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Research article

Mediating role of neuromarketing perceptions in interpersonal intelligence and entrepreneurial opportunity recognition relationship: A triadic approach

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ABSTRACT

This study investigates the influence of interpersonal intelligence on entrepreneurial opportunity recognition, with neuromarketing perceptions serving as a mediating variable among management students in Nepal. Data were collected from 280 undergraduate and graduate management students at five universities in Nepal using a structured questionnaire containing 25 items, which were assessed using a 7-point Likert scale. The sample was selected purposively to ensure representation from both academic levels. Descriptive analysis was conducted using SPSS 26v, and the measurement and structural models were evaluated using PLS-SEM in SmartPLS 4.0. The results indicate that interpersonal intelligence has a significant positive impact on neuromarketing perception and the recognition of entrepreneurial opportunities. Neuromarketing perceptions also significantly influence opportunity recognition and partially mediate the relationship between interpersonal intelligence and the recognition of opportunities. Practically, the results suggest that developing emotional and social intelligence among students can enhance their sensitivity to consumer behavior and improve their ability to identify viable entrepreneurial opportunities. Integrating neuromarketing tools into educational and training programs can further strengthen students' ability to decode unconscious market signals, supporting more effective and innovative entrepreneurial decisions.

Keywords: Interpersonal intelligence, entrepreneurial opportunity recognition, neuromarketing perceptions, multiple intelligences.

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Abstrak

Studi ini meneliti pengaruh kecerdasan interpersonal terhadap pengenalan peluang usaha, dengan persepsi neuromarketing sebagai variabel mediator di kalangan mahasiswa manajemen di Nepal. Data dikumpulkan dari 280 mahasiswa manajemen tingkat sarjana dan pascasarjana di lima universitas di Nepal menggunakan kuesioner terstruktur berisi 25 item yang dinilai dengan skala Likert 7 poin. Sampel dipilih secara purposive untuk memastikan representasi dari kedua tingkat akademik. Analisis deskriptif dilakukan menggunakan SPSS 26v, sementara model pengukuran dan struktural dievaluasi menggunakan PLS-SEM di SmartPLS 4.0. Hasilnya menunjukkan bahwa kecerdasan interpersonal berpengaruh positif signifikan terhadap persepsi neuromarketing dan pengenalan peluang usaha. Persepsi neuromarketing juga berpengaruh signifikan terhadap pengenalan peluang dan sebagian memediasi hubungan antara kecerdasan interpersonal dan pengenalan peluang. Secara praktis, hasil ini menunjukkan bahwa pengembangan kecerdasan emosional dan sosial di kalangan mahasiswa dapat meningkatkan sensitivitas mereka terhadap perilaku konsumen dan kemampuan dalam mengenali peluang usaha yang layak. Mengintegrasikan alat neuromarketing ke dalam program pendidikan dan pelatihan dapat lebih memperkuat kemampuan mahasiswa dalam mendekode sinyal pasar yang tidak disadari, mendukung pengambilan keputusan kewirausahaan yang lebih efektif dan inovatif.

Kata Kunci: Kecerdasan interpersonal, pengenalan peluang wirausaha, persepsi neuromarketing, kecerdasan majemuk

1. Introduction

Entrepreneurial opportunity recognition is a cornerstone of successful entrepreneurship, representing the capacity to identify and evaluate viable business prospects within dynamic and often uncertain environments. It is a complex and multifaceted process shaped by how individuals think, feel, and interact with others. Recent literature has identified a constellation of factors that influence this process, including entrepreneurial self-efficacy (Camelo-Ordaz et al., 2020), empathy (Sekiguchi & Khalid, 2018), emotional and cognitive processes (Juárez-Varón et al., 2024), emotional responses (Serna-Zuluaga et al., 2024), interpersonal intelligence (Baskaran et al., 2021), and creative thinking (Aydın et al., 2023). These findings collectively underscore that social and interpersonal skills, in conjunction with cognitive processes, play a synergistic role in enabling entrepreneurs to identify and evaluate new business opportunities.

Similarly, recent research has highlighted the multifaceted nature of entrepreneurial opportunity recognition, which is shaped by a diverse range of cognitive, social, and contextual influences. Suprapto et al. (2024) underscore the role of entrepreneurial alertness in identifying new opportunities, while Al-Ayed (2024) highlights the growing significance of digital opportunity recognition in influencing entrepreneurial attitudes, subjective norms, and self-efficacy. Viswanath et al. (2024) demonstrate how higher education students are driven to recognize social entrepreneurial opportunities through personal experiences, social awareness, and a commitment to community development. Similarly, Makhloufi et al. (2024) reveal that knowledge sharing enhances both entrepreneurial orientation and absorptive capacity, thereby fostering greater opportunity recognition. Collectively, these studies affirm that opportunity recognition is not a linear or isolated process but rather a dynamic interplay of psychological traits, experiential learning, and contextual conditions.

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Complementing this psychological perspective, Korpysa (2020) emphasizes that incorporating neuroscience into entrepreneurship research enhances our understanding of the internal cognitive and emotional processes underlying entrepreneurial decision-making. Although neuromarketing has received growing academic attention, its practical application remains limited, with challenges in translating theoretical insights into actionable strategies (Harrell, 2019). Nevertheless, neuromarketing offers a powerful lens to explore how different forms of intelligence, particularly interpersonal intelligence, interact with subconscious processes to shape opportunity recognition. As Baskaran et al. (2021) suggest, neuromarketing strategies can illuminate how specific intelligences are activated during entrepreneurial activities.

However, traditional frameworks in entrepreneurship often overlook the psychological and neurological mechanisms through which interpersonal intelligence facilitates the recognition of opportunities. This gap has led to increasing calls for interdisciplinary research that integrates insights from psychology, neuroscience, and marketing (Baskaran et al., 2021). Within this context, neuromarketing —a field that combines cognitive neuroscience with marketing —offers promising tools for understanding the subconscious drivers of decision-making. Techniques such as EEG and fMRI have been used to study emotional and cognitive reactions to stimuli, shedding light on how entrepreneurs may subconsciously evaluate and recognize opportunities (Ariely & Berns, 2010; Hubert & Kenning, 2008; Agarwal & Dutta, 2015).

