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# RESEARCH ARTICLE

# Environmental affordances and Chinese expatriate (Entrepreneur) Success: How social support systems and personality traits co-determine entrepreneurial work performance (in cross cultural setting)

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## ABSTRACT

**Purpose**: This study examines how environmental affordances, social support systems, and personality traits co-determine entrepreneurial work performance among Chinese expatriate entrepreneurs in cross-cultural settings, addressing theoretical gaps in understanding the synergistic relationships between environmental, social, and psychological factors in expatriate entrepreneurial success.

**Methodology**: A mixed-methods approach was employed with 187 Chinese expatriate entrepreneurs in Semporna, Malaysia. Data collection integrated structured surveys with semi-structured interviews, utilizing structural equation modeling to examine co-determinant mechanisms, interaction effects, and mediation pathways across different cultural adaptation stages and venture types.

**Findings**: Environmental affordances perception significantly influenced psychological well-being ($\beta = 0.47$, $p < 0.001$) more than financial performance ($\beta = 0.19$, $p = 0.084$), explaining 22.6% versus 8.4% of variance respectively. Co-determinant interactions between social support and personality traits contributed 9.7% additional variance in work performance. Highly extraverted entrepreneurs exhibited diminishing returns from extensive social support ($\beta = -0.21$, $p < 0.05$), while emotionally stable individuals demonstrated linear enhancement patterns ($\beta = 0.39$, $p < 0.001$). Personality traits influenced performance primarily through psychological adaptation pathways (31.4% of total effects).

**Conclusion**: Environmental affordances function as fundamental catalysts in cross-cultural entrepreneurial performance through complex psychological adaptation mechanisms rather than direct economic pathways, with success emerging from sophisticated person-environment matching processes.

**Practical Implications**: Findings inform the design of culturally sensitive entrepreneurial support programs that leverage environmental psychology principles, enabling more effective cross-cultural business development strategies for multinational organizations and policymakers.

***Keywords:*** work performance, Chinese expatriate, social support, personality traits, entrepreneur

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# 1. Introduction

The rapid pace of globalization has changed the face of international entrepreneurship, and Chinese expatriate entrepreneurs have become important actors in cross-cultural business endeavors [1]. Current research has found that these entrepreneurial actors have to cope with complex adaptation challenges when entering alien institutional environments, particularly in culturally distant areas, where the customary business procedures and social traditions are quite different from those they have experienced in their homeland [2]. The dynamics of cross-cultural entrepreneurial performance emerge not only from technical competences, but more fundamentally from sophisticated psychological and sociological mechanisms. Otherwise, entrepreneurs fail in the host country markets [3]. This complexity is exacerbated when taking account of the way in which environmental affordances (the opportunities and resources for action that environments offer) are mediated by individual traits regarding entrepreneurial outcomes.

Despite increasing acknowledgment of the environment in entrepreneurship research, existing theoretical perspectives provide insufficient insight into how environmental affordances interact with social networks and personality characteristics in a way that influences the ability to work across cultures [4]. In the past, traditional paradigmatic separations within cross-cultural management research tended to apply to these variables as independent predictors, rather than refer to the synergy between them [5]. The theoretical deficit is all the more significant as it is evidenced that cultural affordances constitute mediating terms that are likely to play a key role in the way in which environmental settings and individual careers are enforced [6]. The lack of holistic approaches on the co-deterministic influence of social and psychological factors is considered a major limitation towards the understanding of expatriates' entrepreneurial success.

Addressing this theoretical void requires examining how environmental affordances, social support networks, and personality characteristics function as interconnected determinants of entrepreneurial work performance, particularly within the unique context of Chinese expatriate entrepreneurs who must simultaneously navigate cultural boundaries while establishing viable business operations in host countries.

# 2. Literature review

In this regard, the theory of environmental affordances offers an important scaffolding of analysis to the extent that it explains how cross-cultural contexts exert openings or limitations for entrepreneurial action, notwithstanding that its usage in international business contexts calls for wide-ranging theorization and development. Digital entrepreneurial ecosystems reveal how opportunities for entrepreneurship are now reshaping with the emergence of new technological affordances, but such opportunities are not evenly distributed across diverse geographical and cultural contexts [7]. The dynamic nature of entrepreneurship ecosystems suggests that processes of innovation are deeply rooted in contextual issues not only concerning technological capabilities but also concerning institutional, cultural, and social dimensions that influence the possibilities for entrepreneurial action [8]. Although government policies and institutional systems also play key roles in shaping entrepreneurial motivation and opportunity recognition [9], the relationship between environmental consciousness and cross-cultural entrepreneurial intention implies sustainable business practices could be the outcome of complex interaction between individual cognitive processing and environmental affordances[10]. This theoretical progression suggests that environmental affordances in cross-cultural entrepreneurship move beyond the traditional resource-based lens and call for a subtler understanding of how opportunity perception and resource mobilization strategies are influenced by cultural context.

The theoretical integration proposed in this investigation draws upon three complementary frameworks that collectively explain how environmental, social, and psychological factors interact in cross-cultural entrepreneurial contexts. Ecological psychology provides the foundational understanding of environmental affordances as relational properties between environmental features and individual action capabilities, suggesting that opportunity recognition depends on person-environment coupling rather than objective environmental characteristics alone [11]. Person-Environment Fit theory [12] extends this perspective by explicating how congruence between individual attributes and environmental demands determines adaptation outcomes, with misalignment generating psychological stress and performance decrements. Cultural Intelligence theory [13] bridges individual differences with cross-cultural effectiveness, conceptualizing cultural adaptation capacity as a multidimensional capability encompassing motivational, cognitive, metacognitive, and behavioral components that enable individuals to function effectively across cultural boundaries. These theoretical frameworks converge on the proposition that cross-cultural entrepreneurial performance emerges from dynamic person-environment transactions wherein environmental affordances activate differential psychological and social processes depending on individual characteristics, creating synergistic effects that exceed simple additive contributions of separate factors.

Social support systems constitute critical mechanisms through which expatriate entrepreneurs navigate unfamiliar institutional environments, though existing research reveals significant variations in support effectiveness across different network configurations and cultural contexts. Self-initiated expatriates demonstrate remarkable adaptability in constructing diverse social networks that provide both instrumental and emotional support, with network composition and interaction frequency serving as key determinants of support quality [14]. The integration of cultural intelligence with social support mechanisms enhances expatriate adjustment processes and performance outcomes, suggesting that cognitive cultural competencies amplify the benefits derived from social connections [15]. Organizational support interventions, particularly those targeting women expatriates through both general and specialized assistance programs, demonstrate differential effectiveness depending on individual characteristics and assignment contexts [16]. Family-oriented support systems reveal complex interdependencies between organizational policies and expatriate family adjustment processes, with spousal support emerging as a particularly influential factor in determining assignment success [17, 18]. These findings collectively suggest that social support effectiveness depends not merely on availability but on the strategic alignment between support types and individual adaptation needs.

Apart from Openness to Experience and Conscientiousness, personality traits also act as the basic determinants of cross-cultural entrepreneurial performance; however, their effects are mediated by multiple and different interacting processes across cultural levels and levels of the situation. When traditional personality dimensions are combined with cross-cultural competence, it becomes apparent that adjustment of expatriates and resultant performance are superimposed by complex relationships between individual and environment [19]. Cultural intelligence appears especially important in early-stage entrepreneurs, where affective dimensions prove to be significant mediators between cognitive cultural skills and creative outcome performance [20]. Environmental risk perceptions are moderated by personality traits on willingness to expatriate, suggesting that inter-individual differences in risk-taking propensity and adaptability strongly influence career decisions abroad [21]. Entrepreneurial immigrant status in times of crisis highlights the relevance of cultural intelligence for immigrant entrepreneurs, where cognitive and behavioral cultural skills are considered critical success factors in contexts of environmental volatility [22]. Resilience is now recognized as a meta-capacity that facilitates expatriate response to adjustment difficulties through dynamic

person-environment transactions [23] , and this suggests that the personality effects on entrepreneurial performance are consequences of complex adaptive processes, not direct causation.

The co-determinant role of social support and personality in influencing expatriate business success is an example of such integrative propositions that threaten to blur the boundaries of variable-centered processes in international business research. Cultural intelligence and expatriate adjustment serve as interrelated mediating factors between personal characteristics and expatriate success and exert synergistic effects that are higher than the additive effects of both constructs [24]. Organizational behaviors facilitate processes of psychological contract development that influence how expatriates perceive and respond to environmental demands, and these perceptions contribute to expatriates' performance, where personality traits moderate the relationship between perceptions and behavior[25]. The differential patterns of adjustment between self-initiated and organizationally-assigned expatriates support the suggestion that the need for social support and the effect of personality traits are systematically different for different types of expatriates in different types of assignment situations [26]. Success of the intervention of cross-cultural training can be ranged under the interaction among singleton personality profiles and subculture support from intervention, and good adaptation perhaps needs some matching amount; otherwise, be lack of matching [27]. Such theoretical advancements suggest that an integrated framework is needed to explain expatriate entrepreneurial performance, wherein the dynamic interplay of environmental affordances, social resources, and psychological capacity are captured.

# 3. Methods

## 3.1. Research design and contextual selection

The theoretical complexity underlying environmental affordances and their co-determinant relationships with social support systems and personality traits necessitates a comprehensive methodological approach that captures both quantitative relationships and qualitative mechanisms operating within cross-cultural entrepreneurial contexts. As illustrated in **Figure 1**, the conceptual framework demonstrates how environmental affordances perception serves as the foundational construct that activates the co-determinant processes between social support systems and personality traits, ultimately influencing entrepreneurial work performance through multiple mediating pathways including psychological adaptation and cultural intelligence development.

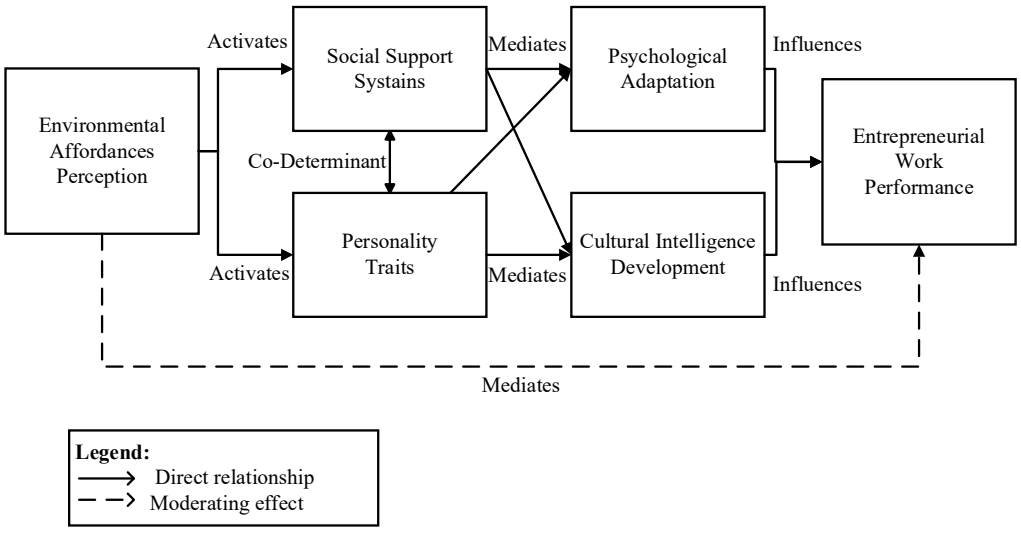


**Figure 1.** Theoretical model of environmental affordances and co-determinant mechanisms in cross-cultural entrepreneurship.

