $\Delta\text{RMSEA} = .002 < .05$) or accommodation ($\Delta\text{CFI} = .004 < .10$; $\Delta\text{TLI} = .002 < .10$; $\Delta\text{IFI} = .004 < .004$; $\Delta\text{RMSEA} = .002 < .05$) contexts. Together, these findings suggest that common method variance was not a significant concern in our study.

4.5 Data analysis

Before conducting the data analysis, we carried out reverse coding for the construct of adaptive coping. In terms of the data analysis, we conducted the measurement model and structural equation model to test H1–H4 using SPSS and AMOS. Subsequently, we tested the moderating effects of resistance to change (H5) and aesthetic value (H6) using multigroup SEM in AMOS. In the hypothesis testing, we controlled for several variables, including gender, age, marital status, education, occupation, and personal monthly income.

5. Results

Table 1 shows participants' demographic information as well as their XR technology usage frequency. Participants' information in both studies is similar. For instance, there were more female participants than male participants. For both studies, nearly half of the samples were aged 31–40, most participants were married, more than half held undergraduate degree and were professionals. Nearly a third earned a high monthly salary of 10,000 CNY or more.

(Insert Table 1 here)

5.1. Measurement model

We conducted the measurement model (CFA) and assessed the reliability and validity of each construct following Anderson and Gerbing (1988). The results showed that the overall model fit for both studies was satisfactory (Study 1: Goodness-of-fit index: $\chi^2 = 426.111$, $df = 158$, $\chi^2/df = 2.697$, CFI = .942, TLI = .931, IFI = .943, RMSEA = .088; Study 2: Goodness-of-fit index: $\chi^2 = 414.731$, $df = 158$, $\chi^2/df = 2.713$, CFI = .944, TLI = .933, IFI = .944, RMSEA = .093). As shown in Table 2, the Cronbach's alpha coefficients and the composite reliability of all constructs were above 0.80, indicating good internal consistency (Hair et al., 2010). Furthermore, the factor loadings of all items were higher than 0.70, and the AVE values were all above 0.60, indicating a satisfactory convergent validity (Fornell & Larcker, 1981). Additionally, correlations between each construct were less than the square roots of AVE, demonstrating satisfactory discriminant validity (see Table 3).

(Insert Table 2 here)

(Insert Table 3 here)

5.2 Structural equation model (SEM)

We conducted SEM via the AMOS software to test the proposed structural model and thus investigate H1–H4. Regarding total model fit, the two studies performed well (Study 1: $\chi^2/df = 2.982$, CFI = .930, TLI = .919, IFI = .931, RMSEA = .095; Study 2: $\chi^2/df = 2.960$, CFI = .934, TLI = .923, IFI = .934, RMSEA = .099). Table 4 presents the effect size, p -values, and R^2 values for the hypotheses. In terms of testing the hypotheses, both H1 and H2 were accepted in Studies 1 and 2, showing that higher personal ($\beta_{_study\ 1} = -.227, p < 0.01$; $\beta_{_study\ 2} = -.417, p < 0.001$) and technological ($\beta_{_study\ 1} = -.381, p < 0.001$; $\beta_{_study\ 2} = -.420, p < 0.001$) barriers reduce participants' adaptive coping in both the tourist attraction (Study 1) and accommodation (Study 2) contexts. Moreover, H3 and H4 were supported in Studies 1 and 2. Specifically, in both the tourist attraction and accommodation settings, participants with a higher adaptive coping ability demonstrate greater XR resilience ($\beta_{_study\ 1} = .764, p < 0.001$; $\beta_{_study\ 2} = .837, p < 0.001$) and are more likely to explore XR technologies ($\beta_{_study\ 1} = .676, p < 0.001$; $\beta_{_study\ 2} = .849, p < 0.001$).

To compare the hypothesized pathways between Study 1 and Study 2, we conducted a multi-group analysis using bootstrapping-based difference testing. The results reveal that the negative impacts of personal ($p = 0.355$) and technological ($p = 0.638$) barriers on adaptive coping are stable and do not differ significantly between contexts. Conversely, the positive impacts of adaptive coping on both XR resilience ($p = 0.008$) and XR exploration ($p = 0.038$) are significantly stronger in the accommodation context than in the attraction context.