A complementary development in this emerging area is the concept of neuromarketing perceptions, the ability to perceive and interpret subconscious consumer responses informed by neuroscience. These perceptions allow entrepreneurs to tap into implicit behavioral cues and

refine their market understanding. While neuromarketing has been widely explored in consumer behavior research, its role as a mediator between interpersonal intelligence and opportunity recognition remains both theoretically and empirically underdeveloped.

This study draws on Social Cognitive Theory (Bandura, 1986) and Entrepreneurial Cognition Theory (Mitchell et al., 2007) to propose a triadic conceptual framework where interpersonal intelligence influences entrepreneurial opportunity recognition, with neuromarketing perceptions mediating this relationship. Social Cognitive Theory suggests that individuals learn and adapt behaviors through observation, empathy, and social interaction hallmarks of interpersonal intelligence. Entrepreneurial Cognition Theory suggests that cognitive differences influence how individuals perceive and respond to entrepreneurial cues, and neuromarketing can serve as a cognitive extension in this decision-making process.

Despite growing validation of this conceptual linkage, most existing research examines these constructs in isolation, ignoring potential synergistic effects. Moreover, empirical studies are concentrated mainly in Western contexts, overlooking developing nations like Nepal, where entrepreneurial ecosystems are in a state of flux, and university students represent a fertile ground for entrepreneurial development. As Burja and Burja (2013) argue, entrepreneurship research continues to lack a holistic understanding of the intersecting domains that drive entrepreneurial activity.

In the context of Nepal, a culturally diverse and youth-driven nation with rising entrepreneurial ambitions, this investigation holds particular significance. Entrepreneurship is increasingly seen as a vehicle for economic transformation and social empowerment. Yet, a clear research gap remains in understanding how neuromarketing perceptions can enhance the relationship between interpersonal intelligence and opportunity recognition among university students in this setting. Addressing this gap can inform the design of neuroscience-informed entrepreneurial education and policy initiatives.

Therefore, this study aims to examine the mediating role of neuromarketing perceptions in the relationship between interpersonal intelligence and entrepreneurial opportunity recognition among Nepalese management students. It seeks to respond to the following research question: “Does interpersonal intelligence influence entrepreneurial opportunity recognition, and to what extent do neuromarketing perceptions mediate this relationship?”

2. Literature Review and hypothesis development

Theories Underpinning

This study is grounded in five key theories that collectively explain how interpersonal intelligence, neuromarketing perceptions, and opportunity recognition interact in entrepreneurial contexts.

Theory of Multiple Intelligences (Gardner, 1983) introduces interpersonal intelligence as a distinct cognitive ability that enhances one's capacity to understand others, manage social interactions, and influence behavior—skills critical in both marketing and entrepreneurship. Individuals high in this intelligence can identify hidden cues and motivations, thereby improving customer targeting and opportunity identification (Gardner, 1993; Fennell, 2020; Lindstrom, 2012).

Emotional Intelligence Theory (Goleman, 1996) expands this by emphasizing empathy, self-regulation, and social skills as essential for managing interpersonal dynamics and stress. These traits help entrepreneurs navigate emotional demands, influence consumer behavior, and leverage neuromarketing insights to craft resonant strategies (Caratù et al., 2020). While these psychological traits influence a person's social skills, Social Cognitive Theory helps us understand how these abilities interact with external influences and learning from others to impact entrepreneurial behavior, forming a conceptual link between individual traits, such as interpersonal intelligence, and externally observable outcomes, like opportunity recognition. Emotional closeness influences purchasing decisions and brain activity, particularly for premium products and services, supporting the role of emotional and interpersonal intelligence, as reflected in neuromarketing perceptions, in recognizing and responding to market opportunities (Zhang et al., 2025).

Opportunity Recognition Theory (Schumpeter, 1934; Kirzner, 1973): Schumpeter's (1934) innovation theory and Kirzner's (1973) concept of entrepreneurial alertness explains how individuals identify and assess business opportunities. Tang et al. (2012) highlight cognitive mechanisms like scanning, connecting information, and evaluation. This theory also considers personality, expertise, heuristics, and well-being as key influences on opportunity recognition (Bui et al., 2024).

Social Cognitive Theory (Bandura, 1986) posits that behavior is shaped through observational learning, cognitive evaluation, and self-efficacy. It supports the idea that interpersonal intelligence and neuromarketing perceptions jointly influence behavior by enhancing individuals' confidence and capacity to recognize and act on opportunities (Pierce & Bandura, 1977; Edberg et al., 2022; Bandura & McClelland, 2023; Lee et al., 2022). In this way, Social Cognitive Theory integrates the cognitive-emotional and behavioral dimensions of entrepreneurship, setting the stage for exploring how neuromarketing, through its emphasis on subconscious processing, complements and extends these influences in real-time market contexts.

Neuromarketing Theory integrates neuroscience with marketing to explore how subconscious processes influence consumer decisions. Techniques like fMRI and EEG help decode emotional and cognitive responses to stimuli (Ariely & Berns, 2010; Plassmann et al., 2012). For instance, EEG has been used to measure entrepreneurial emotional engagement during pitch evaluation, while fMRI studies have revealed how successful entrepreneurs activate different brain regions associated with risk, reward anticipation, and social decision-making (Hubert & Kenning, 2008; Camerer & Yoon, 2023). These tools help quantify the intuitive judgments and emotional resonance entrepreneurs experience when identifying market opportunities. Neuromarketing helps entrepreneurs better understand consumer preferences and refine their strategies (Baskaran et al., 2021; Fugate, 2007; Lee et al., 2007). Recent studies show its relevance in emotional engagement (Karmarkar & Yoon, 2023), pricing strategies (Camerer & Luce, 2022), and brand loyalty (Montague & Berns, 2023), reinforcing its mediating role between interpersonal intelligence and opportunity recognition.

Together, these theories provide a robust framework for exploring how interpersonal and emotional intelligence combined with neuromarketing perception contribute to entrepreneurial opportunity recognition. Integrating these five theories construct an integrated framework that explains how individual capacities (intelligence, emotion), behavioral

mechanisms (learning, observation), and subconscious perceptions (neuromarketing) collectively shape entrepreneurial opportunity recognition.

