The Confucian SST-SOC Model: Technology Adaptation as Ethical Performance Among Older Adults in China

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Abstract

Social connectivity depends on digital technologies, but in collectivist societies such as China, older adults experience a strong participation divide. Models that are based on individualistic assumptions, like the Technology Acceptance Model (TAM), do not sufficiently explain adaptation behaviour based on relational ethics. This gap is filled through a current study, which investigates the importance of Confucian ethics, filial piety (Xiao), face (Mianzi), and harmony (Hexie) in establishing technology adaptation among older adults. We propose the Confucian SST-SOC Model of Technology Adaptation, integrating Socioemotional Selectivity Theory (SST) and Selection, Optimisation, and Compensation (SOC) theory with Confucian principles to reframe cognitive and affective appraisals. A mixed-methods study with 343 older Chinese social media users revealed through structural equation modelling (CFI = .96, RMSEA = .05) that culturally reframed appraisals predict four adaptation pathways: exploration to maximise benefits (EMSMB), exploitation to satisfy benefits (ESSMB), exploration to revert (ER), and avoidance (ASM). Thematic analysis of 287 open responses confirmed that behaviours are motivated by Xiao, Mianzi, and Hexie. Findings show technology adaptation operates as a culturally embedded ethical practice rather than mere technical acquisition. The study offers a theoretical framework to challenge universalist models and provides practical implications for culturally resonant gerontechnology design and policy.

Keywords: Confucian ethics, technology adoption, older adults, social media, mixed-methods

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Introduction

The demographic change in the whole world is the transition to the ageing of the population accompanied by the rapid pace of digitalisation. Surgeons of the predominant frameworks like the Unified Theory of Acceptance and Use of Technology (UTAUT) presuppose the rationality of the individual and independent choice (Venkatesh et al., 2003). The models are, however, inadequate to explain behaviours in collectivist cultures that are not Western (Srite & Karahanna, 2006; Straub et al., 1997). The issue is not just a cultural one but ontological. These models presuppose an independent self-construal. They do not remember the relational and moral structure of Confucian communities (Markus & Kitayama, 1991).

One obvious advantage of digital technologies in ageing is evident (Sixsmith et al., 2022). Nevertheless, they are usually designed without taking into account the fact that cultural values transform such simple concepts as usefulness and risk (Gran et al., 2021).

We cease to model single adoption and start to analyse the culturally embedded practice. Previous studies have recorded behavioural management in Chinese older adults (Fang, 2022; Lei, 2023). Nevertheless, there is a severe lapse. None of the theories is a combination of macro-level cultural scripts and micro-level psychological processes. Three weaknesses afflict existing models. The Socioemotional Selectivity Theory (SST) assumes that older adults focus on emotional achievements (Carstensen et al., 1999). However, it does not say how collectivist values such as Xiao (filial piety) transform the meaning of emotion into family duties. Selective Optimisation with Compensation (SOC) considers the adaptation as personal resource management (Baltes & Baltes, 1990). It ignores the way Confucian ethics redistribute the agency between generations. The parental privacy settings are frequently addressed by the adult children. Lastly, the current models consider affective appraisals such as fear and trust as generic constructs (Muhammad et al., 2021).

We propose the Confucian SST-SOC Model of Technology Adaptation. This model is based on three ethics of Confucius. Xiao (filial piety) inserts a hierarchically obligatory hierarchy in a moral framework. Contrary to the Western cultural values of a family, the filial deeds are self-realisation but not the exchange (Ames & Rosemont, 1998). Mianzi (social face) as a social asset is an asset belonging to a family (Hwang, 2011). The embarrassment of an older adult as he/she commits a technological error becomes a family issue. Adult children might be obliged to make apologies to their network. The harmony (hexie) goes beyond interpersonal agreement. According to the Analects, the utmost value in practising ritual is harmony (Lau, 1979). This norm is applied to the adoption of technology by working in two directions. They are disintegration avoidance and harmony enhancement (Leung et al., 2002). Relational equilibrium is broken by technologies that break intergenerational roles. Those who default on this establish social risk upon themselves. Such constructs create a culture matrix.

Our model integrates these ethics with SST and SOC. It posits that culturally shaped goals direct individuals toward four distinct adaptation pathways. First, Exploration to Maximise Benefits (EMSMB). This involves proactive innovation driven by Xiao and operationalised through Optimisation. Second, Exploitation to Satisfice Benefits (ESSMB). This involves conservative use guided by Hexie and Mianzi through routine based Optimization. Third, Exploration to Revert (ER). This involves adaptive reversion to traditional methods motivated by Mianzi and Hexie via Compensation. Fourth, Avoidance of Social Media (ASM). This involves cautious limitation driven by all three values through Loss-based Selection.

We investigate two research questions. RQ1 (Content). How do Confucian values (Xiao, Mianzi, Hexie) reconstitute the cognitive and affective appraisals that shape strategic social media engagement? RQ2 (Process). How do these culturally reconstructed appraisals predict the four adaptation pathways statistically? How does qualitative data provide complementary interpretive validation?