To test the mediating effects of adaptive coping, bias-corrected percentile bootstrapping was performed at a 95% confidence interval (CI), with 5000 bootstrap samples (Preacher & Hayes, 2008). As shown in Table 4, the indirect effects of personal barriers on XR resilience ($\beta_{_study\ 1} =$

$-.173$, 95% CI = $[-.289, -.038]$; $\beta_{_study\ 2} = -.349$, 95% CI = $[-.436, -.148]$) and XR exploration ($\beta_{_study\ 1} = -.153$, 95% CI = $[-.261, -.034]$; $\beta_{_study\ 2} = -.354$, 95% CI = $[-.403, -.123]$) through adaptive coping were significant. Similarly, the indirect effects of technology barriers on XR resilience ($\beta_{_study\ 1} = -.291$, 95% CI = $[-.362, -.118]$; $\beta_{_study\ 2} = -.351$, 95% CI = $[-.384, -.147]$) and XR exploration ($\beta_{_study\ 1} = -.258$, 95% CI = $[-.331, -.108]$; $\beta_{_study\ 2} = -.356$, 95% CI = $[-.352, -.127]$) through adaptive coping were significant. Thus, the mediating role of adaptive coping was supported.

(Insert Table 4 here)

5.3 Moderating effects test

The moderating effects of resistance to change (H5) and aesthetic value (H6) were tested using the multigroup analysis in SEM. To test H5, in both Studies 1 and 2, participants were divided into two groups (i.e., high resistance to change vs. low resistance to change) using a median split on their resistance to change scores, respectively (Wang et al., 2022). Prior to conducting the multigroup analysis, a multigroup CFA was performed across both groups. As shown in Table 5, the results indicated acceptable model fit: for Study 1, Goodness-of-fit indices: $\chi^2 = 716.986$, $df = 314$, $\chi^2/df = 2.283$, CFI = .902, TLI = .881, IFI = .904, RMSEA = .077; for Study 2, Goodness-of-fit indices: $\chi^2 = 758.435$, $df = 300$, $\chi^2/df = 2.528$, CFI = .901, TLI = .875, IFI = .903, RMSEA = .088.

In the multigroup analysis, to assess whether the effect of personal barriers on adaptive coping differed between the two groups, two models were compared: an unconstrained model, in which the path coefficients were allowed to vary freely between the high and low resistance to change groups, and a constrained model, in which the path from personal barriers to adaptive

coping was set to be equal across both groups. A chi-squared difference test was used to determine whether constraining the path significantly changed model fit, indicating a moderating effect of resistance to change.

The results (Table 5) showed that the effect of personal barriers on adaptive coping in Study 1 was significant only in the low-resistance-to-change group ($\beta_{\text{low resistance to change}} = -0.284$, $p < 0.01$), but not in the high-resistance-to-change group ($\beta_{\text{high resistance to change}} = -0.127$, $p > 0.05$). This indicates that resistance to change significantly moderates the relationship between personal barriers and adaptive coping. Nevertheless, the above finding is contrary to our hypothesis; therefore, H5 was not supported in the attraction context of Study 1. Moreover, the results of Study 2 showed no difference in the relationship between personal barriers and adaptive coping across the two resistance-to-change groups ($\beta_{\text{low resistance to change}} = -0.433$, $p < 0.001$; $\beta_{\text{high resistance to change}} = -0.450$, $p < 0.001$). Thus, H5 was rejected in the accommodation context.

Similarly, the moderating effect of aesthetic value was tested in both the attraction and accommodation contexts. The results in Table 6 showed that the effect of technological barriers on adaptive coping in Study 1 was stronger for low aesthetic value ($\beta_{\text{low aesthetic value}} = -0.348$, $p < 0.001$) than for high aesthetic value ($\beta_{\text{high aesthetic value}} = -0.244$, $p < 0.01$). This suggests that high aesthetic value lessens the negative impact of technological barriers on tourists' adaptive coping compared to low aesthetic value. However, in Study 2, the relationship was stronger for high aesthetic value ($\beta_{\text{high aesthetic value}} = -0.450$, $p < 0.001$) than for low aesthetic value ($\beta_{\text{low aesthetic value}} = -0.241$, $p < 0.05$). Therefore, H6 was supported in the attraction context (Study 1) but rejected in the accommodation context (Study 2).

Alongside analyzing the moderators of resistance to change and aesthetic value based on two groups (i.e., high vs low scores), we also conducted an alternative to further validate our

results by dividing the sample into three groups (30%, 40%, and 30%) based on the scores of resistance to change and aesthetic value. The values in parentheses in Tables 5 and 6 reflect similar results. Table 7 presents the hypothesis testing results.