Previous studies and hypothesis

Interpersonal Intelligence and Entrepreneurial Opportunity Recognition

Interpersonal intelligence, a crucial component of Gardner's theory of multiple intelligences, plays a vital role in recognizing entrepreneurial opportunities. It enables individuals to navigate complex social networks and develop essential skills in understanding human behavior, which are crucial for identifying and evaluating business opportunities. Karsantik and Cayak (2025) underscore the importance of interpersonal-social intelligence in fostering persuasiveness and relational capacity, mentioning that social intelligence plays a role in social entrepreneurship. In simple terms, more altruistic individuals tend to possess higher social intelligence, which enables them to develop stronger social entrepreneurship characteristics, both of which are crucial for recognizing opportunities. Similarly, Pramod and Ramachandran (2023) report that interpersonal-social intelligence enhances entrepreneurial self-efficacy, which mediates the link between social capital and opportunity identification among micro-entrepreneurs. McBride and Wuebker (2022) emphasize its role in understanding social dynamics and market needs.

Kromidha et al. (2022) extend this understanding by incorporating cultural intelligence, of which interpersonal intelligence is a part, showing that it positively influences entrepreneurial intention and opportunity recognition in institutionally supportive environments. Dellermann et al. (2020) argue that collective intelligence, which includes interpersonal intelligence, enhances entrepreneurial cognition and opportunity recognition through engagement with stakeholders and social learning. Camelo-Ordaz et al. (2020) apply social cognitive career theory and institutional theory to demonstrate that interpersonal-social intelligence influences opportunity recognition via self-efficacy and perceived social norms. Similarly, Pathak and Muralidharan (2024) found that emotional intelligence traits influence entrepreneurship differently across cultures; well-being and sociability enhance social entrepreneurship, while adaptability and self-control favor commercial ventures. These insights highlight the role of culturally rooted emotional competencies in shaping entrepreneurial outcomes.

H1: Interpersonal intelligence has a significant effect on entrepreneurial opportunity recognition.

Interpersonal Intelligence and Neuromarketing Perceptions

Empirical research suggests that individuals with higher interpersonal intelligence are more adept at interpreting emotional cues and social signals, thereby making them more receptive to neuromarketing stimuli. Baron-Cohen (1999) mentioned that social intelligence interprets brain responses, which neuromarketing utilizes, ultimately improving customer loyalty and engagement strategies. Demir (2022) demonstrates how neuromarketing enhances the interpretation of public reactions to advertisements, suggesting that interpersonal intelligence improves the effectiveness of messages. Caratù, Sorrentino, and Scozzese (2020) discuss how social neuromarketing aligns communication with public expectations, especially in public health, through an improved understanding of social behavior. Zito et al. (2021) show that neuromarketing enhances the emotional effectiveness of nonprofit messaging by leveraging social intelligence. Likewise, Vences et al. (2020) report that neuromarketing boosts user

engagement by strengthening emotional connections between organizations and social media audiences.

H2: Interpersonal intelligence has a significant effect on neuromarketing perceptions.

Neuromarketing Perceptions and Entrepreneurial Opportunity Recognition

Neuromarketing perceptions have emerged as a vital cognitive and emotional lens through which entrepreneurial opportunity recognition can be enhanced. By leveraging neuroscience tools such as functional magnetic resonance imaging (fMRI), electroencephalography (EEG), and biometric sensors, neuromarketing offers insights into the subconscious drivers of human decision-making and behavior (Ariely & Berns, 2010; Agarwal & Dutta, 2015). In the context of entrepreneurship, these tools have proven increasingly valuable in decoding how entrepreneurs think, feel, and act when evaluating opportunities.

Recent studies demonstrate that neuromarketing techniques can reveal distinctive brain activation patterns among entrepreneurs compared to non-entrepreneurs, particularly during tasks involving opportunity recognition and creative thinking. For instance, an EEG-based experiment conducted in 2023 revealed that entrepreneurs activate distinct neural networks when identifying new ventures, suggesting the existence of a unique "entrepreneurial brain" profile (Juárez-Varón et al., 2024). This growing body of evidence suggests that entrepreneurs do not merely rely on rational analysis but also subconscious cues and emotional responses shaped by their neural architecture.

In addition to cognitive processes, neuromarketing helps illuminate the emotional dynamics of entrepreneurial decision-making. Serna-Zuluaga et al. (2024) employed Galvanic Skin Response (GSR) sensors to assess emotional arousal during founder interviews. They found that novice entrepreneurs exhibited higher anxiety levels in uncertain situations, while experienced entrepreneurs demonstrated greater emotional stability and long-term optimism. These physiological measures provided objective validation of how affective states, like confidence or fear, interact with cognitive processes in shaping entrepreneurial choices. Such findings underscore the importance of emotional insight in the decision-making process, particularly in conditions of ambiguity and risk.

Neuromarketing also contributes to understanding the interpersonal side of entrepreneurship. Yu et al. (2022), as cited in Ntoumanis et al. (2023), used EEG to monitor consumer responses to live-streamed product pitches and found that entrepreneurs who communicated with visible passion and preparedness activated greater neural engagement in their audience. This highlights how interpersonal communication—an essential entrepreneurial skill, can be neurologically traced to better audience attention and interest, offering entrepreneurs actionable feedback to refine their delivery strategies.

Within this broader framework, neuromarketing perceptions have been directly linked to enhanced opportunity recognition. Serna-Zuluaga et al. (2024) and Juárez-Varón et al. (2024) emphasize that these perceptions provide deeper insight into consumer preferences and emerging market trends. Sharma and Sinha (2020) further note that neuromarketing insights enhance entrepreneurs' responsiveness to networks and markets—both of which are crucial for recognizing opportunities promptly.

Baskaran et al. (2021) offer a theoretical integration of neuromarketing, intelligence, and entrepreneurship, proposing that neuromarketing perceptions mediate the relationship between an entrepreneur's multiple intelligences, particularly interpersonal intelligence and

opportunity recognition. By analyzing subconscious reactions to ideas or stimuli, entrepreneurs can better judge which opportunities resonate at a neurological level, thereby increasing the likelihood of success. Their conceptual framework highlights the potential of neuromarketing to enhance the predictive accuracy of opportunity-recognition models and inform the development of more effective entrepreneurial training.