We follow the rewriting of the Confucian values in technology acceptance psychology. Instead of using qualitative data as illustration, we apply thematic analysis to confirm quantitative measures of culturally particular constructs. This methodological reciprocity is not common in cross-cultural gerontechnology. We recognise the existence of levers such as Xiao and Mianzi for the designers. We redefine digital literacy as a skill set, but not an acquisition set, rather as ethical conduct. Finally, this piece of writing supports decolonial gerontechnology. It is the true digital inclusion that should establish itself on the concept of relational autonomy as opposed to the imported models of individual optimisation when considering non-Western situations.

Literature Review

Rational choice models have been widely used in technology acceptance. TAM (Davis et al., 1989) and UTAUT (Venkatesh et al., 2003) are the most notable ones. These models describe adoption based on cognitive beliefs at an individual level. They are mostly concerned with the perceived usefulness and ease of use. Due to their parsimony, they have found extensive application in the research of gerontechnology. This encompasses research on older adults in China (Deng & You, 2020). Nevertheless, there is a regular anomaly when these models are used for ageing populations. One of the meta-analyses demonstrates that, at late seventies adulthood, the linear dependence between chronological age and TAM-based acceptance loses significance (Hauk et al., 2018).

Physically, TAM and UTAUT consider operational impediments as one construct. They refer to it as perceived ease of use (Davis et al., 1989). This practice clouds the nature of age-associated deteriorations in the way human-computer interaction (Felber et al., 2024). This is not an omission of measurement, but an ontological weakness (Bagozzi, 2007). The models conceptualise capabilities as constant perceptions instead of dynamic constraints.

The prevailing TAM-UTAUT tradition ignores the issue of affective factors. It disregards the exchanges among situational elements and emotional states, which are the catalysts of mobile social media use (Masur et al., 2022). TAM2 and UTAUT have no emotional constructs in the original version of TAM (Davis et al., 1989; Venkatesh & Davis, 2000; Venkatesh et al., 2003). Computer anxiety is only included in the list of distal predictors in TAM3 (Venkatesh & Bala, 2008). UTAUT2 also downsizes the hedonic motivation to a generic driver (Venkatesh et al., 2012). This trend continues with even the models created to work with older adults. According to the Senior Technology Acceptance Model (STAM), gerontechnology anxiety is one of the most important antecedents (Chen & Chan, 2014). However, it does not differentiate anxiety into a single undifferentiated construct.

Third, the models treat socio-cultural influence reductively. Bagozzi (2007) critiques that “subjective norm” reduces the rich socio-cultural environment to a simple perception of social pressure. Empirically, Schepers and Wetzels’ (2007) meta-analysis confirms heterogeneity in subjective norm effects. To capture culture as a constitutive force, we turn to script theory (Schank & Abelson, 1977). Internalised cultural scripts serve as shared templates. They guide cognition and action (D'Andrade, 1992). The central limitation of applying Western models to

collectivist cultures is clear. They treat adoption as an individual rational choice and overlook relational determinants (Srite & Karahanna, 2006; Straub et al., 1997). In East Asian Confucian contexts, the self-concept is interdependent (Markus & Kitayama, 1991).

Fang (2022) shows that Chinese older adults guided by hexie and mianzi scripts curate harmony-oriented Moments posts. Lei (2023) identifies three script-driven strategies: buffering (displaying family harmony), reinforcing (sharing hometown nostalgia), and expanding (exchanging renqing). They are the ones that expose the strategic behaviours and Confucian ethics. But this is where the problem lies in: how the rich cultural observations can be incorporated into a dynamic model of adaptation.

Theoretical Framework: The Confucian SST-SOC Model of Technology Adaptation in Older Adults

The existing models fail to provide sufficient theoretically foundational models of the culturally embedded nature of cognitive appraisals and do not define specific. The Confucian SST-SOC Model treats adaptation as a culturally entrenched, ethical practice and not mastery in its own right. It combines SST (Carstensen et al., 1999) and the SOC model (Baltes & Baltes, 1990) in explaining the restructuring of appraisals through three Confucian moral principles. These include Xiao (filial piety), He (harmony), and Mianzi (social face).

SST postulates that older adults put more emphasis on emotionally significant goals. This value is expressed in our model in Confucian goals. Among them is the need to build stronger bonds with family (Xiao) and the need to maintain familial face (Mianzi). The SOC approaches describe the manner in which people use resources to accomplish these culturally constructed objectives.

The model projects culturally mediated SST goals and SOC strategies on four adaptation pathways. Table 1 presents these pathways. EMSMB represents proactive innovation driven by Xiao via Optimization. ESSMB represents conservative use guided by Hexie and Mianzi via routine Optimisation. ER represents adaptive reversion motivated by Mianzi and Hexie via Compensation. ASM represents cautious limitation driven by all three values via Loss-based Selection.

We hypothesise specific relationships between these appraisals and the four adaptation pathways.