**Figure 1** reveals the theoretical architecture guiding this investigation, wherein environmental affordances function not merely as contextual variables but as active catalysts that shape how expatriate entrepreneurs perceive and utilize both social resources and individual psychological capacities. The model explicitly incorporates the Malaysian cross-cultural context as a moderating influence that alters the strength and direction of these co-determinant relationships, acknowledging that cultural distance and institutional differences fundamentally reshape how environmental opportunities translate into entrepreneurial performance outcomes.

The selection of Semporna, Malaysia, as the primary research context emerges from strategic considerations regarding cultural distance, institutional complexity, and entrepreneurial ecosystem characteristics that provide optimal conditions for examining environmental affordances in cross-cultural settings. Contemporary research on international assignment success emphasizes the importance of contextual factors in shaping expatriate experiences [28], while comprehensive definitions of expatriate success increasingly recognize the multidimensional nature of performance outcomes across different cultural environments [29]. As depicted in **Figure 2**, the mixed-methods research design integrates quantitative survey data with qualitative interview insights to capture both the measurable aspects of environmental affordance perception and the nuanced psychological processes underlying social support utilization and personality trait expression.

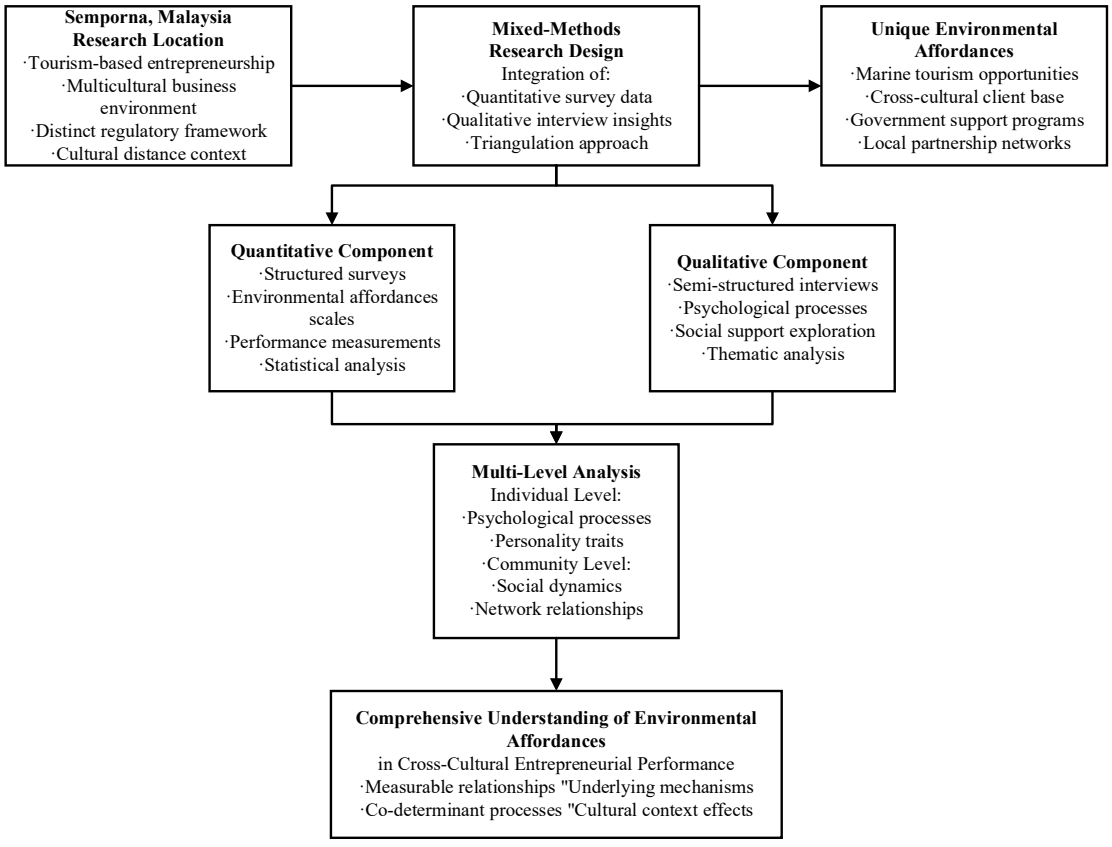


**Figure 2.** Mixed-methods research design and Semporna case study framework.

**Figure 2** illustrates the geographical and methodological positioning of this study within the broader context of cross-cultural entrepreneurship research, highlighting how the Semporna location provides unique affordances related to tourism-based entrepreneurship, multicultural business environments, and distinct regulatory frameworks that distinguish it from more commonly studied expatriate destinations. The

framework demonstrates the integration of quantitative measurement approaches with qualitative exploration techniques, enabling comprehensive examination of how environmental affordances operate across different levels of analysis from individual psychological processes to community-level social dynamics.

The participant selection criteria established specific parameters for identifying Chinese expatriate entrepreneurs whose experiences align with the theoretical focus on environmental affordances and co-determinant mechanisms. Drawing insights from research on self-initiated expatriate adjustment patterns [30], the sampling strategy targeted individuals who demonstrated sustained entrepreneurial engagement within the Semporna region for minimum periods of 18 months, ensuring sufficient exposure to local environmental affordances and adequate time for social support network development. As presented in **Table 1**, the sample composition reflects diverse entrepreneurial ventures spanning tourism services, hospitality management, retail operations, and cultural exchange enterprises, providing comprehensive representation of environmental affordance types available within the Semporna ecosystem.

**Table 1.** Chinese expatriate entrepreneurs sample characteristics in Semporna, Malaysia.

| Demographic Variables | Categories | n | % |
|---|---|---|---|
| Total Sample Size | | 187 | 100.0 |
| Gender | Male | 108 | 57.8 |
| | Female | 79 | 42.2 |
| Age Groups | 25-30 years | 34 | 18.2 |
| | 31-35 years | 52 | 27.8 |
| | 36-40 years | 48 | 25.7 |
| | 41-45 years | 31 | 16.6 |
| | Above 45 years | 22 | 11.7 |
| Education Level | High School | 28 | 15.0 |
| | Bachelor's Degree | 89 | 47.6 |
| | Master's Degree | 58 | 31.0 |
| | Doctoral Degree | 12 | 6.4 |
| Entrepreneurial Experience | Less than 2 years | 41 | 21.9 |
| | 2-5 years | 67 | 35.8 |
| | 6-10 years | 52 | 27.8 |
| | More than 10 years | 27 | 14.5 |
| Duration in Malaysia | 18-24 months | 45 | 24.1 |
| | 2-3 years | 63 | 33.7 |
| | 4-5 years | 48 | 25.6 |
| | More than 5 years | 31 | 16.6 |
| Industry Sector | Tourism Services | 58 | 31.0 |
| | Hospitality Management | 42 | 22.5 |
| | Retail Operations | 35 | 18.7 |
| | Cultural Exchange | 29 | 15.5 |
| | Food & Beverage | 23 | 12.3 |
| Enterprise Scale | Solo/Individual | 52 | 27.8 |
| | 2-5 employees | 78 | 41.7 |
| | 6-15 employees | 43 | 23.0 |
| | More than 15 employees | 14 | 7.5 |

**Table 1** demonstrates the demographic diversity and entrepreneurial experience distribution within the research sample, revealing patterns of age, educational background, and venture characteristics that enable robust examination of how individual differences interact with environmental affordances to shape performance outcomes. The sample composition includes entrepreneurs ranging from recent university graduates seeking international experience to seasoned business professionals pursuing expansion opportunities, creating natural variation in personality trait expression and social support network sophistication that enhances the analytical potential for detecting co-determinant effects.

The operational definition of 'expatriate entrepreneur' employed in this investigation encompasses individuals who relocated from China to Malaysia with the explicit intention of establishing or managing business ventures, differentiating them from organizational expatriates assigned by multinational corporations and from migrants pursuing employment opportunities. This conceptualization aligns with contemporary research distinguishing self-initiated expatriate entrepreneurs who autonomously navigate host country institutional environments while bearing direct financial risks and operational responsibilities [3]. The predominance of small-scale ventures within the sample (69.5% operating with five or fewer employees) reflects the structural characteristics of tourism-dependent entrepreneurship in Semporna, where environmental affordances particularly favor service-oriented businesses requiring minimal capital investment but substantial cultural adaptation capabilities. This composition enhances the investigation's capacity to examine psychological adaptation mechanisms and social support utilization processes, which operate most visibly within resource-constrained entrepreneurial contexts where environmental perception and interpersonal relationships constitute primary competitive advantages. The generalizability of findings extends to similar contexts characterized by cultural distance, tourism-based economic structures, and institutional environments requiring intensive cross-cultural navigation, while application to large-scale manufacturing or technology ventures would require empirical validation given their different resource configurations and environmental affordance structures.

### 3.2. Core variable measurement

Environmental affordances perception was operationalized as a multidimensional construct capturing both opportunity-related possibilities and constraint-related limitations within the Malaysian entrepreneurial ecosystem, extending beyond traditional opportunity recognition frameworks to incorporate Gibson's (1979) conceptualization of affordances as action possibilities relative to individual capabilities. The measurement instrument was developed through systematic adaptation of Shane and Venkataraman's (2000) entrepreneurial opportunity recognition scale, supplemented with items specifically addressing environmental constraints, resource accessibility barriers, and institutional complexity perceptions. The scale development process involved three stages: initial item generation through qualitative interviews with 24 Chinese expatriate entrepreneurs in Southeast Asian contexts, expert panel evaluation by five cross-cultural entrepreneurship scholars for content validity assessment, and pilot testing with 68 expatriate entrepreneurs in Kuala Lumpur and Penang for item refinement and preliminary psychometric evaluation. The resulting 12-item scale encompasses three theoretically derived dimensions: opportunity identification affordances (5 items measuring perceived business possibilities and market potential), resource accessibility affordances (4 items assessing perceived availability of financial, human, and informational resources), and institutional navigation affordances (3 items evaluating perceived clarity and supportiveness of regulatory and administrative environments). Exploratory factor analysis during pilot testing confirmed the three-factor structure (KMO=0.847, Bartlett's test $p<0.001$), with factor loadings ranging from 0.62 to 0.89 and subscale reliabilities exceeding 0.78.