In summary, integrating neuromarketing perceptions with interpersonal and cognitive competencies provides entrepreneurs with a more comprehensive understanding of how to identify, interpret, and act upon market opportunities. As this interdisciplinary approach gains traction, it holds significant promise for both research and practice in the evolving field of entrepreneurial cognition.3

H3: Neuromarketing perceptions have a significant effect on entrepreneurial opportunity recognition.

Mediating Role of Neuromarketing Perceptions

The mediating role of neuromarketing perceptions in the relationship between interpersonal intelligence and entrepreneurial opportunity recognition is increasingly supported by recent empirical findings. Baskaran et al. (2021) suggest that interpersonal intelligence activates cognitive mechanisms that align with neuromarketing insights, thereby facilitating entrepreneurial cognition and the identification of opportunities. Neuromarketing enhances decision-making (Serna-Zuluaga et al., 2024), optimizes resource allocation (Ghosh & Kumar, 2024), and deepens the understanding of customer demands, all of which are essential for recognizing opportunities. Serna-Zuluaga et al. (2024) found that emotional responses evolve with entrepreneurial experience, emphasizing the growing importance of emotional awareness in decision-making.

As entrepreneurs progress in their journey, their ability to manage emotions improves, reflecting a maturation of emotional regulation over time. Opportunity evaluation decisions depend on the cognitive status of the lead entrepreneurs (Healey et al., 2021), highlighting that integrating neuromarketing perceptions into their decision-making processes can equip entrepreneurs to identify opportunities more effectively amid uncertainty. Despite the strength of these conceptual frameworks, the limited empirical validation in some studies presents a gap, indicating the need for further research. Overall, the integration of interpersonal intelligence and neuromarketing perceptions presents a promising pathway for enhancing entrepreneurial opportunity recognition.

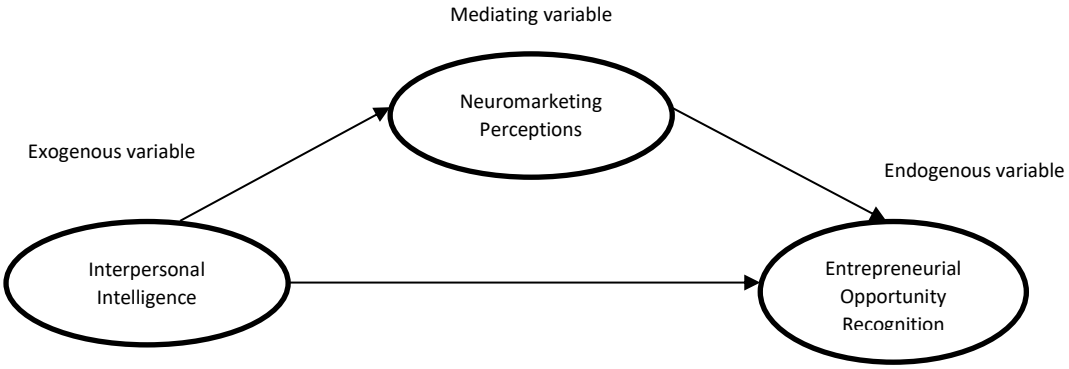

Figure 1. Conceptual Framework

3. Method

Research Design and Approach

This study employed a quantitative, explanatory research design to examine the impact of interpersonal intelligence on entrepreneurial opportunity recognition, with neuromarketing perceptions serving as a mediating variable. A quantitative approach was selected for its suitability in testing hypothesized relationships among measurable constructs. The explanatory design enabled the assessment of causal relationships among the study variables.

Population, Sampling, and Context

The target population consisted of undergraduate and graduate students enrolled in management programs at various Nepalese universities. These students were chosen because they admitted to being interested in entrepreneurship, as they represent a growing segment of potential entrepreneurs within the national context. A purposive sampling method was used due to logistical considerations for the sample, though care was taken to ensure demographic diversity across institutions. Using G*Power 3.1, the minimum required sample size was calculated to be 262 based on an anticipated effect size of 0.05, a confidence level of 95%, and a 0.05 margin of error, assuming four predictors. Ultimately, 280 valid responses were collected from students who had completed or were in the final year of their management studies. We gathered the data through both online and in-person administration to maximize reach and response rates. Table 1 summarizes the demographic characteristics of the respondents, including gender, education level, and academic institution.

Instrumentations

A structured questionnaire was used as the primary instrument for data collection, comprising 25 items that covered three core constructs. Interpersonal Intelligence was measured by five items adapted from the emotional and social intelligence scales developed by Goleman (1996, 1998), Gardner (1983), Salovey and Mayer (1990), and Bar-On (1997). These items assess participants' ability to understand, manage, and respond to the emotional cues and social dynamics of others. Entrepreneurial Opportunity Recognition was assessed using five items based on previous studies by Tang et al. (2012), Fiet (2002), Ozgen and Baron (2007), and Gregoire et al. (2010), which capture cognitive and behavioral tendencies in identifying and evaluating viable business opportunities. Neuromarketing Perception was measured through 15 items grouped into three subdimensions: (1) interest and participation, (2) awareness and cognition, and (3) ethical considerations. This is taken from the work of Hubert and Kenning (2008), Fugate (2007), Ariely and Berns (2010), Lee et al. (2007), and Plassmann et al. (2012). The items cover awareness, ethical sensitivity, and engagement with neuromarketing in an entrepreneurial context. All responses are recorded on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Data Analysis Techniques

Data were analyzed in two phases. First, descriptive statistics, including mean, frequencies, and percentages, were computed using SPSS Version 26 to summarize the sample characteristics and provide an overview of participant responses. Second, PLS-SEM was employed using SmartPLS 4.0 to test the hypothesized relationships. The analysis included both measurement

and structural model assessments. To ensure robustness, bootstrapping with 10,000 subsamples was performed, and the percentile method was used to evaluate the significance of path coefficients and mediating effects.