(Insert Table 5 here)

(Insert Table 6 here)

(Insert Table 7 here)

6. Conclusion and discussions

6.1 General discussions

Across both contexts, personal and technological barriers consistently hindered adaptive coping (H1, H2), aligning with prior research demonstrating that such barriers evoke negative emotions that block technology adoption (Dogra et al., 2023; Muhammad et al., 2021). Conversely, effective coping strategies improved resilience and exploration (H3, H4), confirming that adaptive responses protect positive psychological processes during adversity while promoting positive outcomes (Ameis et al., 2020; Robitschek & Cook, 1999). These findings support Van Breda's (2018) resilience framework, which views adaptive coping as the mechanism to mediate the relationship between adversity and outcomes. However, despite increasing scholarly attention (Mishra et al., 2024), resilience theory focused on three components in the tourism context (i.e., attraction and accommodation) remains underdeveloped (Hall et al., 2023; Qamaria et al., 2025).

Regarding the moderating effects of high resistance amplify the relationship between personal barrier and adaptive coping (H5), the reversed result in Study 1 (attraction context) contradicts Hon et al. (2014) findings, revealing that personal barriers affect individual adaptive

coping only with low resistance to change. Traditional change management literature posits high resistance as amplifying barrier effects; however, our results indicate that low resistance paradoxically increases vulnerability in voluntary technology adoption contexts. The result of Study 2 (accommodation context) indicates no moderation effect of resistance to change. This may be due to contextual differences: in attractions, XR technology is often integral to the core experience (Buhalis et al., 2023), whereas it typically serves practical functions in accommodation settings, such as providing virtual tours or information before booking (Koochang et al., 2023). In accommodation contexts, personal barriers may limit adaptation, especially when individuals encounter situational factors like time constraints, specific needs, and the availability of alternative channels, regardless of personal disposition. Thus, these findings challenge uniform assumptions about resistance and advocate context-sensitive theorizing on psychological defenses in XR technology frameworks.

Aesthetic value moderated technology barriers only in attraction settings (H6 supported), where immersive sensory experiences shape evaluations (Seyfi et al., 2025), but not in accommodations (H6 rejected). This difference highlights context-specific mechanisms: in attractions, high aesthetic quality builds emotional resources to offset technological frustration (Cai et al., 2024; Gloria et al., 2016), while in accommodations, aesthetic evaluations remain highly individualized, often overshadowed by practical and functional priorities (Lin, 2022). This result is aligned with a goal-context congruence perspective (Yang et al., 2026). This clarifies a key boundary: when technology barriers disrupt goal-directed activities—such as booking processes or room customization—aesthetic features may fail to compensate or even heighten frustration among guests with elevated expectations.

6.2 Theoretical implications

This study advances resilience theory by integrating Van Breda's (2018) three-component framework—comprising adversity (personal and technology barriers), mediating processes (adaptive coping), and positive outcomes (XR resilience and exploration)—into digital tourism contexts. While prior XR tourism research has focused on operational benefits and user acceptance (Alam et al., 2025; Lim et al., 2024), this study shifts attention to psychological resilience processes, addressing a critical gap identified by recent calls to understand how tourists overcome digital technology barriers (Qamaria et al., 2025). This integration extends resilience theory beyond traditional adversity-coping applications by demonstrating how adaptive mechanisms operate specifically within immersive technology adoption, contributing to emerging digital resilience frameworks in tourism (Boh et al., 2023; Hall et al., 2023).

Second, this study incorporates multilevel moderators—resistance to change (individual level) and aesthetic value (environmental level)—this study responds to Hall et al.'s (2023) call for holistic, contextually nuanced resilience research in complex tourism systems. Whereas mainstream XR tourism literature has primarily examined technological factors like presence and interactivity (Li et al., 2024; Lin et al., 2025; Shin & Kang, 2024), our multilevel approach reveals that features at the individual and environmental levels interact to complexly shape coping processes (Amore et al., 2018). For instance, the moderators (i.e., resistance to change and aesthetic value) specify both “for whom” and “under what conditions” adversity translates into adaptive coping. Aesthetic value specifies the conditions under which technology barriers impact coping, highlighting that its role is context-dependent (e.g., attraction vs. accommodation). Thus, the study provides a more precise, context-aware application of resilience theory, offering a refined framework for understanding tourists' adaptive behavior in XR usage experiences.