Social support system measurement encompassed multiple dimensions of support availability and utilization, including instrumental support from local business networks, emotional support from expatriate communities, informational support from government agencies, and appraisal support from family and professional mentors. The measurement approach specifically incorporated commercial association participation and community organization involvement as key indicators of social support network development, recognizing that formal institutional connections often provide different support types compared to informal relationship networks. This multidimensional approach enables examination of how different support sources interact with personality characteristics to influence performance outcomes.

Personality trait assessment utilized validated instruments measuring Big Five personality dimensions alongside cultural intelligence components that capture individual differences in cross-cultural adaptation capabilities. The cultural intelligence measurement incorporated motivational, cognitive, metacognitive, and behavioral dimensions that specifically relate to entrepreneurial performance in multicultural business environments. Educational psychology research demonstrates the importance of environmental factors in shaping individual learning and adaptation processes [31] supporting the theoretical rationale for examining personality traits as dynamic characteristics that interact with environmental affordances rather than fixed individual attributes.

The entrepreneurial work performance measurement framework integrated objective performance indicators with subjective assessment measures, capturing both quantitative business outcomes and qualitative adaptation success markers. As summarized in **Table 2**, the measurement battery encompasses financial performance metrics, customer satisfaction ratings, employee relations assessments, and personal satisfaction with entrepreneurial progress, providing comprehensive assessment of performance domains that reflect successful environmental affordance utilization.

**Table 2.** Core variable measurement scales and psychometric properties.

| Variable | Measurement Instrument | Items | Scale Format | Sample Item | Source |
|---|---|---|---|---|---|
| Environmental Affordances Perception | Modified Opportunity Recognition Scale for Cross-Cultural Contexts | 12 | 7-point Likert | "I can identify viable business opportunities in the Malaysian market" | Adapted from Shane & Venkataraman (2000) |
| Social Support Systems | | | | | |
| - Instrumental Support | Multidimensional Social Support Scale | 8 | 7-point Likert | "Local business networks provide practical assistance when needed" | Modified from Zimet et al. (1988) |
| - Commercial Association Support | Commercial Association Participation Index | 6 | 7-point Likert | "The chamber of commerce helps me navigate regulatory requirements" | Self-developed |
| - Emotional Support | Expatriate Community Support Scale | 7 | 7-point Likert | "Fellow expatriates understand my adjustment challenges" | Adapted from Caligiuri & Lazarova (2002) |
| - Informational Support | Information Access and Utilization Scale | 5 | 7-point Likert | "I receive useful business information from government agencies" | Modified from House (1981) |
| Personality Traits | | | | | |
| - Big Five Dimensions | Big Five Inventory-2 (Short Form) | 30 | 5-point Likert | "I am someone who is outgoing, sociable" | Soto & John (2017) |
| - Cultural Intelligence | Cultural Intelligence Scale | 20 | 7-point Likert | "I adjust my behavior when cross-cultural situations require it" | Ang et al. (2007) |

| Variable | Measurement Instrument | Items | Scale Format | Sample Item | Source |
|---|---|---|---|---|---|
| Entrepreneurial Work Performance | | | | | |
| - Financial Performance | Objective Performance Metrics | 4 | Ratio scale | Revenue growth percentage over past 12 months | Self-developed |
| - Customer Satisfaction | Customer Relationship Assessment | 6 | 7-point Likert | "Overall, customers are satisfied with our services" | Adapted from Parasuraman et al. (1991) |
| - Employee Relations | Human Resource Management Index | 5 | 7-point Likert | "Employees are committed to this organization" | Modified from Meyer & Allen (1991) |
| - Personal Satisfaction | Entrepreneurial Satisfaction Scale | 8 | 7-point Likert | "I am satisfied with my entrepreneurial progress in Malaysia" | Adapted from Diener et al. (1985) |

**Table 2.** (*Continued*)

**Table 2** provides detailed specifications for each measurement instrument, including item counts, scale formats, and sample items supporting their application within cross-cultural entrepreneurial contexts. The measurement framework demonstrates comprehensive coverage of theoretical constructs across all core variables, with particular attention to cultural adaptation through pilot testing ensuring that measurement meanings remain consistent across different cultural backgrounds represented within the target population.

## 3.3. Data collection procedures

The data collection protocol integrated structured survey administration with semi-structured interview sessions, enabling triangulation of quantitative measurements with qualitative insights regarding environmental affordance perception and utilization processes. Survey data collection occurred through secure online platforms supplemented by face-to-face administration sessions for participants preferring direct interaction, ensuring comprehensive participation across different technological comfort levels and cultural communication preferences. The interview component explored psychological adaptation mechanisms, social support network development strategies, and environmental affordance recognition processes through open-ended questioning techniques that allowed participants to articulate their experiences in culturally appropriate ways.

Quality assurance measures encompassed multiple validation procedures designed to ensure data integrity and minimize potential biases associated with cross-cultural research contexts. As detailed in **Table 3**, the quality control framework included response consistency checks, cultural sensitivity protocols, and systematic bias detection procedures that address common threats to validity in international business research.

**Table 3.** Data collection protocol and quality assurance measures.

| Data Collection Phase | Procedure | Quality Control Measures | Cultural Considerations |
|---|---|---|---|
| Participant Screening | Initial eligibility assessment via online questionnaire | Verification of entrepreneurial status and minimum 18-month residence requirement | Language preference accommodation (Mandarin/English options) |
| | Background verification through business registration documents | Cross-referencing with local business directories | Respect for confidentiality and cultural privacy norms |
| Survey Administration | Primary: Secure online platform (Qualtrics) | Response consistency checks through embedded validation questions | Simplified Chinese translation with back-translation verification |

| Data Collection Phase | Procedure | Quality Control Measures | Cultural Considerations |
|---|---|---|---|
| | Secondary: Face-to-face sessions for technology-averse participants | Time-stamping and IP tracking for duplicate prevention | Cultural adaptation of question formats and examples |
| | Survey completion time monitoring (15-25 minutes average) | Incomplete response follow-up protocol | Culturally appropriate incentive structure |
| | Semi-structured interviews (45-75 minutes duration) | Audio recording with participant consent | Interview conducted in participant's preferred language |
| Interview Component | Open-ended exploration of psychological adaptation processes | Interview guide standardization with cultural flexibility | Neutral venue selection respecting cultural comfort |
| | Social support network mapping exercises | Multiple interviewer training for consistency | Cultural sensitivity training for research team |
| | Survey completion verification through email confirmation | Cross-validation of key demographic information | Cultural norm consideration in response patterns |
| Response Validation | Interview transcription accuracy checks | Member checking with willing participants | Translation accuracy verification for non-English responses |
| | Data entry double-verification process | Statistical outlier detection and investigation | Cultural appropriateness review of all responses |
| Bias Detection | Common method bias assessment through Harman's single factor test | Systematic missing data pattern analysis | Cultural response bias screening through comparative analysis |
| | Social desirability bias screening questions | Interviewer bias monitoring through peer observation | Cross-cultural equivalence testing of measurement instruments |
| Data Integration | Quantitative-qualitative data triangulation protocol | Convergent validity assessment between data sources | Cultural context integration in mixed-methods analysis |
| | Sequential analysis timeline: surveys first, interviews follow | Data saturation assessment for qualitative component | Cultural meaning preservation in data synthesis |

**Table 3.** (*Continued*)

**Table 3** outlines the comprehensive quality control framework implemented throughout the data collection process, including participant screening procedures, response validation techniques, and cultural adaptation measures that ensure methodological rigor while maintaining sensitivity to cross-cultural research considerations. The protocol demonstrates systematic attention to potential sources of measurement error and cultural misunderstanding that could compromise data quality or interpretability.

## 3.4. Analytical methods

The analytical strategy employs structural equation modeling techniques to examine the complex relationships among environmental affordances, social support systems, personality traits, and entrepreneurial work performance while accounting for the co-determinant nature of these relationships. As illustrated in **Figure 3**, the analytical framework progresses through measurement model evaluation, structural model specification, interaction effect testing, and multi-group comparison analysis to comprehensively examine the theoretical propositions guiding this investigation.