Table 1: Respondents' Profile

Variables		N	%
Gender	Male	100	35.7
	Female	180	64.3
Age	20-30	226	80.7
	30-40	43	15.4
	40-50	6	2.1
	50 and above	5	1.8
Marital Status	Married	85	30.4
	Unmarried	193	68.9
	Others	2	0.7
Employment	Self-employed	37	13.2
	Student	78	27.9
	Public Sector	68	24.3
	Private Sector	81	28.9
	Others	16	5.7
Education	Bachelors	138	49.3
	Masters	127	45.4
	Ph.D	9	3.2
	Other University Degrees	6	2.1
University	Kathmandu University	29	10.4
	Pokhara University	64	22.9
	Tribhuvan University	86	30.7
	Others	101	36.1

Source: Authors own work

4. Results and Discussion

Descriptive analysis was conducted to summarize the participants' responses regarding the key constructs, namely interpersonal intelligence, entrepreneurial opportunity recognition, and neuromarketing perceptions, which comprised three sub-dimensions: interest and participation, consciousness and cognition, and ethics. This section provides an overview of the central tendencies and distribution of responses across these variables. The descriptive analysis is followed by the measurement model assessment, which evaluates the reliability and validity of the constructs. This is then followed by the structural model and hypothesis testing, which examine the proposed relationships among the variables through path analysis using PLS-SEM.

Status of interpersonal intelligence among university management students

The results reveal a moderately high level of interpersonal intelligence among respondents (M = 5.20, SD = 1.177). This suggests that most participants perceive themselves as socially skilled, emotionally aware, and effective in managing interpersonal relationships, traits essential for

navigating complex social environments and identifying entrepreneurial cues. The participants' attentiveness to social dynamics is a trait aligned with the foundational characteristics of interpersonal intelligence.

Status of entrepreneurial opportunity recognition among university management students

In terms of entrepreneurial opportunity recognition (M = 4.64, SD = 1.448), a moderate to positive perception of one's ability to identify and act upon potential business opportunities is reflected. This suggests that while students are generally confident in their ability to recognize opportunities, there is still room for improvement. They actively seek information about new product or service ideas, which points to a proactive orientation in exploring entrepreneurial possibilities.

Status of neuromarketing perceptions among university students

Regarding neuromarketing perceptions, respondents exhibited a strong interest and willingness to engage (M = 4.97, SD = 1.353) in the interest and participation dimension. This suggests that students are increasingly open to neuromarketing as a valuable, science-based approach to understanding consumer behavior, particularly in the entrepreneurial context. Notably, enthusiasm for the scientific relevance and future potential of neuromarketing was especially well-received.

Similarly, the dimension of consciousness and cognition yielded a mean of 4.55 (SD = 1.308), reflecting a moderate level of awareness and understanding of neuromarketing. While some respondents indicated familiarity with its core concepts, others appeared less informed. Notably, respondents strongly agreed that awareness of neuromarketing is essential for recognizing entrepreneurial opportunities, suggesting that while technical knowledge may be limited, its perceived importance is recognized. Furthermore, the ethics dimension (M = 5.03, SD = 1.357) indicates a deep concern for ethical considerations in neuromarketing practices. The strongest agreement was found in the belief that consumers should be informed about neuromarketing methods, emphasizing the participants' demand for transparency and ethical conduct in emerging marketing technologies.

Overall, the descriptive statistics indicate that respondents reported relatively moderate to positive levels of interpersonal intelligence, affirming the importance of emotional and social awareness in university management students. Among the three dimensions of neuromarketing perceptions, ethical awareness scored highest, followed by interest and participation and consciousness and cognition. In contrast, entrepreneurial opportunity recognition shows a comparatively lower mean score, suggesting that while university management students may possess the interpersonal and cognitive attributes conducive to entrepreneurship, their ability to translate these into recognized opportunities may still be developing, likely influenced by factors such as experience, context, or exposure. The descriptive statistics supporting these findings are presented in Table 2.

Relationship of Entrepreneurial Opportunity Recognition with Interpersonal Intelligence Neuromarketing Perception

Correlation analysis reveals that interpersonal intelligence exhibits a significant and positive correlation with both entrepreneurial opportunity recognition ($r = .461$, $p < .01$) and all three dimensions of neuromarketing perceptions. The strongest relationship was observed between

interpersonal intelligence and interest and participation in neuromarketing (r = .512, p < .01). These results reinforce the study's theoretical proposition that interpersonal intelligence plays a foundational role in enhancing both cognitive and ethical sensitivity to market cues, which in turn supports the recognition of entrepreneurial opportunities. Correlation results supporting these relationships are presented in Table 2.

Table 2. Descriptive and correlation analysis

Variables	Mean	SD	1	2	3	4	5
Interpersonal Intelligence	5.20	1.177	1				
Entrepreneurial Opportunity Recognition	4.64	1.448	.461** (p < .01)	1			
Neuromarketing Perception (Interest & Participation)	4.97	1.353	.512** (p < .001)	.361** (p < .01)	1		
Neuromarketing Perception (Consciousness & Cognition)	4.55	1.308	.476** (p < .01)	.344** (p < .01)	.714** (p < .01)	1	
Neuromarketing Perception (Ethics)	5.03	1.357	.420** (p < .01)	.326** (p < .01)	.695** (p < .01)	.737** (p < .001)	1

Note: p < .01 indicates significance at the 0.1% level (two-tailed).

Source: Authors own work

Measurement Model Assessment

The measurement model, comprising both lower-order and higher-order constructs, was assessed for construct reliability, convergent validity, and discriminant validity to ensure the robustness of the instrument used in this study. As shown in Table 3, all constructs both at the lower-order level (e.g., Interpersonal Intelligence, Entrepreneurial Opportunity Recognition, and Neuromarketing Perception dimensions) and the higher-order level (e.g., overall Neuromarketing Perception as a second-order construct) demonstrated strong internal consistency. Specifically, Cronbach's Alpha and Composite Reliability (CR) values exceeded the minimum threshold of 0.70 (Nunnally, 1978; Hair et al., 2011), indicating reliable measurement across both levels of the model.

Convergent validity was assessed using outer loadings and Average Variance Extracted (AVE). All items across lower-order constructs had outer loadings above 0.708, and AVE values were greater than 0.50, satisfying the criteria set by Hair et al. (2019, 2021). Similarly, higher-order constructs met the same criteria, confirming that the constructs adequately explain the variance in their indicators. Additionally, Variance Inflation Factor (VIF) values were examined for the higher-order constructs, with all values remaining below 3.3, indicating no concerns about multicollinearity (Diamantopoulos & Siguaw, 2006). To evaluate discriminant validity, three techniques were used: cross-loadings, the Fornell-Larcker criterion, and the Heterotrait-Monotrait Ratio (HTMT). For the lower-order constructs, cross-loading results (Annexures A and B) showed that all indicators loaded higher on their respective constructs than on any other, satisfying the cross-loading condition. Similarly, in the higher-order constructs, cross-loading assessments confirmed that second-order dimensions were distinct from each other and first-order constructs.