Finally, the dual-context design (attractions and accommodations) extends XR tourism research by demonstrating how tourism context may serve as a boundary condition in the psychological processes. Existing digital resilience research generally assumes that adaptive coping generates positive adaptation outcomes in a relatively context-independent manner (e.g., Richardson, 2002; Malik et al., 2023). Our findings demonstrate that while the formation of adaptive coping remains relatively stable across tourism settings, significant differences emerge in the subsequent translation of adaptive coping into XR resilience and XR exploration. Specifically, adaptive coping generates substantially stronger outcomes within accommodation settings than attraction settings. For instance, our findings suggest that the downstream effects of adaptive coping on technology adaptation outcomes are significantly stronger in the accommodation context than in the tourism attraction context. This suggests that digital resilience is not solely an individual capability but also a context-sensitive process whose effectiveness depends on the characteristics of the service environment. This difference may be due to the differences in services and products offered in accommodation and attraction contexts. Compared to tourism attractions, customers often stay in accommodation longer, and may have multiple opportunities to interact with XR, while in tourism attractions, tourists may have fewer and shorter encounters to interact with XR. Thus, adaptive coping has more opportunities to generate learning and exploration.

These findings reveal that while the development of digital resilience may be context-invariant, the effectiveness of resilience in producing positive adaptation outcomes is context-dependent. We therefore extend resilience theory by showing that tourism contexts function not merely as settings in which resilience occurs, but as boundary conditions that shape the returns generated by resilient coping.

While existing literature has systematically reviewed XR applications across tourism domains (Calisto et al., 2024), few studies have theoretically justified and empirically tested context-specific mechanisms within a unified framework. By conducting parallel studies, this research enhances methodological rigor and external validity (Kim et al., 2022), revealing that resilience dynamics vary systematically across various service encounters—a contribution that informs both theoretical development and practical XR implementation strategies in diverse tourism settings.

6.3 Practical implications

Practically, our findings offer actionable guidance for multiple stakeholders, including scenic area operators, hotel groups, XR content creators, and technology suppliers, etc. First, our results indicate that personal barriers and technology barriers hinder tourists' adaptive coping with XR; therefore, practitioners should reduce barriers and foster adaptive coping. For XR technology suppliers and content creators, it is suggested to develop systems with adaptive support features (e.g., contextual guidance, adjustable difficulty) to address personal and technological barriers in real time. Early development should go beyond basic usability testing to include context-fit testing and co-design with tourism operators, using simulated attractions or hotels scenarios (e.g., noise, crowds, time pressure) to identify barriers. Tourism attraction operators and hotels should provide on-site or in-app support and standardized service procedures to help users overcome barriers and create a positive user experience. This includes staff assistance at XR stations, clear instructional materials (e.g., illustrated guides, video tutorials), QR codes for virtual guides, and AI-powered digital companions to reduce discomfort and anxiety.

Second, our research further indicates that, in attraction contexts, users who generally have low resistance to change are more susceptible to personal barriers with XR technology. For attraction operators, this suggests the need to proactively identify “high-willingness but easily frustrated” users (e.g., via brief pre-use prompts or early interaction signals) and provide rapid reassurance, step-by-step guidance, and low-pressure exit/retry options before frustration escalates. For XR content creators and technology suppliers, designs should anticipate this segment by emphasizing first-minute success (e.g., minimal steps, clear feedback), embedding adaptive assistance when errors occur, and offering beginner modes that reduce cognitive load while preserving engagement. Collectively, these actions help convert initial openness into sustained coping and continued XR exploration in attractions.

Finally, our findings indicate that context-specific strategies are needed, particularly regarding the role of aesthetic value in XR design, and these implications differ by stakeholder and setting. For tourism attraction operators (e.g., museums, scenic areas), managers should prioritize investments that enhance the aesthetic appeal of XR experiences, because stronger aesthetics can help visitors tolerate minor technical frictions and adapt more readily; this can be achieved by commissioning artistic elements and culturally relevant visuals that align with the site’s heritage and storytelling goals. Correspondingly, for XR content creators, the design focus in attractions should emphasize visual quality, narrative coherence, and place-based cultural symbolism to sustain motivation and reduce frustration when difficulties occur. In contrast, for hotels and accommodation providers, the managerial priority should be simplicity, usability, and comfort so that guests can access XR services with minimal effort; this includes intuitive navigation, clear instructions, and the minimalistic visual design that avoids overwhelming users. For XR technology suppliers, product configuration should support these context differences by

offering flexible templates and settings that allow attractions to scale aesthetic richness while enabling hotels to deploy streamlined, low-friction interfaces and comfort-oriented defaults.