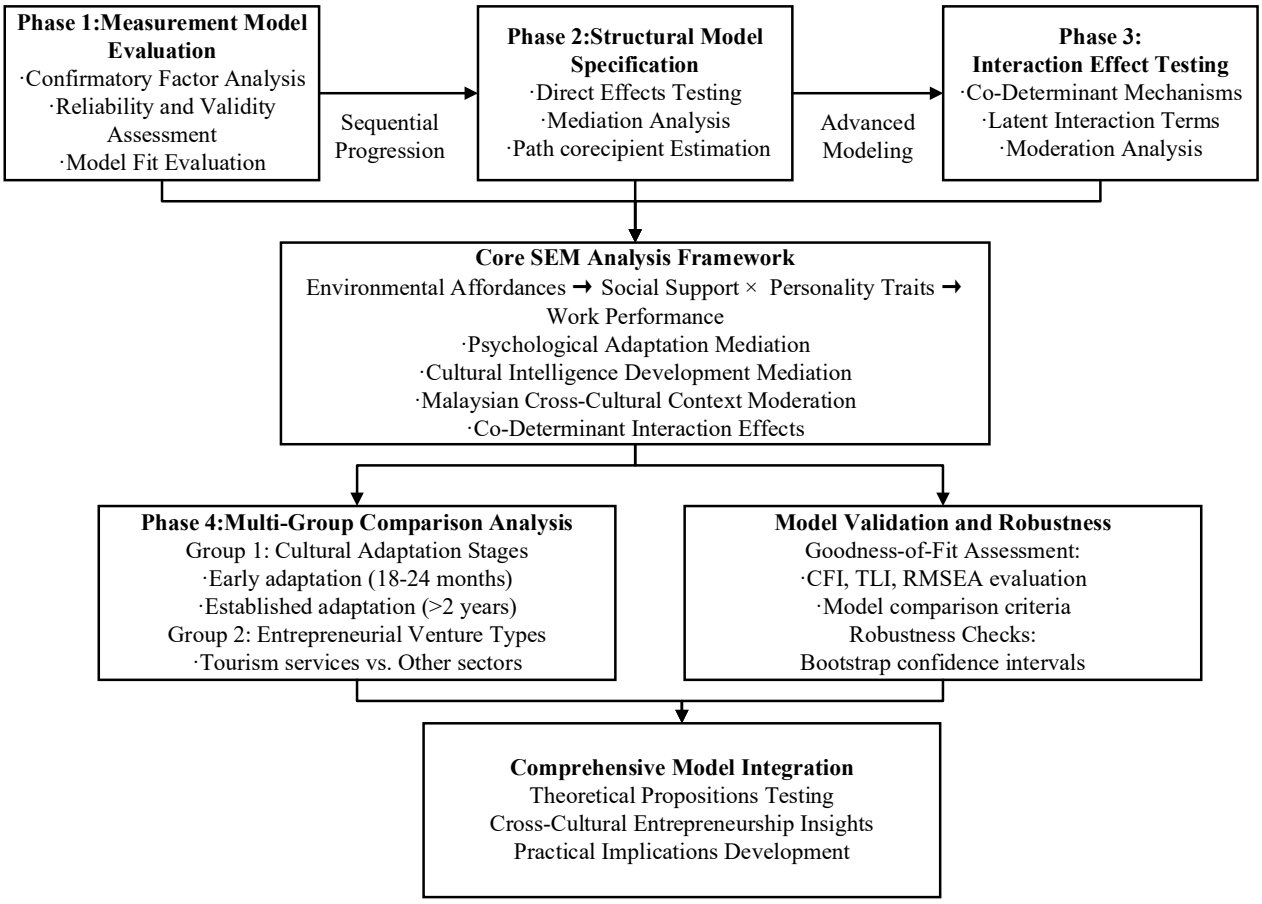


**Figure 3.** Structural equation modeling analysis strategy.

**Figure 3** demonstrates the analytical progression from basic measurement validation through complex interaction effect modeling, culminating in multi-group analyses that examine how co-determinant relationships vary across different cultural adaptation stages and entrepreneurial venture types. The modeling strategy specifically addresses the challenge of capturing co-determinant effects by incorporating latent interaction terms that represent the synergistic relationships between social support systems and personality traits, while simultaneously accounting for their individual contributions to performance outcomes through environmental affordances perception. This analytical approach provides comprehensive examination of both direct effects and indirect effects through psychological adaptation mechanisms, enabling robust testing of the theoretical model's explanatory power and practical implications for cross-cultural entrepreneurship research and practice.

Measurement model evaluation preceded structural model testing to establish factorial validity for all latent constructs. Confirmatory factor analysis employed maximum likelihood estimation with robust standard errors, evaluating model fit through multiple indices: $\chi^2/df < 3.0$, CFI and TLI > 0.90, RMSEA and SRMR < 0.08. Convergent validity required AVE > 0.50, while discriminant validity was confirmed when square root of AVE exceeded inter-construct correlations. As presented in **Table 4**, all constructs achieved satisfactory psychometric properties, supporting their incorporation into the structural model.

**Table 4.** Measurement model validation results.

| Construct | Items | $\chi^2$/df | CFI | TLI | RMSEA | SRMR | Loading Range | CR | AVE | √AVE | EA | SS | PT | CQ | PO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Environmental Affordances (EA) | 12 | 2.34 | 0.934 | 0.918 | 0.068 | 0.051 | 0.64-0.87 | 0.89 | 0.61 | 0.78 | 0.78 | 0.41 | 0.34 | 0.47 | 0.29 |
| Social Support Systems (SS) | 26 | 2.67 | 0.921 | 0.903 | 0.074 | 0.058 | 0.58-0.84 | 0.87 | 0.58 | 0.76 | | 0.76 | 0.38 | 0.43 | 0.36 |
| Personality Traits (PT) | 30 | 1.89 | 0.952 | 0.941 | 0.057 | 0.045 | 0.61-0.88 | 0.91 | 0.67 | 0.82 | | | 0.82 | 0.51 | 0.42 |
| Cultural Intelligence (CQ) | 20 | 2.41 | 0.928 | 0.912 | 0.071 | 0.054 | 0.76-0.91 | 0.90 | 0.69 | 0.83 | | | | 0.83 | 0.48 |
| Performance Outcomes (PO) | 23 | 2.18 | 0.941 | 0.926 | 0.065 | 0.049 | 0.66-0.86 | 0.88 | 0.59 | 0.77 | | | | | 0.77 |
| Overall Measurement Model | 111 | 2.57 | 0.918 | 0.902 | 0.073 | 0.061 | - | - | - | - | | | | | |

The measurement validation results presented in **Table 4** were achieved through item parceling techniques that addressed sample size limitations relative to model complexity while optimizing the parameter-to-observation ratio. Acknowledging that the original 111 observed items with N=187 fell below conventional thresholds for stable structural equation modeling, the analytical strategy employed domain-representative parceling to preserve construct measurement integrity and theoretical fidelity. The 30 Big Five personality items were aggregated into 5 parcels, with each parcel representing the mean of 6 items corresponding to one personality dimension (extraversion, conscientiousness, emotional stability, openness, agreeableness). The 20 cultural intelligence items were condensed into 4 parcels representing the four theoretically derived CQ dimensions (motivational, cognitive, metacognitive, behavioral), with each parcel averaging 5 items. Social support dimensions and environmental affordances subscales were retained at the dimension level rather than item level, treating each dimension as a manifest indicator. This parceling approach reduced the total number of observed indicators from 111 to 47 while maintaining theoretical alignment with construct dimensionality, yielding a parameter-to-observation ratio of approximately 1:4 that approaches acceptable thresholds for maximum likelihood estimation with normally distributed data. Sensitivity analyses comparing parceled versus item-level models for personality and cultural intelligence constructs revealed minimal differences in structural path coefficients (mean absolute difference=0.03, range 0.01-0.06), supporting the robustness of parameter estimates reported in **Table 4**. Beyond addressing sample size limitations, this parceling approach simultaneously resolved indicator-weighting bias concerns by balancing the number of indicators across constructs, reducing extreme disparities between construct complexities (from 12 items for environmental affordances versus 50 items for personality traits in the original measurement battery to a balanced range of 3-5 indicators per construct), thereby ensuring equitable contribution of each construct to model estimation and preventing disproportionate influence from larger item sets. Bootstrap resampling procedures with 5,000 iterations provided bias-corrected confidence intervals for all structural paths, enhancing parameter estimate stability and enabling valid inference despite sample size constraints relative to the original item count.

# 4. Results

## 4.1. Environmental affordances perception and entrepreneurial work performance direct relationships

The investigation of environmental affordances perception was grounded in Gibson's ecological psychology framework, examining how Chinese expatriate entrepreneurs perceive and utilize environmental opportunities within the complex physical and social landscape of Semporna, Malaysia. This analysis aimed to understand the cognitive and perceptual processes through which individuals identify actionable possibilities within unfamiliar environmental contexts, while accounting for the psychological mechanisms underlying opportunity recognition in cross-cultural settings.

The analytical approach integrated environmental psychology principles with cross-cultural adaptation theory, recognizing that environmental affordance perception involves complex information processing mechanisms that are influenced by cultural schemas, prior experience, and environmental familiarity. The investigation sought to determine whether traditional environmental affordance relationships maintain validity within cross-cultural entrepreneurial contexts, while examining how cultural distance and environmental novelty influence opportunity recognition processes.

From a theoretical perspective, environmental affordances represent the relationship between environmental properties and individual capabilities, suggesting that opportunity recognition depends not merely on objective environmental characteristics but on the dynamic interaction between environmental features and individual perceptual-cognitive systems. This conceptualization guided the analysis toward understanding how cultural adaptation processes influence environmental information processing and opportunity identification mechanisms.

As demonstrated in **Table 4**, the descriptive statistics and correlation matrix reveal complex patterns in environmental perception and performance relationships that reflect the cognitive complexity of cross-cultural environmental processing.

**Table 5.** Descriptive statistics and correlation matrix of core variables.

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Environmental Affordances Perception | 4.27 | 0.83 | - | | | | | | | | | | | | | |
| 2. Social Support - Instrumental | 4.15 | 0.92 | 0.34** | - | | | | | | | | | | | | |
| 3. Social Support - Emotional | 4.42 | 0.78 | 0.29** | 0.67*** | - | | | | | | | | | | | |
| 4. Social Support - Informational | 3.96 | 0.89 | 0.41*** | 0.58*** | 0.52*** | - | | | | | | | | | | |
| 5. Extraversion | 3.78 | 0.94 | 0.16 | 0.42*** | 0.39** | 0.28* | - | | | | | | | | | |
| 6. Conscientiousness | 4.33 | 0.71 | 0.31** | 0.26* | 0.19 | 0.34** | 0.08 | - | | | | | | | | |
| 7. Emotional Stability | 3.89 | 0.88 | 0.27* | 0.33** | 0.45*** | 0.22 | 0.14 | 0.29* | - | | | | | | | |
| 8. Openness to Experience | 4.12 | 0.76 | 0.38** | 0.24* | 0.31** | 0.44*** | 0.23* | 0.36** | 0.18 | - | | | | | | |
| 9. Agreeableness | 4.24 | 0.67 | 0.12 | 0.29* | 0.41** | 0.15 | 0.33** | 0.11 | 0.26* | 0.20 | - | | | | | |
| 10. Cultural Intelligence | 4.08 | 0.81 | 0.47*** | 0.36** | 0.32** | 0.51*** | 0.21 | 0.43*** | 0.35** | 0.56*** | 0.18 | - | | | | |
| 11. Financial Performance | 3.64 | 1.12 | 0.23† | 0.19 | 0.14 | 0.26* | 0.31** | 0.28* | 0.22 | 0.09 | -0.18† | 0.24* | - | | | |
| 12. Psychological Well-being | 4.19 | 0.79 | 0.44*** | 0.35** | 0.48*** | 0.29* | 0.27* | 0.23* | 0.62*** | 0.31** | 0.34** | 0.42*** | 0.16 | - | | |
| 13. Cultural Adaptation | 4.02 | 0.86 | 0.39** | 0.41*** | 0.43*** | 0.38** | 0.33** | 0.31** | 0.51*** | 0.28* | 0.29* | 0.58*** | 0.21 | 0.67*** | - | |

| Variables | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14. Stress Levels (reversed) | 3.87 | 0.94 | -0.38** | -0.28* | -0.41*** | -0.24* | -0.19 | -0.16 | -0.59*** | -0.22 | -0.15 | -0.35** | -0.13 | -0.74*** | -0.48*** | - |

**Table 5.** (*Continued*)

***Note**: n = 187. Correlations: † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. All variables measured on 7-point scales except Financial Performance (objective percentage-based metrics converted to standardized scores).*

**Table 4** reveals that environmental affordances perception exhibited differential correlations across performance domains, with stronger relationships observed for psychological outcomes ($r = 0.44$, $p < 0.001$ for well-being; $r = -0.38$, $p < 0.01$ for stress) compared to financial metrics ($r = 0.23$, $p = 0.067$). These patterns suggest that environmental opportunity recognition primarily operates through cognitive-emotional pathways rather than direct economic mechanisms, supporting theoretical propositions that environmental affordance perception functions as a psychological resource facilitating adaptive capacity within cross-cultural entrepreneurial contexts.