Table 1
Operationalisation of Adaptation Pathways in the Confucian SST-SOC Model

Latent Construct	Definition	Integrated Mechanism (Value→SST Goal→SOC Strategy)	Hypothesis Linkage
EMSMB	Proactive innovation to strengthen family bonds.	Xiao entails a pursuit of deeper bonds, culminating in optimisation through exploration	H1, H3, H5, H9
ESSMB	Conservative use to maintain stability and minimise risk.	Hexie and Mianzi→Pursuit of predictability and comfort→Optimization (via routine)	H2, H4, H6, H10
ER	Reverting to traditional methods when facing challenges.	Mianzi and Hexie→Goal of preserving harmony and dignity→Compensation (alternative means)	H7, H11, H13
ASM	Limiting use to protect reputation and autonomy.	Xiao, Mianzi, and Hexie→Goal of avoiding relational loss→Selection (loss-based)	H8, H12, H14

Culturally Reconstructed Appraisals

In the Confucian SST-SOC framework, Perceived Opportunity (PO) shifts from individual to familial utility. Technology value is judged by its capacity to fulfil Xiao and preserve Hexie (Ames & Rosemont, 2011; Leung et al., 2002) (see Table 2). Xiao-driven PO activates SST goals of deepening family bonds via Optimisation (EMSMB), as when older adults explore new features to strengthen family ties (Ma et al., 2023). Hexie-guided PO prioritises relational stability via routine Optimisation (ESSMB). Therefore, we hypothesise:

H1: PO, shaped by Xiao-driven familial utility, positively predicts EMSMB.

H2: PO, guided by Hexie's harmony imperative, positively predicts ESSMB.

Table 2
Key Differentiation From Western PO

Dimension	Western PO	Confucian PO	Theoretical Anchoring
Usefulness	Personal productivity	Fulfilling *Xiao* through family bonding	Confucian Ethics (Ames & Rosemont, 2011)
Ease of Use	Individual technical proficiency	Relational simplicity (preserving *Hexie*)	HeXie Management Theory (Leung et al., 2002)
Task Efficiency	Time or effort savings for self	Minimising relational friction	HeXie Management Theory (Leung et al., 2002) & SST (Carstensen et al., 1999)
Relative Advantage	Competitive individual benefit	Superiority in fulfilling *Xiao* and *Hexie*	Integrated Confucian SST-SOC Framework

Perceived Social Influence (PSI) is redefined as an external pressure by peers, to an “nternalized, family-based moral requirement. The reason behind this change can be attributed to the necessity to preserve Mianzi and retain Hexie (Hwang, 2011; Leung et al., 2002), in which social influence is already a moral necessity to save the integrity of the family (see Table 3).

In the event that PSI is fueled by the desirable management of family Mianzi, it diverts funds towards the improvement of familial interaction, favouring EMSMB. On the other hand, when PSI is based on a commitment to preserving Hexie, it drives a behaviour that creates stability and decreases risk, resulting in a preference for ESSMB. Therefore, we hypothesise:

H3: PSI with the motivation of family *Mianzi* has a positive forecast of EMSMB.

H4: The presence of motivation of PSI by the need to preserve Hexie positively forecasts ESSMB.

Table 3
Key Differentiation From Western PSI

Dimension	Western PSI	Confucian PSI	Theoretical Anchoring
Source of Influence	Peers, colleagues, society	Immediate and extended family	Confucian Role Ethics (Ames & Rosemont, 2011)
Nature of Obligation	Compliance with social expectations	Fulfilment of relational duties (e.g., Xiao)	Confucian Role Ethics (Song, 2024)
Primary Motivation	Social conformity, status acquisition	Safeguarding Mianzi and maintaining Hexie	Face Dynamics (Hwang, 2011) & HeXie Management Theory (Leung et al., 2002)

As shown in Table 4, Perceived Control (PC) transitions from a focus on individual self-efficacy to relational efficacy, oriented toward preserving *Hexie* (Leung et al., 2002) and

achieving intergenerational balance (fulfilling Xiao while safeguarding Mianzi) (Ames & Rosemont, 1998; Hwang, 2011). Control is redefined as the ability to manage technological engagement through strategic delegation and simplification, to achieve these relational goals (Guo & Guo, 2012).

PC based on intergenerational balance (Xiao and Mianzi) promotes resource gain, directly activating EMSMB and reducing the perceived threats that drive ASM. In contrast, PC based on Hexie focuses on preventing loss, fostering ESSMB and reducing the need for compensatory behaviours (ER). Therefore, we hypothesise:

H5: PC based on intergenerational balance positively predicts EMSMB.
H6: PC based on harmony preservation positively predicts ESSMB.
H7: PC based on harmony preservation negatively predicts ER.
H8: PC based on intergenerational balance negatively predicts ASM.