6.4 Limitations and future research

This study has certain limitations that should be addressed in future research. First, the investigation predominantly focused on personal and technology barriers. Future research should adopt a broader outlook by examining additional barriers, such as organizational factors, which may offer valuable insights into various forms of innovation resistance to XR technology. Second, although this China-focused study aligns with China's recognized advancements in XR tourism applications, the findings may not be fully applicable to other cultural or regulatory contexts. Future research may seek cross-cultural samples to validate the model's generalizability and to explore potential cultural or demographic moderators. Third, although gender was statistically controlled in this study, the higher proportion of female respondents may still influence parameter estimates and limit the external validity of the findings, particularly for potentially gender-sensitive perceptions such as aesthetic value and avatar-related evaluations. Therefore, future research should seek samples with more balanced gender distributions to verify the stability of the proposed model across genders. Fourth, XR is a broad umbrella term encompassing technologies such as VR, AR, and MR. Comparisons between various XR types could be conducted through interviews or focus groups to yield richer and more nuanced findings. Additionally, this research was limited to on-site XR experiences at tourist attractions and accommodations. Future research could adopt a stage-sensitive approach, empirically comparing the outcomes of on-site XR use against pre-trip planning or post-trip memory retrieval contexts. Finally, despite the robust model testing facilitated by the dual-context design, a key limitation of this study lies in its inability to

conclusively establish causal relationships. Future research is encouraged to employ methods capable of confirming causality, such as controlled experiments that manipulate barrier levels or longitudinal field studies tracking tourists' perceptions and behaviors over time.

Appendix: XR Technology Description

The description of XR technology used in the questionnaire is as follows:

Extended reality (XR) technology combines computer, wearable, and head-mounted devices (HMDs) to merge virtual and real worlds through human-machine interaction. XR can be used as a unification term encompassing virtual reality (VR), augmented reality (AR), and mixed reality (MR). There are many ways to view XR scenes, such as various kinds of 3D environments, light field displays, holographic displays, virtual rooms, and spatial AR. These technologies enable seamless interaction between the virtual and real worlds, offering an immersive experience of presence.

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Table 1: Participant profile

Category	Sub-category	Study 1: Attraction		Study 2: Accommodation	
		N	%	N	%
<i>Gender</i>	Male	45	20.5	45	22.4
	Female	175	79.5	156	77.6
<i>Age</i>	18–20	18	8.2	13	6.5
	21–30	23	10.5	32	15.9
	31–40	103	46.8	90	44.8
	41–50	56	25.5	45	22.4
	51–60	15	6.8	16	8.0
	61 and above	5	2.3	5	2.5
<i>Marital status</i>	Single	53	24.1	52	25.9
	Married	163	74.1	148	73.6
	Divorced	3	1.4	0	.0
	Other	1	.5	1	.5
<i>Education</i>	High school or below	3	1.4	2	1.0
	College	22	10.0	19	9.5
	Undergraduate	128	58.2	107	53.2
	Postgraduate	67	30.5	73	36.3
<i>Occupation</i>	Governmental officer	16	7.3	13	6.5
	Entrepreneur	2	.9	2	1.0
	Professional	139	63.2	120	59.7
	Private business owners	3	1.4	4	2.0
	White-collar worker	13	5.9	14	7.0
	Salesperson	1	.5	2	1.0
	Self-employed	13	5.9	13	6.5
	Students	29	13.2	29	14.4
	Others	4	1.8	4	2.0
<i>Personal monthly income</i>	Less than 3,000 CNY	23	10.5	25	12.4
	3,000–4,999 CNY	33	15.0	33	16.4
	5,000–6,999 CNY	56	25.5	48	23.9
	7,000–9,999 CNY	42	19.1	38	18.9
	10,000 CNY and above	66	30.0	57	28.4