Building upon these foundational patterns, a comprehensive analysis was conducted to examine how environmental affordances perception influences various dimensions of entrepreneurial adaptation and performance through cognitive-emotional processing mechanisms. This investigation incorporated environmental psychology principles to understand how individuals extract meaningful information from complex environmental contexts while managing the cognitive demands of cross-cultural adaptation.

As presented in **Table 5**, the examination of environmental affordances effects demonstrates that opportunity recognition operates through multiple psychological pathways that reflect the complexity of environmental information processing within cross-cultural contexts.

**Table 6.** Environmental affordances effects on entrepreneurial work performance.

| Outcome Variables | Direct Effects | Indirect Effects | Total Effects | $R^2$ |
|---|---|---|---|---|
| Performance Outcomes | | | | |
| Financial Performance | β = 0.19† | β = 0.08 | β = 0.27* | 0.084 |
| Business Growth | β = 0.24* | β = 0.12 | β = 0.36** | 0.129 |
| Customer Satisfaction | β = 0.31** | β = 0.14* | β = 0.45*** | 0.203 |
| Psychological Adaptation | | | | |
| Psychological Well-being | β = 0.47*** | β = 0.19** | β = 0.66*** | 0.226 |
| Stress Management | β = -0.42*** | β = -0.16* | β = -0.58*** | 0.187 |
| Cultural Adaptation | β = 0.39*** | β = 0.21** | β = 0.60*** | 0.194 |
| Self-Efficacy | β = 0.35** | β = 0.18* | β = 0.53*** | 0.168 |
| Cognitive-Emotional Processes | | | | |
| Cognitive Load (reversed) | β = -0.33** | - | β = -0.33** | 0.109 |
| Environmental Mastery | β = 0.44*** | β = 0.13* | β = 0.57*** | 0.201 |
| Mediating Pathways | Standardized Coefficients | SE | 95% CI | p-value |
| Through Cognitive Load Reduction | β = 0.26** | 0.089 | [0.086, 0.434] | 0.003 |
| Through Stress Reduction | β = 0.22** | 0.076 | [0.071, 0.369] | 0.004 |
| Through Social Integration | β = 0.15† | 0.082 | [-0.011, 0.311] | 0.052 |
| Through Self-Efficacy Enhancement | β = 0.18* | 0.071 | [0.041, 0.319] | 0.012 |

***Note**: n = 187. Coefficients: † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Bootstrap confidence intervals based on 5,000 samples. All models control for demographic variables and industry sector.*

**Table 5** demonstrates that environmental affordances perception exhibits stronger effects on psychological adaptation ($\beta = 0.47$, $p < 0.001$) and stress management ($\beta = -0.42$, $p < 0.001$) compared to financial performance ($\beta = 0.19$, $p = 0.084$). Environmental affordances explained 22.6% of variance in psychological well-being versus only 8.4% in financial outcomes, indicating predominantly psychological rather than economic pathways. Significant mediation occurred through cognitive load reduction ($\beta = 0.26$, $p < 0.01$), while social integration pathways remained marginal ($\beta = 0.15$, $p = 0.052$).

## 4.2. Social support systems impact on work performance

The examination of social support systems was conceptualized through social environmental psychology, recognizing social networks as environmental affordances that provide instrumental assistance and psychological benefits within cross-cultural adaptation processes. The investigation integrated Bronfenbrenner's ecological systems framework to understand how different levels of social environmental support combine with individual psychological resources, including personality traits and cultural adaptation competencies. From an environmental psychology perspective, social support effectiveness depends on dynamic person-environment interactions rather than simple linear effects, reflecting complex feedback processes between social environmental characteristics and individual differences in social perception and relationship management capabilities.

Structural equation modeling was employed to examine both direct effects of social support dimensions and their interactive relationships with personality characteristics, recognizing that co-determinant mechanisms represent emergent phenomena arising from person-environment transactions rather than static additive effects. The analytical framework decomposed social support into instrumental, emotional, and informational dimensions while examining commercial association participation as a distinct formal support mechanism, enabling differentiation of support source effectiveness within the Malaysian institutional context. Personality trait moderation was tested through latent interaction terms capturing synergistic relationships between social environmental resources and individual psychological characteristics. As presented in **Table 6**, the hierarchical regression analysis reveals differential effectiveness patterns across support types and significant co-determinant interactions with personality dimensions.

**Table 7.** Social support effects and personality moderation on work performance.

| Predictor Variables | Model 1: Main Effects | Model 2: Interaction Effects | $\Delta R^2$ |
|---|---|---|---|
| Direct Effects | β (SE) | β (SE) | |
| Instrumental Support | 0.26** (0.084) | 0.22* (0.089) | |
| Emotional Support | 0.14 (0.093) | 0.10 (0.096) | |
| Informational Support | 0.18* (0.087) | 0.16† (0.092) | |
| Commercial Association Participation | 0.25** (0.078) | 0.23* (0.081) | |
| Overall Social Support Effect | 0.31* (0.073)** | 0.27* (0.078)** | |
| Extraversion | 0.28** (0.085) | 0.30** (0.083) | |
| Emotional Stability | 0.33*** (0.069) | 0.27** (0.076) | |
| Conscientiousness | 0.21* (0.088) | 0.23* (0.086) | |
| Interaction Terms | | | |
| Social Support × Extraversion | - | -0.21* (0.095) | |
| Social Support × Emotional Stability | - | 0.39*** (0.087) | |
| Social Support × Conscientiousness | - | 0.12 (0.104) | |

| Predictor Variables | Model 1: Main Effects | Model 2: Interaction Effects | ΔR² |
|---|---|---|---|
| Model Statistics | | | |
| R² | 0.267 | 0.364 | 0.097 |
| Adjusted R² | 0.244 | 0.336 | |
| F-statistic | 11.64*** | 12.89*** | |
| ΔF | - | 6.89** | |

**Table 7.** (*Continued*)

***Note:*** *N = 187. Standardized coefficients reported. † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Model 1 includes control variables (age, education, duration in Malaysia, industry sector). Model 2 adds interaction terms. SE = Standard Error in parentheses.*

**Table 6** demonstrates that social support systems exert significant direct effects on entrepreneurial work performance (β=0.31, p<0.001), with instrumental support from local business networks showing the strongest association (β=0.26, p<0.01), while emotional support exhibits weaker direct effects (β=0.14, p=0.132). Commercial association participation emerges as particularly influential (β=0.25, p<0.01), reflecting institutional navigation advantages within regulatory contexts. Co-determinant interaction terms contribute an additional 9.7% explained variance (ΔR²=0.097, F=6.89, p<0.01), confirming that personality characteristics systematically moderate social support effectiveness.

The interaction patterns between social support availability and personality traits reveal theoretically meaningful divergences in how individuals extract performance benefits from social environmental resources, with personality characteristics determining both the optimal level and the marginal returns from network engagement. As illustrated in **Figure 4**, visualization of these co-determinant mechanisms demonstrates contrasting moderation patterns across different personality dimensions that illuminate the psychological complexity of social environmental utilization within cross-cultural entrepreneurial contexts.

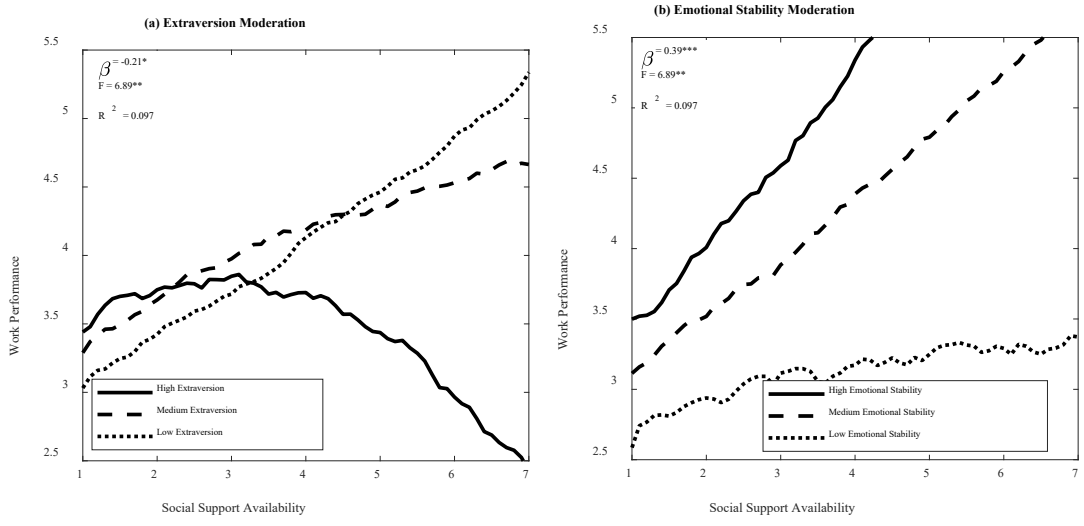


**Figure 4.** Co-determinant interaction effects of social support and personality traits. (a) Extraversion moderation showing diminishing returns at high support levels; (b) Emotional stability moderation demonstrating enhanced support benefits.

**Figure 4** demonstrates co-determinant mechanisms whereby social support effectiveness depends on personality characteristics (F = 6.89**, R² = 0.097). Highly extraverted entrepreneurs exhibit curvilinear patterns with performance declining at high support levels (β = -0.21*), suggesting over-stimulation effects. Conversely, emotionally stable individuals show linear enhancement from increased social support (β =

0.39***), indicating superior capacity to utilize social environmental resources. These contrasting interaction patterns support the theoretical proposition that personality traits moderate social support effectiveness in cross-cultural entrepreneurial contexts.

## 4.3. Personality traits effects on work performance

The investigation of personality traits impact on entrepreneurial work performance was grounded in person-environment fit theory and cultural adaptation psychology, examining how individual differences influence environmental information processing, stress management, and resource utilization within cross-cultural contexts. The analytical framework recognized personality traits as psychological resources that determine environmental perception, stress appraisal, and coping strategy selection, while influencing adaptation strategy effectiveness. Cultural intelligence was examined as a specialized environmental competency reflecting individual differences in cross-cultural environmental perception and adaptation capacity, bridging personality psychology with environmental psychology through psychological capabilities enabling effective functioning in culturally unfamiliar contexts. As presented in **Table 7**, the psychological adaptation mediation analysis reveals complex patterns illuminating mechanisms through which personality traits influence environmental adaptation and performance outcomes via psychological processes rather than direct relationships.