Table 4
Key Differentiation From Western PC

Dimension	Western PC	Confucian PC	Theoretical Anchoring
Locus of Control	Internal: belief in one's own skills.	Relational efficacy: Confidence from managing familial networks.	Confucian Role Ethics (Ames & Rosemont, 1998) & Cross-cultural Psychology (Guo & Guo, 2012)
Primary Goal	Personal task accomplishment.	1. Harmony preservation (Hexie) 2. Intergenerational balance (Xiao, Mianzi)	1. HeXie Management Theory (Leung et al., 2002) 2. Confucian Ethics (Ames & Rosemont, 1998) & Face Dynamics (Hwang, 2011)
Behavioural Manifestation (SOC)	Independent action and personal mastery.	Strategic delegation and simplification as relational maintenance.	SOC Model (Baltes & Baltes, 1990)

Perceived Enjoyment (PE) transitions from personal amusement to the relational joy derived from fulfilling core cultural duties (see Table 5). It acts as an effective signal of successfully performing one's familial duties.

PE rooted in familial fulfilment (enacting Xiao and enhancing Mianzi) motivates active EMSMB. Conversely, PE rooted in harmonious gratification (preserving Hexie) encourages ESSMB. Therefore, we hypothesise:

H9: PE derived from familial fulfilment positively predicts EMSMB.
H10: PE derived from harmonious gratification positively predicts ESSMB.

Table 5
Key Differentiation From Western PE

Dimension	Western PE	Confucian PE	Theoretical Anchoring
Core Driver	Personal gratification, fun.	1. Relational fulfilment (Xiao, Mianzi) 2. Harmonious gratification (Hexie)	1. Confucian Role Ethics (Ames & Rosemont, 2011) & Face Dynamics (Hwang, 2011) 2. HeXie Management Theory (Leung et al., 2002)
Nature of Engagement	Exploration for personal entertainment.	Engagement for harmonious gratification (Hexie).	SST (Carstensen et al., 1999) & HeXie Management Theory (Leung et al., 2002)
Primary Outcome	Individual pleasure.	Affective reward from familial fulfilment or harmonious gratification.	Integrated Confucian SST-SOC Framework

Fear

The emotion of fear is reframed as an anticipatory anxiety about failing in one's core relational duties (Leung et al., 2002), damaging Mianzi (Hwang, 2011), or contravening Xiao (Ames & Rosemont, 2011). This culturally salient fear motivates specific SOC strategies to avert threats to relational integrity (see Table 6). Trust and perceived risk are routinely treated as key factors shaping user decisions. Drawing on Venkatesh and Bala (2008), trust within TAM3 is defined as the extent to which a user believes the system is reliable and secure. Following Featherman and Pavlou (2003), perceived risk is viewed as a multi-faceted construct that directly inhibits adoption intentions and weakens the positive effect of perceived ease of use on perceived usefulness.

Fear driven by threats to Hexie and Mianzi motivates compensatory actions, which positively predict ER. In contrast, fear driven by becoming a burden promotes strategic disengagement, which positively predicts ASM. Therefore, we hypothesise:

H11: Fear driven by threats to Hexie and Mianzi positively predicts ER.

H12: Fear driven by threats to Xiao positively predicts ASM.

Table 6
Key Differentiation From Western Fear

Dimension	Western Fear	Confucian Fear	Theoretical Anchoring
Locus of Fear	Personal risk (e.g., data loss).	Relational integrity: Violating Xiao, Hexie, or Mianzi.	Confucian Role Ethics (Ames & Rosemont, 2011), HeXie Management Theory (Leung et al., 2002), and Face Dynamics (Hwang, 2011)
Nature of Threat	Direct individual consequence.	Anticipatory social disharmony and role-based ethical failure.	Confucian Role Ethics (Ames & Rosemont, 2011)
Behavioural Manifestation (SOC)	Avoidance of the technology.	Strategic adaptation (e.g., reverting) to fulfil obligations.	Integrated Confucian SST-SOC Framework

Trust in Confucian Contexts

Trust is redefined from confidence in a technology's functional reliability to relational confidence in systems that uphold core ethical values (see Table 7). It is evaluated based on the technology's capacity to affirm familial authority and fulfil Xiao (Ames & Rosemont, 2011), and to promote collective stability and Hexie (Leung et al., 2002). Empirical studies have confirmed that technologies facilitating family interaction are highly valued for these purposes (Ma et al., 2023).

Trust that manifests as familial assurance (aligning with Xiao) reduces the need for alternative communication methods, thereby negatively predicting ER. Trust that manifests as collective consensus (affirming Hexie) alleviates fears of being a burden or causing reputational harm, thus negatively predicting ASM. Therefore, we hypothesise:

H13: Trust, manifested as familial assurance, negatively predicts ER.

H14: Trust, manifested as collective consensus, negatively predicts ASM.