The Fornell-Larcker criterion (Table 4) confirmed that, for both lower- and higher-order constructs, the square root of AVE for each construct was greater than its highest correlation with any other construct, indicating satisfactory discriminant validity (Fornell & Larcker, 1981). The HTMT values, presented in Tables 5 and 6, remained below the threshold of 0.90 for both levels of constructs (Gold et al., 2001). To validate the discriminant validity at the higher-order level, constructs were reviewed for cross-loading concerns (Henseler et al., 2015), and HTMT inference was tested through bootstrapping (10,000 subsamples) using the percentile method, which showed confidence intervals within the 95% acceptable range (Hair et al., 2021). The analysis confirms that both lower-order and higher-order constructs exhibit satisfactory construct reliability, convergent validity, and discriminant validity, ensuring the measurement model is suitable for further structural analysis.

Table 4. Fornell-Larcker criterion (LoC and HoC)

Constructs	II	IP	CC	E	NP	EOR
Interpersonal Intelligence (II)	0.797	0.660	0.528	0.710	0.700	0.628
Interest and Participation (IP)	-	0.891	0.736	0.749	-	0.646
Consciousness and Cognition (CC)	-	-	0.815	0.737	-	0.556
Ethics (E)	-	-	-	0.857	-	0.513
Neuromarketing Perceptions (NP)	-	-	-	-	0.909	0.631
Entrepreneurial Opportunity Recognition (EOR)	-	-	-	-	-	0.900

Source: Authors own work

Table 5. HTMT(LoC)

Variables	CC	E	EOR	II	IP
CC					
E	0.804 [0.796, 0.896]				
EOR	0.618 [0.611, 0.796]	0.552 [0.516, 0.753]			
II	0.585 [0.624, 0.778]	0.802 [0.773, 0.890]	0.697 [0.606, 0.799]		
IP	0.801 [0.791, 0.894]	0.815 [0.803, 0.911]	0.683 [0.598, 0.788]	0.734 [0.719, 0.853]	

Source: Authors own work

Table 6. HTMT (HoC)

Variables	EOR	II	NP
EOR			
II	0.697 [0.602, 0.785]		
NP	0.683 [0.590, 0.766]	0.791 [0.712, 0.859]	

Source: Authors own work

Table 3. Reliability and convergent validity

Construct		Items	Lower Order Construct					Higher Order Construct				
			Loading	CA	CR	AVE	VIF	Loading	CA	CR	AVE	VIF
Interpersonal Intelligence		II1	0.817	0.856	0.858	0.635	1.98	-	0.856	0.858	0.635	-
		II2	0.749				1.75					
		II3	0.800				1.99					
		II4	0.796				2.29					
		II5	0.820				2.44					
Neuromarketing Perception	Interest and Participations	IP1	0.875	0.935	0.937	0.794	2.93	0.918				2.75
		IP2	0.885				3.46					
		IP3	0.916				4.15					
		IP4	0.913				4.12					
		IP5	0.865				3.09					
	Consciousness and Cognition	CC1	0.762	0.874	0.886	0.665	5.00	0.896	0.895	0.903	0.827	2.64
		CC2	0.749				5.00					
		CC3	0.892				2.91					
		CC4	0.834				3.39					
		CC5	0.831				3.18					
	Ethics	E1	0.861	0.909	0.911	0.735	2.63	0.913				2.74
		E2	0.887				3.23					
		E3	0.866				2.66					
		E4	0.885				3.13					
		E5	0.784				1.87					
Entrepreneurial Opportunity Recognition		EOR1	0.873	0.941	0.942	0.809	3.03	-	0.941	0.942	0.809	-
		EOR2	0.932				4.99					
		EOR3	0.884				3.46					
		EOR4	0.913				4.39					
		EOR5	0.895				3.66					

Source: Authors own work

Structural Model Assessment – estimate and path analysis

The coefficient of determination (R^2) values indicate the explanatory power of the model for the endogenous constructs. For Entrepreneurial Opportunity Recognition (EOR), the R^2 value of 0.466 suggests that approximately 46.6% of the variance in EOR is explained by the predictor variables, namely, interpersonal intelligence and neuromarketing perceptions. This relationship is statistically significant, as indicated by a t-value of 8.948 and a p-value < 0.01, with the 95% confidence interval ranging from 0.370 to 0.573. Similarly, for Neuromarketing Perceptions (NP), the R^2 value of 0.490 indicates that 49.0% of the variance in NP is accounted for by interpersonal intelligence. The relationship is also highly significant (t = 9.952, p < 0.01), with a confidence interval between 0.391 and 0.584. These results suggest that the model has moderate explanatory power, demonstrating that the predictors substantially contribute to the variation

in the endogenous constructs. The model has a Variance Inflation Factor (VIF) of less than 5, which is considered valid (Hair et al., 2011).

The structural model results reveal statistically significant and positive relationships among the key constructs. Interpersonal intelligence has a strong positive effect on entrepreneurial opportunity recognition, with a standardized path coefficient (ß) of 0.628, a t-value of 14.452, and a p-value < 0.01, indicating a highly significant relationship. The 95% confidence interval [0.531, 0.704] does not include zero, confirming the robustness of this effect. Similarly, neuromarketing perceptions also exert a significant positive influence on entrepreneurial opportunity recognition (ß = 0.631, t = 14.833, p < 0.01), with the corresponding confidence interval [0.537, 0.704] further validating this relationship. Additionally, interpersonal intelligence shows a substantial and statistically significant effect on neuromarketing perceptions (ß = 0.700, t = 19.768, p < 0.01), with a 95% confidence interval ranging from [0.622, 0.762]. These findings support that both interpersonal intelligence and neuromarketing perceptions are critical in enhancing students' recognition of entrepreneurial opportunities. Hence, H1, H2, and H3 have been supported.