Source: Authors' own creation

Table 2: Results of measurement model

Constructs	Study 1: Attraction		Study 2: Accommodation	
	Factor loading		Factor loading	
Personal barriers (PB)		a = .900; CR = .909; AVE = .715		a = .935; CR = .931; AVE = .784
PB1. I feel afraid to use XR technology for tourism.	.707		.793	
PB2. I feel nervous about using XR technology for tourism.	.895		.925	
PB3. I feel uncomfortable with XR technology for tourism.	.897		.932	
PB4. I feel frustrated when using XR technology for tourism.	.868		.885	
Technology barriers (TB)		a = .935; CR = .937; AVE = .788		a = .954; CR = .953; AVE = .837
TB1. XR technology is difficult to use.	.831		.887	
TB2. XR technology is complicated to use.	.945		.945	
TB3. XR technology is confusing to use.	.897		.923	
TB4. XR technology is not easy to use.	.873		.903	
Adaptive coping (AC)		a = .926; CR = .927; AVE = .762		a = .933; CR = .938; AVE = .778
AC1. If I have the opportunity to use XR technology, I will try not to accept the reality of facing it. (Reversed)	.938		.899	
AC2. If I have the opportunity to use XR technology, I will try not to come up with a strategy about what to do. (Reversed)	.844		.902	
AC3. If I have the opportunity to use XR technology, I will try not to learn to live with it. (Reversed)	.925		.932	
AC4. If I have the opportunity to use XR technology, I will try to get emotional support from others.	.776		.789	
XR Resilience (RS)		a = .940; CR = .945; AVE = .811		a = .938; CR = .936; AVE = .791
RS1. If I have the opportunity to use XR technology, I can adapt to changes in this technology.	.878		.876	
RS2. If I have the opportunity to use XR technology I can deal with whatever comes with this technology.	.924		.862	
RS3. If I have the opportunity to use XR technology I can cope with stress with this technology.	.904		.910	
RS4. If I have the opportunity to use XR technology I can handle unpleasant feelings in this technology.	.896		.909	
XR Exploration (XE)		a = .952; CR = .953; AVE = .835		a = .948; CR = .947; AVE = .820
XE1. If I have the opportunity to use XR technology, I will attempt to use it.	.898		.899	
XE2. If I have the opportunity to use XR technology, I will try to learn about it.	.948		.902	
XE3. If I have the opportunity to use XR technology, I will try different ways to apply my knowledge about this technology.	.934		.932	
XE4. If I have the opportunity to use XR technology, I will attempt to experience it as much as possible.	.874		.789	

Note: α = Cronbach's alpha, CR = composite reliability, AVE = average variance extracted. Study 1: Goodness-of-fit index: $\chi^2 = 426.111$, $df = 158$, $\chi^2/df = 2.697$, CFI = .943, TLI = .931, IFI = .943, RMSEA = .088, SRMR = 0.043. Study 2: Goodness-of-fit index: $\chi^2 = 414.731$, $df = 158$, $\chi^2/df = 2.713$, CFI = .944, TLI = .933, IFI = .944, RMSEA = .093, SRMR = 0.034.

Table 3: Results of correlations between pairs of corresponding constructs

Study 1	Personal barriers	Technology barriers	Adaptive coping	XR Resilience	XR Exploration
Personal barriers	.845 ^a				
Technology barriers	.583**	.888 ^a			
Adaptive coping	-.349**	-.464**	.873 ^a		
XR Resilience	-.510**	-.591**	.670**	.901 ^a	
XR Exploration	-.451**	-.499**	.582**	.729**	.914 ^a
Study 2	Personal barriers	Technology barriers	Adaptive coping	XR Resilience	XR Exploration
Personal barriers	.886 ^a				
Technology barriers	.754**	.915 ^a			
Adaptive coping	-.547**	-.592**	.882 ^a		
XR Resilience	-.632**	-.611**	.815**	.889 ^a	
XR Exploration	-.715**	-.684**	.792**	.777**	.905 ^a