Table 7
Key Differentiation From Western Trust

Dimension	Western Trust	Confucian Trust	Theoretical Anchoring
Locus of Trust	The technology's functional reliability.	The platform's congruence with Xiao and Hexie.	Confucian Ethics (Ames & Rosemont, 2011) & HeXie Management Theory (Leung et al., 2002)
Basis of Trust	Technical safeguards, brand reputation.	Familial endorsement and collective consensus.	SST (Carstensen et al., 1999) & Face Dynamics (Hwang, 2011)
Behavioral Outcome	Continued use for personal utility.	Reduced reliance on fallbacks (ER) and diminished avoidance (ASM).	Integrated Confucian SST-SOC Framework

Method

Study Design and Survey Instrument

We used a quantitative survey, accompanied by exploratory qualitative data. This QUAN-qual design employs qualitative knowledge to complement interpretive validation (Creswell & Plano Clark, 2017). To ascertain linguistic and psychological equivalence, we did a stringent translation and back-translation exercise. This was done by a group of bilingual linguistic professionals (Brislin, 1986). The translation was then subjected to intensive pretesting of the survey. To achieve content validity and clarity, we interviewed a small group of Chinese older adults (n = 10) in cognitive interviews (Dillman et al., 2014).

The Tencent Questionnaire was used to conduct the survey online on 343 older adults (65 years and above) in China. The mean age was 74 years. There was informed consent of participants. They were social media users who lived in China. We used convenience sampling. We weeded out speeders and those who failed to pass attention tests.

Sample Characteristics

The last sample consisted of 56.3 and 43.7% men and women. Educational levels were different (16.9% less than high school to 4.7% masters+). There was 44% rural, 30% third-tier cities, 14.6% first-tier and 11.4% second-tier geographic distribution. Only 3.5% were less than 2 years of experience with mobile phones. 43.1% had more than 10 years of experience.

Measures

Each of the items was measured with a five-point Likert scale (1 = strongly disagree, 5 strongly agree). The operationalisations of the constructs involved in the Confucian SST-SOC Model were the measurement scales (Appendix A).

Four items representing family duty-oriented utility were used by PO. Sample question: Social media allows you to be closer to your family. PSI used three items capturing internalised ethical obligation to safeguard Mianzi and maintain Hexie. Example: "I feel pressured by my children/grandchildren to learn social media." PC used three items reflecting relational efficacy. Example: "I confidently ask family for help with social media." PE used three items capturing relational joy. Example: "I enjoy seeing/sharing family updates on social media." Fear used three items capturing anticipatory anxiety about violating relational duties. Example: "I worry social media mistakes will require family help." Trust used three items reflecting relational confidence. Example: "I trust platforms my family recommends."

EMSMB and ESSMB items were adapted from established technology adaptation scales (Bala & Venkatesh, 2016; Muhammad et al., 2021). We rigorously contextualised these to reflect Confucian motivations. We developed ER and ASM items specifically for this study. These capture unique compensatory and loss-based selection behaviours within the Confucian context.

An open-ended question at the end asked the following. "Please describe the main reasons behind your choices of using or not using social media features." We analysed responses using thematic analysis (Braun & Clarke, 2006). This assessed whether self-reported motivations aligned with the Confucian ethical concepts hypothesised by our model.

Validity and Reliability Assessment

We established construct validity through confirmatory factor analysis (CFA). The measurement model demonstrated excellent fit. Chi-square/df was 1.86. CFI was 0.96. TLI was 0.948. RMSEA was 0.05. SRMR was 0.05. All standardised factor loadings exceeded 0.60 ($p < .001$). We confirmed discriminant validity using the Fornell-Larcker criterion. The square root of AVE for each construct exceeded its correlations with other constructs.

We assessed construct reliability using Cronbach's alpha and composite reliability (CR). All constructs achieved CR values above 0.70. The exception was Avoidance of Social Media (ASM). ASM had a CR of 0.66 and an AVE of 0.49. Although reliability is modest, ASM is adequately grounded in theory and has sufficient factor loadings. This indicates that it is challenging to measure subtle culturally-influenced behaviours using a small number of items.

Analytical Strategy

First, the hypothesised factor structure was supported by the CFA model. Second, the structural model was used to test all the hypothesised paths (H1–H14). Our SES, technology literacy, age and gender were controlled. The estimation was done by maximum likelihood estimation (1,000 bootstrap resamples). This produced strong standard errors and confidence intervals (Yung & Bentler, 1996). The structural model fitted well. CFI was 0.96. RMSEA was 0.05. SRMR was 0.06.

Results

Quantitative Hypothesis Testing

The structural model demonstrated good fit (CFI = 0.96, RMSEA = 0.05, SRMR = 0.06; see Table 8).

Cognitive Appraisals and Adaptation Pathways

PO drove adaptive use. It positively predicted EMSMB ($\beta = 0.190$, $p < .001$) and ESSMB ($\beta = 0.184$, $p < .01$). These findings support H1 and H2. PSI strongly influenced EMSMB ($\beta = 0.419$, $p < .001$) and ESSMB ($\beta = 0.265$, $p < .05$). These findings support H3 and H4. PC showed a complex pattern. It positively predicted EMSMB ($\beta = 0.146$, $p < .05$) and ESSMB ($\beta = 0.154$, $p < .05$). It was negatively associated with ER ($\beta = -0.199$, $p < .01$). These findings support H5, H6, and H7. However, PC did not predict ASM ($\beta = 0.111$, $p > .05$). We therefore reject H8.