Table 7. Model Estimate (R^2) and the Path Analysis

Path/Endogenous	ß/R^2	SD	t-values	P-values	CI	
					LL=2.50%	UL=97.50%
II <-> EOR	0.628	0.043	14.452	0.001	0.531	0.704
NP <-> EOR	0.631	0.043	14.833	0.001	0.537	0.704
NP <-> II	0.700	0.035	19.768	0.001	0.622	0.762
EOR (R^2)	0.466	0.052	8.948	0.001	0.370	0.573
NP (R^2)	0.490	0.049	9.952	0.001	0.391	0.584

Source: Authors own work

Effect Size (F-square)

The effect size (f^2) analysis reveals the relative contribution of each predictor to the variance in the endogenous constructs, following Cohen's (1988) benchmarks of 0.02 (small), 0.15 (medium), and 0.35 (large). The path from Interpersonal Intelligence (II) to Entrepreneurial Opportunity Recognition (EOR) shows an f^2 of 0.128, indicating a small to medium effect size. This relationship is statistically significant (t = 2.239, p = 0.025; 95% CI: 0.045–0.266), confirming the meaningful role of II in shaping EOR.

The path from II to Neuromarketing Perceptions (NP) demonstrates a substantial effect size (f^2 = 0.962) with strong statistical significance (t = 4.928, p < 0.001; CI: 0.643–1.406), indicating that II is a dominant predictor of NP. Additionally, the path from NP to EOR yields an f^2 of 0.133 (t = 2.527, p = 0.012; CI: 0.053–0.257), indicating a small to medium effect. Overall, these findings confirm that both II and NP significantly influence EOR, with II exerting a powerful influence on NP.

Table 8. Size of Effect (F-square)

Path	F^2	SD	T -Value	P- value	CI	
					2.50%	97.50%
II -> EOR	0.128	0.057	2.239	0.025	0.045	0.266
II -> NP	0.962	0.195	4.928	0.001	0.643	1.406
NP -> EOR	0.133	0.053	2.527	0.012	0.053	0.257

Source: Authors own work

Mediation of Neuromarketing perception in the relationship between interpersonal intelligence and entrepreneurial opportunity recognition

The mediation analysis examined whether neuromarketing perceptions mediate the relationship between interpersonal intelligence and the recognition of entrepreneurial opportunities. The results reveal a significant indirect effect of interpersonal intelligence on entrepreneurial opportunity recognition through neuromarketing perceptions ($\beta = 0.262$, $p < 0.01$). The direct impact of interpersonal intelligence on entrepreneurial opportunity recognition was also significant ($\beta = 0.629$, $p < 0.01$), indicating partial mediation. The Variance Accounted For (VAF) was calculated to determine the strength of the mediation. The VAF value is 0.416, meaning that approximately 41.6% of the total effect of interpersonal intelligence on opportunity recognition is transmitted through neuromarketing perceptions. Since the VAF lies between 20% and 80%, this confirms the existence of partial mediation (Hair et al., 2021). These findings suggest that neuromarketing perceptions play a meaningful mediating role, enhancing the effect of interpersonal intelligence on the ability to recognize entrepreneurial opportunities among university students. Hence, H4 has been supported.

Table 9. Mediation Analysis

Path	Indirect Effect		Direct Effect		Total Effect	VAF (IE/TE)	Results
	β	P value	β	P value			
II -> EOR			0.262	0.001			Mediati
II -> NP -> EOR	0.262	0.001			0.629	0.416	on

Source: Authors own work

Discussion

This study investigated the impact of interpersonal intelligence on entrepreneurial opportunity recognition, as well as the mediating role of neuromarketing perceptions among university management students in Nepal. The findings make a meaningful contribution to the evolving literature on entrepreneurial cognition by confirming hypothesized relationships and extending the existing discussion through the integration of neuroscience, psychology, and marketing perspectives.

The findings indicate that university management students possess moderate to positive levels of interpersonal intelligence, with ethical awareness in neuromarketing perceptions scoring highest, followed by interest and participation, and consciousness and cognition. However, entrepreneurial opportunity recognition remains comparatively lower.

This pattern is consistent with the existing literature, which highlights the importance of interpersonal intelligence—including emotional and social awareness—in fostering entrepreneurial behavior and recognizing opportunities (Baskaran et al., 2021; Irfan & Malik, 2023). The strong ethical awareness observed aligns with recent studies emphasizing the significance of ethics in neuromarketing and neuroentrepreneurship, particularly regarding issues of consumer autonomy and responsible business practices (Juárez-Varón et al., 2024). High engagement and cognitive awareness of neuromarketing concepts further suggest that students are well-prepared in these areas, supporting research that neuromarketing perceptions can mediate the link between multiple intelligences and opportunity recognition (Baskaran et al., 2021).

Despite these strengths, the lower scores in opportunity recognition may reflect limited practical experience or exposure, as suggested by prior studies, indicating a need for more experiential learning opportunities to help students translate their interpersonal and cognitive skills into entrepreneurial action (Baskaran et al., 2021). This study found that interpersonal intelligence significantly influences entrepreneurial opportunity recognition, supporting Hypothesis 1; this supports prior work by Pathak and Muralidharan (2024), Karsantik and Cayak (2025), and Pramod and Ramachandran (2023), who found that individuals with strong interpersonal-social intelligence are better positioned to recognize and evaluate opportunities. This is due to their ability to navigate complex social environments, interpret social cues, and form meaningful relationships—skills critical for entrepreneurial success (Boyatzis & Soler, 2012; Goleman, 1998). Camelo-Ordaz et al. (2020) confirmed this by demonstrating the role of self-efficacy and responsiveness to social norms in mediating this relationship, while Packard and Burnham (2021) emphasized the influence of empathy on entrepreneurial cognition. Similarly, Aydın et al. (2023) showed that creative thinking, often developed through social interaction, enhances opportunity discovery.

Additionally, the context of Nepal is an important dimension, where interpersonal dynamics, community values, and cultural sensitivity play a central role in shaping entrepreneurial behavior. Suprapto et al. (2024) and Al-Ayed (2024) highlight how entrepreneurial alertness and digital opportunity recognition enhance entrepreneurial self-efficacy, traits rooted in interpersonal intelligence. Viswanath et al. (2024) demonstrate that their social conscience and life experiences influence student entrepreneurs in developing nations, while Makhloufi et al. (2024) show that knowledge sharing and absorptive capacity enhance opportunity awareness. Nevertheless, as Burja and Burja (2013) caution, a unified framework that bridges the social, emotional, and cognitive domains in entrepreneurship remains underdeveloped. This study directly addresses this gap by integrating interpersonal and perceptual intelligence.