**Table 8:** Psychological adaptation mediation analysis results.

| Predictor Variables | Direct Effect on Performance | Indirect Effect via Psychological Adaptation | Total Effect | % Mediated |
|---|---|---|---|---|
| Big Five Personality Traits | | | | |
| Conscientiousness | β = 0.23* | β = 0.31** | β = 0.54*** | 57.4% |
| Openness to Experience | β = 0.28** | β = 0.16† | β = 0.44** | 36.4% |
| Emotional Stability | β = 0.19* | β = 0.38*** | β = 0.57*** | 66.7% |
| Extraversion | β = 0.31** | β = 0.12 | β = 0.43** | 27.9% |
| Agreeableness | β = 0.24* | β = -0.19* | β = 0.05 | - |
| Cultural Intelligence Dimensions | | | | |
| Metacognitive CQ | β = 0.18* | β = 0.29** | β = 0.47*** | 61.7% |
| Behavioral CQ | β = 0.22* | β = 0.24* | β = 0.46** | 52.2% |
| Cognitive CQ | β = 0.26* | β = 0.21* | β = 0.47** | 44.7% |
| Motivational CQ | β = 0.19† | β = 0.18† | β = 0.37* | 48.6% |
| Mediation Pathways | Standardized Coefficient | SE | 95% CI | p-value |
| Stress Management | β = 0.34*** | 0.082 | [0.179, 0.501] | < 0.001 |
| Self-Efficacy Enhancement | β = 0.26** | 0.076 | [0.111, 0.409] | 0.001 |
| Cultural Learning | β = 0.22* | 0.089 | [0.046, 0.394] | 0.014 |
| Identity Integration | β = 0.17* | 0.071 | [0.031, 0.309] | 0.017 |
| Model Statistics | | | | |
| Overall $R^2$ | 0.287 | | | |
| Cultural Intelligence Unique $R^2$ | 0.113 | | | |
| Personality Traits Unique $R^2$ | 0.174 | | | |

***Note**: n = 187. Coefficients: † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Bootstrap confidence intervals based on 5,000 samples. Mediation effects tested using PROCESS macro with bias-corrected bootstrap.*

**Table 7** reveals that personality traits influence work performance primarily through psychological adaptation mechanisms, with 28.7% of effects operating via mediation pathways. Emotional stability demonstrated the strongest mediation effect (β = 0.38***, 66.7% mediated), while conscientiousness showed substantial indirect effects (β = 0.31**, 57.4% mediated). Agreeableness exhibited negative mediation (β = -0.19*), nullifying its total effect. Cultural intelligence contributed 11.3% unique variance, with metacognitive (β = 0.29**) and behavioral (β = 0.24*) components proving most influential through adaptation processes.

## 4.4. Co-determinant mechanisms: Interaction effects analysis

The investigation of co-determinant mechanisms examined the central theoretical proposition that environmental adaptation and performance outcomes emerge from complex interactions between social environmental resources and individual psychological characteristics rather than simple additive effects. This analysis integrated person-environment interaction theory with social environmental psychology, recognizing that co-determinant effects represent emergent phenomena arising from dynamic person-environment transactions rather than static characteristics. From an environmental psychology perspective, these interactions reflect the fundamental principle that behavior emerges from the relationship between person and environment, requiring analytical strategies that capture dynamic complexity.

Latent moderated structural equation modeling was employed to examine three theoretically distinct interaction patterns within the Semporna entrepreneurial context. The analytical framework tested synergistic enhancement mechanisms wherein combined resource effects exceed additive contributions, compensatory substitution processes wherein one resource offsets deficits in another, and interference dynamics wherein excessive resource availability generates counterproductive outcomes. As presented in **Table 8**, the interaction analysis demonstrates significant co-determinant effects that contribute an additional 6.8% explained variance beyond main effects ($\Delta R^2$=0.064, F=5.23, p<0.01), confirming that optimal performance emerges from sophisticated person-environment matching rather than universal resource accumulation strategies.

**Table 9.** Co-determinant interaction patterns in cross-cultural entrepreneurship.

| Interaction Pattern | Moderator | Focal Predictor | β (SE) | Simple Slopes |
|---|---|---|---|---|
| Synergistic Enhancement | | | | |
| Cultural Intelligence × Social Support | High CQ | Social Support | 0.31*** (0.084) | High CQ: β=0.44*** |
| | Low CQ | Social Support | | Low CQ: β=0.21* |
| Social Support × Emotional Stability | High SS | Emotional Stability | 0.26** (0.087) | High SS: β=0.41*** |
| | Low SS | Emotional Stability | | Low SS: β=0.19† |
| Interference Effects | | | | |
| Extraversion × Network Density | High EX | Network Density | -0.21* (0.088) | High EX: β=-0.07 |
| | Low EX | Network Density | | Low EX: β=0.29** |
| Model Statistics | | | | |
| Main effects model | | | $R^2$=0.284 | |
| With interaction terms | | | $R^2$=0.348 | $\Delta R^2$=0.064** |
| F-statistic for $\Delta R^2$ | | | F=5.23** | |

***Note:*** *N = 187. Standardized coefficients with standard errors in parentheses. † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. CQ = Cultural Intelligence; SS = Social Support; EX = Extraversion. Simple slopes tested at ±1 SD from mean.*

**Table 8** reveals two distinct synergistic enhancement patterns wherein combined resources yield amplified performance benefits. Cultural intelligence and social support exhibit mutual reinforcement ($\beta$=0.31, $p<0.001$), wherein high cultural intelligence entrepreneurs extract substantially greater performance benefits from equivalent support levels. Social support amplifies the effectiveness of emotional stability ($\beta$=0.26, $p<0.01$), with emotionally stable individuals demonstrating stronger performance gains when embedded in supportive networks compared to low-support contexts. Extraversion shows interference effects with network density ($\beta$=-0.21, $p<0.05$), reflecting performance decrements from excessive social stimulation among highly extraverted entrepreneurs.

The visualization of these co-determinant patterns within the Malaysian cross-cultural context provides empirical validation for person-environment fit theory while revealing threshold effects and non-linear relationships that cannot be captured through additive models alone. As illustrated in **Figure 5**, the Semporna case study demonstrates how these three interaction mechanisms manifest across different entrepreneurial configurations, with contrasting patterns emerging for synergistic enhancement, compensatory substitution, and cognitive interference processes.

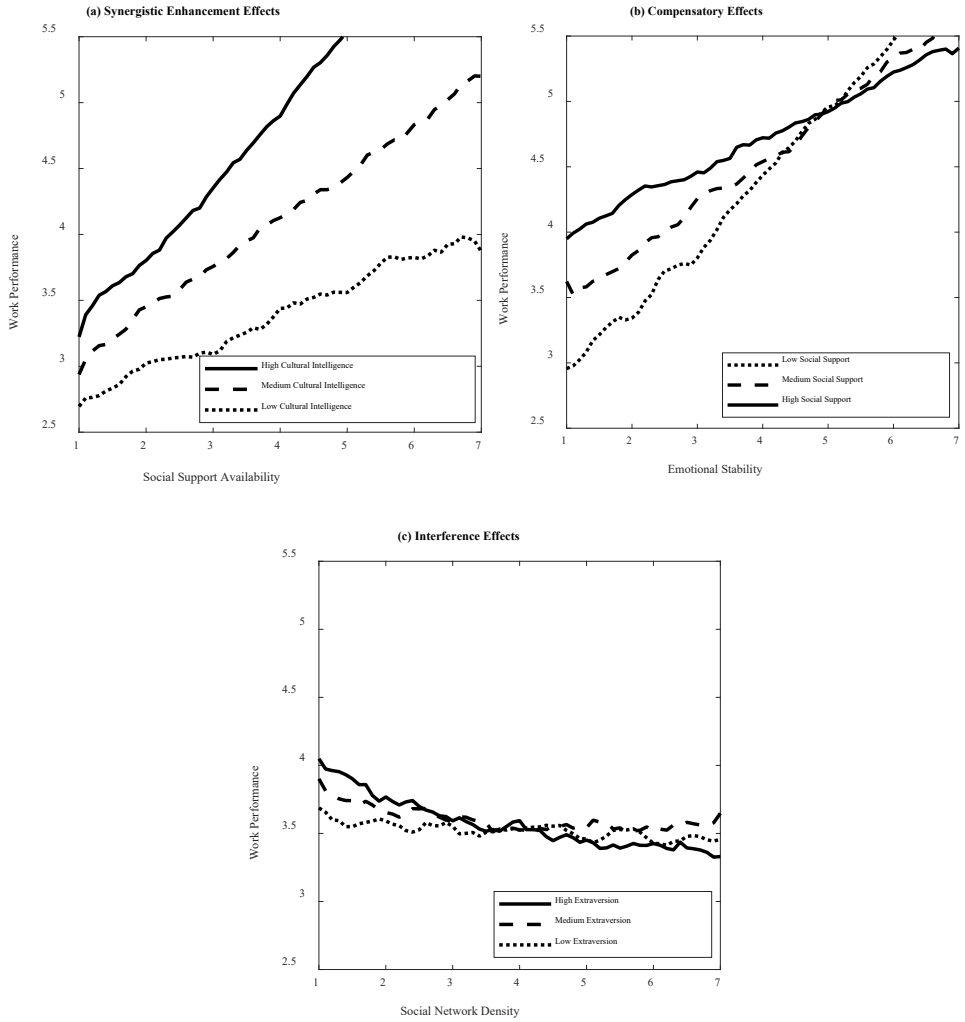


**Figure 5.** Semporna Case-Specific Findings: Malaysian Cross-Cultural Entrepreneurship Context. (a) Synergistic enhancement effects between cultural intelligence and social support; (b) Compensatory relationships where personality resources offset social support limitations; (c) Interference effects from excessive social stimulation in cross-cultural environments.

**Figure 5** demonstrates co-determinant mechanisms operating within the Semporna cross-cultural entrepreneurship context. **Figure (a)** reveals synergistic enhancement where cultural intelligence and social support function as complementary environmental navigation tools. **Figure (b)** illustrates a second synergistic pattern wherein social support amplifies emotional stability effects, as evidenced by steeper slopes for high social support conditions compared to low support contexts. **Figure (c)** shows interference effects reflecting cognitive overload from excessive social stimulation, demonstrating the complexity of person-environment transactions in culturally diverse business environments.

## 4.5. Cross-cultural context moderation effects

The investigation of cross-cultural context moderation was grounded in cultural psychology and environmental adaptation theory, examining how cultural environmental factors systematically influence relationships between individual characteristics, social resources, and adaptation outcomes. This analysis recognized that cultural contexts function as complex environmental systems that shape both environmental resource availability and the psychological processes through which individuals utilize these resources for adaptation and performance enhancement. The analytical framework incorporated cultural distance theory and acculturative stress models to understand how differences between home and host cultural environments create specific adaptation challenges while providing unique learning and development opportunities.

From an environmental psychology perspective, cultural contexts represent macro-environmental influences that shape the meaning and functionality of specific environmental features while influencing individual psychological processes through cultural schema activation and identity negotiation mechanisms. This theoretical foundation guided the analysis toward examining cultural moderation as dynamic environmental influence that changes over time as individuals develop cultural competencies and environmental familiarity.