Affective Appraisals and Adaptation Pathways

PE strongly predicted EMSMB ($\beta = 0.253$, $p < .01$) and ESSMB ($\beta = 0.396$, $p < .001$). These results confirm H9 and H10. Fear significantly increased ER ($\beta = 0.220$, $p < .01$) and ASM ($\beta = 0.558$, $p < .001$). These results support H11 and H12. Trust reduced ER ($\beta = -0.190$, $p < .01$) and ASM ($\beta = -0.305$, $p < .001$). These results support H13 and H14.

Qualitative Thematic Analysis

An analysis of 287 valid open-ended responses, done by thematic analysis, was conducted to bring out narratives that put the quantitative findings into perspective. Four key themes emerged.

Theme 1: Technology as a Tool for Filial Piety (Xiao)

Staying in touch with the children in the distance was mentioned as one of the main motivational factors. One man aged 74 years indicated the following. I have heard about WeChat video calls so that I could see my daughter in Shanghai. The fact that she is fine helps me to relax. It's what parents should do.” This is a manifestation of Xiao-motivated utility and family satisfaction. It is a motivator of EMSMB and ESSMB behaviour.

Theme 2: Preservation of Family Face (Mianzi)

The participants who had participated in ASM cited that they did not want to bother children or make them lose face. One 71-year-old female gave the following. “I do not post anything myself. I will not do it right, I will tell something bad, and my son will need to apologise on my behalf. It is preferable to look and not to rock the boat. This is the fear of ASM predicted by Mianzi.

Theme :3 The Imperative of Relational Harmony (Hexie)

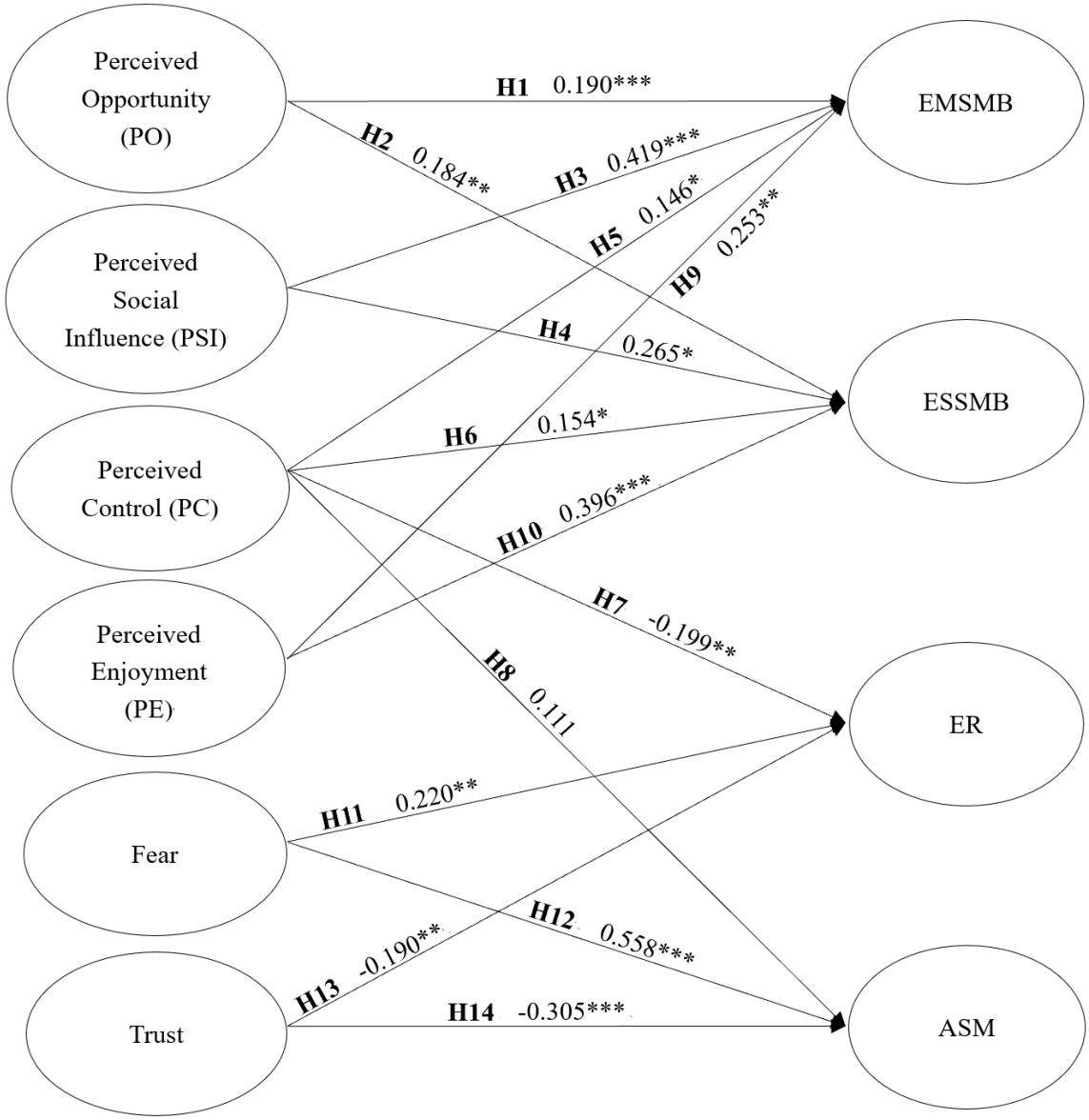
Most of them adhered to the methods taught by their family members. One gentleman aged 68 years noted the following. My grandson had everything prepared for me. I just have the buttons he demonstrated to me. I do not touch other objects in order not to delete our family chat or feel confused. This represents ESSMB, which is Hexie-driven. The respondents also mentioned that they would revert to old practices to ensure that there is harmony. One 76-year-old female made the following statements. “If the video call does not work, I just call them directly. It's more reliable. The most important thing is that we can talk, not how we talk. Why let a technical problem ruin a good conversation?” This highlights ER as compensation to restore Hexie.