Note: Square root of the average variance extracted

Source: Authors' own creation

Table 4: Results of direct and mediating effects

Direct effects		Study 1: Attraction			Study 2: Accommodation		
		Standardized effect size	<i>p</i> -value	R-squared	Standardized effect size	<i>p</i> -value	R-squared
H1 (-)	Personal barriers to Adaptive coping	-.227**	.004	.358	-.417***	.001	.371
H2 (-)	Technology barriers to Adaptive coping	-.381***	.001		-.420***	.001	
H3 (+)	Adaptive coping to XR resilience	.764***	.001	.593	.837***	.001	.737
H4 (+)	Adaptive coping to XR exploration	.676***	.001	.480	.849***	.001	.734
Indirect effects		Study 1: Attraction			Study 2: Accommodation		
		Standardized effect size	<i>p</i> -value	Bootstrap 95% CI	Standardized effect size	<i>p</i> -value	Bootstrap 95% CI
Personal barriers → Adaptive coping →XR resilience		-.173*	0.025	[-.289, - .038]	-.349**	0.001	[-.436, - .148]
Personal barriers → Adaptive coping →XR exploration		-.153*	0.025	[-.261, - .034]	-.354**	0.001	[-.403, - .123]
Technology barriers → Adaptive coping →XR resilience		-.291***	.001	[-.362, - .118]	-.351***	.001	[-.384, - .147]
Technology barriers → Adaptive coping →XR exploration		-.258***	.001	[-.331, - .108]	-.356***	.001	[-.352, - .127]

Note: *: $p < 0.05$; **: $p < 0.01$; ***: $p < 0.01$; +: positive relationship; -: negative relationship.

Source: Authors' own creation

Table 5: Results of moderating effect of resistance to change

Path	Resistance to change	Effect	<i>p</i> value	$\Delta \chi^2$ (df = 1)	p-value for difference	Interpretation
PB→AC ^{study1}	Low	-.284** (-.239*)	.004 (.040)	-3.44 (-1.448)	0.064 (.229)	The relationship is only significant for low resistance to change.
	High	-0.127 (-.092)	.133 (.424)			
PB→AC ^{study2}	Low	-.433*** (-.436***)	.001 (.001)	-2.344 (-2.453)	.126 (.117)	There is no difference.
	High	-.450*** (-.557***)	.001 (.001)			

Note: PB = Personal barriers, AC = Adaptive coping; **p* < .05, ***p* < .01, ****p* < .001. Study 1: Goodness-of-fit index: $\chi^2 = 716.986$, *df* = 314, $\chi^2/df = 2.283$, CFI = .902, TLI = .881, IFI = .904, RMSEA = .077. Study 2: Goodness-of-fit index: $\chi^2 = 758.435$, *df* = 300, $\chi^2/df = 2.528$, CFI = .901, TLI = .875, IFI = .903, RMSEA = .088.

Source: Authors' own creation

Table 6: Results of moderating effect of aesthetic value

Path	Aesthetic value	Effect	<i>p</i> value	$\Delta \chi^2$ (df = 1)	p-value for difference	Interpretation
TB→AC ^{study1}	Low	-.348*** (-.409***)	.001 (.001)	-.929 (-1.055)	.335 (.304)	The relationship is stronger for low aesthetic value.
	High	-.244** (-.200)	.004 (.82)			
TB→AC ^{study2}	Low	-.241* (-.241*)	.015 (.034)	-1.384 (-2.977)	.239 (.084)	The relationship is stronger for high aesthetic value.
	High	-.450*** (-.753***)	.001 (.001)			

Note: PB = Technology barriers, AC = Adaptive coping; **p* < .05, ***p* < .01, ****p* < .001. Study 1: Goodness-of-fit index: $\chi^2 = 712.673$, *df* = 308, $\chi^2/df = 2.314$, CFI = .905, TLI = .883, IFI = .907, RMSEA = .078. Study 2: Goodness-of-fit index: $\chi^2 = 705.657$, *df* = 296, $\chi^2/df = 2.384$, CFI = .906, TLI = .879, IFI = .908, RMSEA = .083. Values in italics (in parentheses) refer to the path coefficients estimated for the high and low groups when the sample was divided into tertiles.

Source: Authors' own creation

Table 7: Results of hypothesis testing

	Study 1	Study 2
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	Attraction	Accommodation
H1: Personal barriers negatively influence individuals' adaptive coping.	Accepted	Accepted
H2: Technology barriers negatively influence individuals' adaptive coping.	Accepted	Accepted
H3: Individuals' adaptive coping positively influences resilience.	Accepted	Accepted
H4: Individuals' adaptive coping positively influences XR exploration.	Accepted	Accepted
H5: Resistance to change moderates the effect of personal barriers on adaptive coping. Specifically, the negative impact of personal barriers on adaptive coping will be stronger for individuals with high resistance to change than those with low resistance to change.	Rejected	Rejected
H6: Aesthetic value moderates the effect of technology barriers on adaptive coping. Specifically, the negative impact of technology barriers on adaptive coping will be weaker for the high aesthetic value of XR technology than the low aesthetic value.	Accepted	Rejected