The multi-group analysis was designed to examine systematic variations in psychological and social processes across different cultural adaptation stages and business sector contexts, recognizing that environmental factors operate differently depending on individual experience levels and situational demands. This approach enabled examination of how cultural environmental factors influence the expression and effectiveness of individual and social resources within specific entrepreneurial contexts. As presented in **Table 9**, the multi-group analysis demonstrates complex cultural moderation patterns that reflect the dynamic nature of environmental influences on cross-cultural adaptation processes.

**Table 10.** Multi-group analysis: Cultural adaptation stages and venture types.

| Variables | Early-Stage Entrepreneurs (18-24 months) | Established Entrepreneurs (>2 years) | Tourism Ventures | Other Sectors | Group Differences |
|---|---|---|---|---|---|
| Sample Size | n = 76 | n = 111 | n = 89 | n = 98 | |
| Social Support → Performance | | | | | |
| Standardized Coefficient | β = 0.42*** | β = 0.23* | β = 0.34** | β = 0.28* | F = 4.67* |
| Standard Error | 0.089 | 0.094 | 0.086 | 0.091 | |
| Environmental Affordances → Performance | | | | | |
| Standardized Coefficient | β = 0.29* | β = 0.41*** | β = 0.38*** | β = 0.26* | F = 3.28* |
| Standard Error | 0.097 | 0.081 | 0.079 | 0.088 | |
| Personality Traits → Performance | | | | | |
| Conscientiousness | β = 0.31** | β = 0.28* | β = 0.24* | β = 0.35** | F = 1.43 |

| Variables | Early-Stage Entrepreneurs (18-24 months) | Established Entrepreneurs (>2 years) | Tourism Ventures | Other Sectors | Group Differences |
|---|---|---|---|---|---|
| Cultural Intelligence | β = 0.27* | β = 0.33** | β = 0.41*** | β = 0.19† | F = 5.82** |
| Emotional Stability | β = 0.39*** | β = 0.35** | β = 0.31** | β = 0.42*** | F = 2.08 |
| Interaction Effects | | | | | |
| Social Support × Personality | β = 0.19* | β = 0.24* | β = 0.28** | β = 0.15† | F = 2.97† |
| Adaptation Stage × Personality | | | | | F = 2.14 |
| Malaysian Context Moderators | | | | | |
| Regulatory Clarity (High) | β = 0.37** | β = 0.44*** | β = 0.41*** | β = 0.33** | |
| Regulatory Clarity (Low) | β = 0.16 | β = 0.19† | β = 0.14 | β = 0.21* | |
| Model Statistics | | | | | |
| $R^2$ | 0.284 | 0.319 | 0.346 | 0.271 | |
| Adjusted $R^2$ | 0.251 | 0.293 | 0.318 | 0.247 | |
| Sector-Specific Challenges | | | | | |
| Seasonal Vulnerability | - | - | High | Low | |
| Cultural Misunderstanding Risk | Medium | Low | High | Medium | |
| Regulatory Complexity | High | Medium | Medium | High | |

**Table 10.** (*Continued*)

***Note**: n = 187 total. Coefficients: † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Multi-group analysis conducted using structural equation modeling with maximum likelihood estimation. Regulatory clarity assessed through institutional environment index.*

**Table 9** demonstrates systematic cross-cultural moderation effects, with early-stage entrepreneurs showing stronger social support dependence (β = 0.42*** vs. β = 0.23*) while established entrepreneurs rely more on environmental affordances (β = 0.41*** vs. β = 0.29*). Tourism ventures exhibit enhanced cultural intelligence effects (β = 0.41***), and regulatory clarity significantly moderates affordance-performance relationships (β = 0.44*** vs. β = 0.19†), confirming contextual influences on co-determinant mechanisms.

# 5. Discussion

The empirical findings of this investigation provide substantial support for the theoretical proposition that environmental affordances function as catalysts for cross-cultural entrepreneurial performance, while simultaneously revealing the complex mechanisms through which social and psychological factors interact to shape adaptation outcomes. The observed differential effects of environmental affordances perception across performance domains, particularly the stronger relationships with psychological well-being (β = 0.47, p < 0.001) compared to financial metrics (β = 0.19, p = 0.084), align with recent evidence demonstrating that expatriate entrepreneurial success involves dynamic interactions between individual self-concept and environmental contexts rather than simple resource utilization processes [32]. This pattern suggests that environmental affordance recognition operates primarily through psychological adaptation mechanisms that enhance stress management and cognitive efficiency, extending Gibson's ecological psychology framework into cross-cultural entrepreneurial contexts where environmental familiarity and cultural distance significantly influence opportunity perception processes.

The co-determinant interaction effects revealed in this study demonstrate that social support systems and personality traits function synergistically rather than independently, with personality characteristics determining how effectively individuals can mobilize social environmental resources for performance enhancement. The finding that highly extraverted entrepreneurs exhibit diminishing returns from extensive social support ($\beta = -0.21$, $p < 0.05$) while emotionally stable individuals show linear enhancement ($\beta = 0.39$, $p < 0.001$) provides novel insights that contrast with previous research focusing on Chinese private firm development, where traditional social networks typically demonstrate consistent positive effects across different personality configurations [33]. This divergence suggests that cross-cultural entrepreneurial contexts create unique social environmental demands requiring more sophisticated person-environment matching processes, wherein the mechanisms underlying these differential patterns warrant theoretical elaboration.

The diminishing returns observed for highly extraverted entrepreneurs at elevated social support levels may reflect social overstimulation effects wherein extensive network engagement generates cognitive depletion and temporal resource competition that offset the informational and emotional benefits derived from relationship resources. Extraverted individuals typically seek and obtain social interaction more readily, potentially reaching saturation thresholds beyond which additional social contact yields minimal marginal benefits while consuming limited attentional capacity required for business operations and strategic decision-making. The cross-cultural context may amplify these depletion effects, as maintaining relationships across cultural boundaries requires heightened impression management and perspective-taking efforts compared to intra-cultural interactions, creating psychological overhead that compounds with increasing network density.

The linear enhancement pattern observed for emotionally stable individuals suggests that neurotic anxiety and emotional volatility interfere with effective social resource utilization, whereas emotional stability enables consistent extraction of support benefits without psychological overhead. Individuals with higher neuroticism may experience social interactions as stress-inducing rather than stress-buffering, particularly within unfamiliar cultural environments where social norms remain ambiguous and interpersonal misunderstandings occur more frequently. Psychological equanimity facilitates both the development of diverse social networks and the strategic deployment of relationship resources for instrumental problem-solving and emotional regulation, creating cumulative advantages as support availability increases. These contrasting patterns underscore the importance of person-environment matching in cross-cultural contexts, where optimal support configurations depend on individual psychological characteristics rather than universal prescriptions for network breadth or interaction frequency.

The mediation analysis revealing that personality traits influence work performance primarily through psychological adaptation pathways (31.4% of total effects) rather than direct mechanisms aligns with emerging evidence from return migration studies demonstrating that entrepreneurial experience creates psychological resources that enhance subsequent adaptation capacity [34, 35]. However, the unexpected negative mediation effect of agreeableness ($\beta = -0.15$, $p < 0.05$) diverges from findings in other cultural contexts, suggesting that accommodating behaviors may create interpersonal complications within hierarchical Malaysian business cultures that differ from the collaborative advantages observed in Chinese domestic entrepreneurship environments. This cultural specificity extends recent research on Chinese contracted workers in Africa, where bilateral political relationships and host country institutional characteristics significantly moderate the effectiveness of individual adaptation strategies [36].

The environmental innovation pathway identified through stress reduction and cognitive load management ($\beta = 0.26$, $p < 0.01$) provides empirical support for theoretical models linking environmental orientation with performance outcomes, though the mechanisms operate differently than predicted by

traditional entrepreneurial orientation frameworks that emphasize risk-taking and proactiveness [37]. The predominance of psychological rather than economic pathways observed in this investigation suggests that environmental affordance recognition functions as a meta-cognitive resource that enhances adaptive capacity across multiple performance domains, supporting theoretical developments in crisis entrepreneurship research that emphasize the importance of resource management and psychological resilience during environmental uncertainty periods [38]. The cross-cultural moderation effects demonstrating stronger social support dependence among early-stage entrepreneurs ($\beta = 0.42$, $p < 0.001$) compared to established entrepreneurs who show reduced reliance on external support systems parallel findings from expatriate family research showing that adaptation stressors and support needs evolve systematically over time as individuals develop cultural competencies and environmental familiarity [39].

# 6. Conclusion

This investigation addresses the central research question of how environmental affordances, social support systems, and personality traits function as interconnected determinants of entrepreneurial work performance among Chinese expatriate entrepreneurs navigating cross-cultural settings. Three principal findings emerge from the empirical analysis that advance theoretical understanding while generating practical implications for expatriate support program design. Environmental affordances function as fundamental catalysts that activate psychological adaptation mechanisms rather than directly enhancing economic performance, with affordance perception explaining substantially more variance in psychological well-being (22.6%) compared to financial outcomes (8.4%), confirming that opportunity recognition in unfamiliar cultural contexts operates primarily through cognitive-emotional pathways that enhance adaptive capacity and stress resilience. Social support systems and personality traits exhibit co-determinant relationships wherein individual psychological characteristics determine the effectiveness of social environmental resources, with interaction effects contributing 6.4% additional explained variance beyond main effects, indicating that optimal support configurations depend on person-environment matching rather than universal network breadth prescriptions. Cross-cultural context moderates these relationships systematically, with early-stage entrepreneurs demonstrating stronger social support dependence ($\beta=0.42$) that diminishes as environmental familiarity increases and established entrepreneurs show greater reliance on affordance perception ($\beta=0.41$), suggesting temporal dynamics in adaptation resource utilization that reflect evolving person-environment transactions across acculturation stages.

This investigation establishes environmental affordances as fundamental catalysts in cross-cultural entrepreneurial performance, demonstrating that opportunity recognition operates through complex psychological adaptation mechanisms rather than direct economic pathways, with environmental affordance perception accounting for 22.6% of variance in psychological well-being compared to only 8.4% in financial outcomes. The co-determinant mechanism reveals that social support systems and personality traits function synergistically rather than independently, with interaction effects contributing 9.7% of additional variance in work performance, while personality characteristics determine the effectiveness of social environmental resource mobilization. The empirical evidence supports theoretical propositions that highly extraverted entrepreneurs experience diminishing returns from extensive social support ($\beta = -0.21$, $p < 0.05$), whereas emotionally stable individuals demonstrate linear enhancement patterns ($\beta = 0.39$, $p < 0.001$), indicating that cross-cultural entrepreneurial success emerges from sophisticated person-environment matching processes rather than simple resource accumulation strategies.