Theme 4: Relational Trust as Facilitator

Family approval reduced anxiety. One 72-year-old male stated the following. “I only use the apps that my children say are safe and that everyone in the family is using. If they all use it and recommend it, I feel it must be okay, and I am not afraid to try it.” This supports that trust negatively predicts ASM and ER.

Figure 1

Analysis Results



Note. *: p < .05; ** p < .01; ***: p < .001

Table 8
Summary of Hypothesis Testing Results

Hypothesis	Path	β	p-value	Supported or not
H1	PO → EMSMB	0.190	< .001	Yes
H2	PO → ESSMB	0.184	< .01	Yes
H3	PSI → EMSMB	0.419	< .001	Yes
H4	PSI → ESSMB	0.265	< .05	Yes
H5	PC → EMSMB	0.146	< .05	Yes
H6	PC → ESSMB	0.154	< .05	Yes
H7	PC → ER	-0.199	< .01	Yes
H8	PC → ASM	0.111	> .05	No
H9	PE → EMSMB	0.253	< .01	Yes
H10	PE → ESSMB	0.396	< .001	Yes
H11	Fear → ER	0.220	< .01	Yes
H12	Fear → ASM	0.558	< .001	Yes
H13	Trust → ER	-0.190	< .01	Yes
H14	Trust → ASM	-0.305	< .001	Yes

Discussion

This study examines technology adaptation among older adults in China. CFI was 0.96. RMSEA was 0.05. SRMR was 0.06. This confirms that culturally restructured cognitive and affective appraisals predict the four distinct adaptation pathways. These findings were placed in context through qualitative analysis. The stories of the participants can be attributed to the Confucian ethical principles that are assumed to be the motivating factors of behaviours.

To answer RQ1, in our model, the fundamental variables recalibrated by Xiao, Mianzi, and Hexie are PO, PSI, PC, PE, fear, and trust. In the case of RQ2, we established that every appraisal has a distinct predictive value of EMSMB, ESSMB, ER, and ASM. The interpretive validation was complementary to qualitative data.

These theories have their underlying assumptions on an independent self-construal (Markus & Kitayama, 1991). An interdependent self-construal is what controls technology adoption among Confucian societies.

Our statistics dispute this assumption. It was also found that the restructuring of PO around the family and friendly relations was a strong predictor of both exploratory (EMSMB) and exploitative (ESSMB) use. This observation shows that usefulness is evaluated in a relative manner. It empirically proves the theoretical correlation between culture and cognition as developed by Oyserman (2017). The technology was rated by the participants in terms of effectiveness in the implementation of the filial functions. One of the participants was able to record the following. I knew that I could use WeChat video calls to meet my daughter. It's what parents should do.”

TAM and UTAUT are grounded on the rationality and utility maximisation of an individual (Bala & Venkatesh, 2016; Venkatesh et al., 2003). The internalised moral imperative to maintain the position in the system of the family is manifested in our model. This confirms the idea of Embeddedness developed by Schwartz (2012). It prioritises values that foster social peace and social good. On the quantitative side, we had good motivations that were based on relational fulfilment. EMSMB and ESSMB were positively predicted by Perceived Enjoyment

(0.253 and 0.396, respectively, p < .01/.001). There was also high relational risk avoidance. There was a positive prediction of ASM by fear (= 0.558, p < .001). Theme 2 qualitatively describes avoidance as a moral concern as opposed to a technical deficit. One of the participants was able to record the following. I am afraid I shall not do it right, and my son would have to make up his mind to be sorry on my behalf. This result can be directly related to the literary criticism of the labelling of such behaviours as a mere resistance or low self-efficacy (Mannheim et al., 2019). The question of the motive of adoption is no longer What is in it for me? to "Will this assist me in performing my task and securing my family?