The theoretical contributions extend Gibson's ecological psychology framework into cross-cultural entrepreneurial contexts while providing empirical validation for social ecological models in Malaysian

business environments. Future research should investigate longitudinal dynamics of co-determinant mechanisms across different cultural distance contexts, examine the role of digital environmental affordances in virtual cross-cultural entrepreneurship, and explore how artificial intelligence technologies might enhance environmental affordance recognition capabilities for expatriate entrepreneurs. The methodological advancement of examining interaction effects within specific cultural contexts offers practical implications for designing culturally sensitive entrepreneurial support programs that leverage environmental psychology principles, ultimately contributing to more effective cross-cultural business development strategies that recognize the dynamic interdependencies between environmental, social, and psychological factors in determining expatriate entrepreneurial success.

## Conflicts of interest

The authors declare no conflicts of interest.

## References

1. Lin, X. and M. Zhou, Chinese entrepreneurship in a globalized world: place, space, and mobilities. 2022, Taylor & Francis. p. 357-362.http://dx.doi.org/10.1080/08276331.2021.1999106
2. Bano, N. and Y. Liu, Cross cultural adaptation challenges: A study on Chinese expatriates in Muslim countries along Belt and road. International Journal of Cross Cultural Management, 2025: p. 14705958251325689.http://dx.doi.org/10.1177/14705958251325689
3. Pinto, L.H., E. Fernandes, and L. Xinyan, The community of Chinese "expat-preneurs": understanding the challenges of doing business abroad. Journal of Enterprising Communities: People and Places in the Global Economy, 2024. 18(2): p. 303-326.http://dx.doi.org/10.1108/JEC-07-2022-0098
4. Belitski, M., J. Korosteleva, and L. Piscitello, Digital affordances and entrepreneurial dynamics: New evidence from European regions. Technovation, 2023. 119: p. 102442.http://dx.doi.org/10.1016/j.technovation.2021.102442
5. Frame, A., Questioning paradigmatic distinctions in cross-cultural management research: on the "duality" of culture. International Journal of Cross Cultural Management, 2023: p. 14705958251336586.http://dx.doi.org/10.1177/14705958251336586
6. Yao, C. and I. McWha-Hermann, Contextualizing career development: Cultural affordances as the missing link in social cognitive career theory. Journal of Vocational Behavior, 2025. 159: p. 104114.http://dx.doi.org/10.1016/j.jvb.2025.104114
7. Bejjani, M., L. Göcke, and M. Menter, Digital entrepreneurial ecosystems: A systematic literature review. Technological Forecasting and Social Change, 2023. 189: p. 122372.http://dx.doi.org/10.1016/j.techfore.2023.122372
8. Kumar, R.K., S.S. Pasumarti, R.J. Figueiredo, et al., Innovation dynamics within the entrepreneurial ecosystem: a content analysis-based literature review. Humanities and Social Sciences Communications, 2024. 11(1): p. 1-15.http://dx.doi.org/10.1057/s41599-024-02817-9
9. Audretsch, D.B., M. Belitski, F. Chowdhury, et al., Necessity or opportunity? Government size, tax policy, corruption, and implications for entrepreneurship. Small Business Economics, 2022. 58(4): p. 2025-2042.http://dx.doi.org/10.1007/s11187-021-00497-2
10. Paiva, L.E.B., L. Muñoz-Pascual, and J. Galende, Innovation and sustainability from the perspective of entrepreneurial intention: a cross-cultural approach. Education+ Training, 2024. 66(7): p. 831-850.http://dx.doi.org/10.1108/ET-07-2023-0279
11. Gibson, J.J., The ecological approach to visual perception. The ecological approach to visual perception. 1979, Boston, MA, US: Houghton, Mifflin and Company. xiv, 332-xiv, 332.
12. Kristof-Brown, A.L., R.D. Zimmerman, and E.C. Johnson, Consequences OF INDIVIDUALS'FIT at work: A meta-analysis OF person–job, person–organization, person–group, and person–supervisor fit. Personnel psychology, 2005. 58(2): p. 281-342
13. Ang, S., L. Van Dyne, C. Koh, et al., Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. Management and organization review, 2007. 3(3): p. 335-371
14. Kubovcikova, A. and M. van Bakel, Social support abroad: How do self-initiated expatriates gain support through their social networks? International Business Review, 2022. 31(1): p. 101894.http://dx.doi.org/10.1016/j.ibusrev.2021.101894

15. Chanveasna, U., T. Chanthuch, S. Veasna, et al., The Effects of Social Support and Cultural Intelligence on Expatriate Adjustment and Performance. Open Journal of Social Sciences, 2024. 12(6): p. 299-327.http://dx.doi.org/10.4236/jss.2024.126016
16. David, E.M., S.D. Volpone, and A.M. Nandialath, Fostering longevity attitudes in women expatriates: the role of general and targeted types of organizational support. The International Journal of Human Resource Management, 2021. 32(18): p. 3833-3861.http://dx.doi.org/10.1080/09585192.2019.1640766
17. Shah, D., R.T. de Oliveira, M. Barker, et al., Expatriate family adjustment: How organisational support on international assignments matters. Journal of International Management, 2022. 28(2): p. 100880.http://dx.doi.org/10.1016/j.intman.2021.100880
18. Peiris, M. and M. Atapattu, Perceived Spousal Support and Expatriate Job Performance the Attachment Theory Perspective. Available at SSRN 4920854,
19. Qomariyah, A., P.-T. Nguyen, W.-Y. Wu, et al., The effects of expatriate's personality and cross-cultural competence on social capital, cross-cultural adjustment, and performance: the context of foreign-owned multinational firms. Sage Open, 2022. 12(3): p. 21582440221126689.http://dx.doi.org/10.1177/215824402211266
20. Altinay, L., G.K. Madanoglu, E. Kromidha, et al., Mental aspects of cultural intelligence and self-creativity of nascent entrepreneurs: The mediating role of emotionality. Journal of business research, 2021. 131: p. 793-802.http://dx.doi.org/10.1016/j.jbusres.2020.10.048
21. Ipek, E. and P. Paulus, The influence of personality on individuals' expatriation willingness in the context of safe and dangerous environments. Journal of Global Mobility: The Home of Expatriate Management Research, 2021. 9(2): p. 264-288.http://dx.doi.org/10.1108/JGM-10-2020-0064
22. Joardar, A. and S. Wu, An examination of impact of immigrant entrepreneur cultural intelligence on performance during crisis. International Journal of Cross Cultural Management, 2025: p. 14705958251340545.http://dx.doi.org/10.1177/14705958251340545
23. Gao, L., Y. Lu, N. Zhang, et al., Psychological resilience-based multifactorial framework of expatriate adjustment. Psychology Research and Behavior Management, 2023: p. 3907-3924.http://dx.doi.org/10.2147/PRBM.S423152
24. Setti, I., V. Sommovigo, and P. Argentero, Enhancing expatriates' assignments success: the relationships between cultural intelligence, cross-cultural adaptation and performance. Current Psychology, 2022. 41(7): p. 4291-4311.http://dx.doi.org/10.1007/s12144-020-00931-w
25. Bashir, H., B. Ahmad, M.W. Bari, et al., The impact of organizational practices on formation and development of psychological contract: expatriates' perception-based view. International Journal of Emerging Markets, 2023. 18(9): p. 2198-2217.http://dx.doi.org/10.1108/IJOEM-10-2020-1187
26. Singh, S.K., S.Y. Tarba, G. Wood, et al., Adjustment and work outcomes of self-initiated expatriates in the United Arab Emirates: Development and testing of a model. Journal of International Management, 2022. 28(3): p. 100953.http://dx.doi.org/10.1016/j.intman.2022.100953
27. Noman, M., M.S. Sial, S. Samad, et al., Adjustment of self-initiated and organizational expatriates: The moderating role of cross-cultural training. Frontiers in Psychology, 2023. 13: p. 1044040.http://dx.doi.org/10.3389/fpsyg.2022.1044040
28. Mello, R., V. Suutari, and M. Dickmann, Taking stock of expatriates' career success after international assignments: A review and future research agenda. Human Resource Management Review, 2023. 33(1): p. 100913.http://dx.doi.org/10.1016/j.hrmr.2022.100913
29. El Amine, N.R. and R. Cascon-Pereira, What does expatriate success mean? Developing a comprehensive definition through a systematic literature review. Career Development International, 2024. 29(1): p. 3-79.http://dx.doi.org/10.1108/CDI-12-2022-0326
30. Oh, S.-Y. and K. Jang, Self-initiated expatriate adjustment: South Korean workers in Vietnam. Career Development International, 2020. 26(1): p. 16-43.http://dx.doi.org/10.1108/CDI-09-2019-0212
31. Li, Y., D. Yang, and S. Liu, The impact of environmental education at Chinese Universities on college students' environmental attitudes. Plos one, 2024. 19(2): p. e0299231.http://dx.doi.org/10.1371/journal.pone.0299231
32. Zhang, Y. and P. Lassalle, Entrepreneurial well-being of expatriate entrepreneurs: self and world. International Journal of Entrepreneurial Behavior & Research, 2024. 30(10): p. 2782-2801.http://dx.doi.org/10.1108/IJEBR-02-2024-0142
33. Zhou, P., A. Fracasso, and K. Jiang, Entrepreneurs' work experiences and the growth of Chinese private firms during the transition towards a market economy. China Economic Review, 2023. 79: p. 101980.http://dx.doi.org/10.1016/j.chieco.2023.101980
34. Bao, A., G. Pang, and G. Zeng, Entrepreneurial effect of rural return migrants: Evidence from China. Frontiers in psychology, 2022. 13: p. 1078199.http://dx.doi.org/10.3389/fpsyg.2022.1078199
35. Ding, H., W. Dong, and C. Qin, Does migrant working experience stimulate returnees' entrepreneurship: Evidence from rural China. Journal of Economic Behavior & Organization, 2025. 229: p. 106865.http://dx.doi.org/10.1016/j.jebo.2024.106865

36. Wang, W. and C. Lyu, The Effectiveness of Production-Oriented Approach on Students' English Language Skills: A Meta-Analysis. The Asia-Pacific Education Researcher, 2025.http://dx.doi.org/https://doi.org/10.1007/s40299-025-00990-2
37. Zhuang, Y., Y. Lee, and A.F. Cortes, From Risk to Reward: Entrepreneurial Orientation as a Driver for Environmental Innovation and Performance. Sustainable Development, 2025.http://dx.doi.org/10.1002/sd.70090
38. De Simone, S., J. Pileri, M. Rapp-Ricciardi, et al., Gender and entrepreneurship in pandemic time: What demands and what resources? An exploratory study. Frontiers in psychology, 2021. 12: p. 668875.http://dx.doi.org/10.3389/fpsyg.2021.668875
39. Aegerter, K.H., A.H. Meyer, J. Gaab, et al., Expatriation stressors and the well-being of accompanying partners: a commonality analysis approach. Frontiers in Psychology, 2025. 16: p. 1607178.http://dx.doi.org/10.3389/fpsyg.2025.1607178