This process realises cultural schemas (D'Andrade, 1995). They operate as the cognitive-affective filters to determine the compatibility of cultural aspects of technology features. This process is shown in Theme 3. It demonstrates the urgency of the relationship harmony (Hexie). Perceived Control (redefined as relational control) encouraged stable use quantitatively. It was also adversely related to Reversion (ER). The Hexie schema can be used to explain this. Routines of the participants were strict. One noted the following. I just operate the buttons he demonstrated to me. Others would go back to familiar ways of ensuring that they remain in harmony and not conflict. This shows that the appraisal of control is conceived of as the ability to sustain the relational stability and not personal mastery. On the same note, Theme 4 demonstrates that the source of trust based on family validation lowers anxiety.

Unexpected findings can also be interpreted with the help of this mechanism. One example is the insignificant effect of PC on ASM (H8). Qualitative evidence indicates that to certain people, especially those who have high Mianzi interests, the need to shun shame takes precedence over self-control. This implies that there is an intricate interaction amongst cultural appraisals.

To begin with, the model works best when the technology is based on the relationships within a family and social reputation. These are social communication sites such as WeChat. It can have a lower predictive validity on technologies utilised in the domain of individual privacy. Examples are individual gaming. Relational obligations (Xiao, Mianzi, Hexie) become less conspicuous in such a situation (Lynn-Sze & Yin, 2021).

Second, mechanisms can be identified most among older adults who are highly socialised by the traditional Confucian values. They have a more interdependent self-construal (Markus & Kitayama, 1991). Hybrid cultural schemas are becoming more and more developed by younger generations. They compromise between the social needs and individualistic wants of independence (Li et al., 2024).

Third, the applicability might not be similar in Confucian societies. They include South Korea, Japan, and Vietnam. Every society possesses its own historical-socio-economic background. These determine how the values of core are manifested and given precedence (Terpstra-Tong & Ralston, 2025). It is thus necessary to have cross-cultural validation.

In addition, the online data collection technique can have an inherent bias in the sample. It can give preference to the older generation that is already more digitally connected. The model can be tested regarding the strength of the model by using offline or multi-channel recruitment in future studies in various segments of the ageing population.

Theoretical Implications

We have three theoretical contributions. First, we redefine the concepts of meaningful goals in SST and the strategies in SOC as relational obligations (Xiao, Mianzi, Hexie) and not individual emotional tastes. Significant objectives in SST do not simply constitute those that are emotionally positive. Instead, they are social responsibilities which are culturally determined. Some of them are filial piety (Xiao), face (Mianzi), and harmony (Hexie). The ethical responsibilities can be met by using “ptimization and compensation in SOC. They do this without destroying harmony (Hexie).

Second, TAM, UTAUT, and other associated constructs still offer useful predictions of behaviour. Nevertheless, their meaning in everyday life and the relations which are behind them are largely influenced by the culture. The meaning of usefulness is transformed into familial usefulness. Social Influence changes to Mianzi-inspired moral concern. Behavioural Control is re-defined as personal mastery to relational governance. Importantly, we project this reconstruction to the affective realm. This is a culturally neutral area that is not taken seriously by mainstream models. We demonstrate that Enjoyment is also closely associated with relational fulfilment (Xiao).

Third, our integrative Confucian SST-SOC Model offers a process-oriented model that is testable. It explains the ways and reasons as to why culture dictates behaviour. Our model also makes a contribution to the field by establishing three sequential mechanisms. It goes beyond proposing that culture is important, to how culture influences the adoption of technology at later stages in life. It unveils the role of factors that are less evident but come under the skin to impact behaviour because of cultural aspects (Oyserman, 2017).

Practical Implications

The model is used to determine the specific cultural levers (Xiao, Hexie, Mianzi). These inform technology design and promotions. To developers, this implies the focus on functions that enable bonding of families. These are simplified groups of the family and one-touch video calls. It is also related to making sure that there is harmony in relation. Some of these are effective feedback to avoid misunderstanding and convenient undo to save face. Framing training is important to policymakers and educators who are developing digital literacy programs.

Limitations and Future Research

First, convenience sampling might not be entirely representative of the entire ageing population of China. This is especially for the people in remote rural places. A stratified random sampling should be used in future studies. They are expected to put more geographical and cultural contexts to the test. Some examples can be made of comparing China, South Korea and Japan.

Second, there is no causal conclusion due to the cross-sectional nature of the design. Longitudinal studies of the use of technology over time are imperative. They are required to know the way these cultural mechanisms interact.

Third, complex constructs are difficult to measure. It is supported by the modest reliability (CR = 0.66) of the ASM scale. This indicates how challenging it is to measure the culturally shaped finer behaviours using a small number of items. More elaborate culturally-grounded scales

should be created in the future. These need to be in a better position to distinguish the various motivational bases of avoidance.

Conclusion

The paper redefines the digital era of ageing with two paradigm shifts, namely, individual mastery to relational control, and universal metrics to culturally specific. Technology adaptation in Confucian cultures implies the process of intergenerational negotiation, that is, control is distributed among family members to maintain a sense of harmony, and avoidance is a relational ethics practice. The modest reliability of ASM (CR = 0.66) proves that individualistic measures are not sufficient to explain collective behaviours, which explains the necessity of culturally-sensitive measurement scales.

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