In this study, a significant positive relationship was found between interpersonal intelligence and neuromarketing perceptions, supporting Hypothesis 2. This aligns with Baron-Cohen's (1999) survey, which emphasized how social intelligence supports brain-based response interpretation, a concept central to neuromarketing. Demir (2022) and Caratù et al. (2020) likewise argue that individuals with high interpersonal intelligence are better at decoding emotional signals in advertisements and social campaigns. Zito et al. (2021) and Vences et al. (2020) showed that social intelligence enhances message engagement and emotional resonance, particularly in digital and nonprofit communication. These studies support the

conclusion that interpersonal intelligence is instrumental in forming accurate neuromarketing perceptions, which entrepreneurs can leverage to understand subconscious consumer behavior.

Similarly, the findings support Hypothesis 3 and confirm that neuromarketing perceptions have a positive influence on entrepreneurial opportunity recognition. Juárez-Varón et al. (2024) and Serna-Zuluaga et al. (2024) demonstrate that EEG and GSR techniques reveal how entrepreneurs differ from non-entrepreneurs in neural processing during opportunity identification. Their findings, which showed greater emotional regulation and goal-oriented focus among experienced entrepreneurs, align with the view that neuromarketing perceptions facilitate the interpretation of consumer cues. Sharma et al. (2021) and Baskaran et al. (2021) also found that such perceptions enhance cognitive decision-making and market responsiveness, core elements of successful opportunity recognition.

Furthermore, the findings also support Hypothesis 4, identifying a partial mediating effect of neuromarketing perceptions on the relationship between interpersonal intelligence and entrepreneurial opportunity recognition. This is consistent with Baskaran et al. (2021), who conceptualized neuromarketing as a bridge linking intelligence and opportunity action. Ghosh and Kumar (2024) demonstrated that neuromarketing enhances resource allocation and consumer analysis, while Prabha (2023) highlighted its value in reducing uncertainty through the integration of emotional and cognitive aspects. Healey et al. (2021) further noted that entrepreneurs' mental states, influenced by interpersonal competencies, shape their evaluation of opportunities.

Additionally, unlike previous studies that have focused solely on cognitive traits (Lee & Lee, 2016; Mu & Jones, 2017), this study integrates ethical and neurological perspectives, responding to the calls by Smith and Murphy (2022) and Zhang et al. (2025) for a broader inclusion of ethical concerns in neuromarketing. In Nepal, where awareness of neuromarketing is still emerging, students have shown a strong concern for ethics, particularly transparency and informed consent, which adds further complexity to the understanding of neuromarketing perceptions.

Recent neuro-entrepreneurship research further supports the contributions of this study. Juárez-Varón et al. (2024) revealed that entrepreneurial neural patterns are distinct, while Yu et al. (2022) found that emotionally expressive entrepreneurs generate greater audience engagement, bridging neuroscience with communication and opportunity recognition. In summary, this study presented the findings by linking interpersonal intelligence with neuromarketing perceptions and opportunity recognition in an emerging economy context. It contributes to a more integrated, multidimensional understanding of entrepreneurial cognition and proposes a roadmap for future interdisciplinary exploration.

4. Conclusion

In conclusion, interpersonal intelligence plays a critical role as a foundational component in shaping entrepreneurial potential, particularly when viewed through the lens of neuromarketing. The integration of social awareness, emotional understanding, and cognitive responsiveness enhances an individual’s capacity to perceive and act on emerging opportunities in dynamic market environments. By positioning neuromarketing perceptions as a psychological and ethical bridge between interpersonal capacity and entrepreneurial action, the study offers a multidimensional perspective on how individuals interpret consumer behavior and market

cues. Developing entrepreneurial skills cannot be limited to business knowledge alone but must also include cultivating social and emotional intelligence. In particular, university students who are at a formative stage of entrepreneurial development benefit significantly when their ability to understand social dynamics is aligned with perceptual tools like neuromarketing. This intersection promotes not only opportunity recognition but also more ethically grounded and consumer-aware entrepreneurial behavior.

Implications

The findings of this study present valuable implications for entrepreneurs, educators, policymakers, and researchers by shedding light on the interplay between interpersonal-social intelligence, entrepreneurial opportunity recognition, and the mediating role of neuromarketing perceptions. As a relatively novel investigation, the study offers a multidimensional framework that contributes to a deeper understanding of how cognitive, social, and perceptual competencies interact to drive entrepreneurial success.

For entrepreneurs, the results emphasize that identifying and capitalizing on business opportunities is not solely a function of market analysis or innovation—it also depends heavily on one's ability to understand, connect with, and respond to others. Interpersonal intelligence, which encompasses empathy, social awareness, and practical communication skills, enhances the ability to understand and interpret social dynamics and the needs of stakeholders. When combined with neuromarketing perceptions, such as interpreting consumer emotions, attention, and subconscious behavior, entrepreneurs are better positioned to align their offerings with market demands and engage ethically with their audience.

The study also holds practical value for managers and educators, encouraging the incorporation of soft skills development and neuromarketing literacy into entrepreneurial education and training programs. This includes integrating modules that develop social-emotional competencies alongside exposure to neuromarketing techniques and tools. Such holistic training can prepare aspiring entrepreneurs to be not only innovative and opportunity-oriented but also ethically grounded and consumer-conscious.

For policymakers, the research highlights the importance of fostering supportive ecosystems that promote interdisciplinary capacity-building. Incubation programs, entrepreneurship grants, and youth innovation platforms can benefit from promoting awareness of ethical neuromarketing practices and social intelligence as essential components of entrepreneurial development. Particularly in emerging economies like Nepal, these insights can inform policies aimed at enhancing entrepreneurial readiness among university graduates and fostering socially responsible innovation.

Ultimately, this study lays the groundwork for future research by providing a conceptual foundation for further exploration of the mediating and moderating variables that influence entrepreneurial behavior. Scholars may build upon this work by examining additional forms of intelligence (e.g., cultural or emotional intelligence), diverse cultural contexts, or longitudinal impacts of neuromarketing perceptions on entrepreneurial outcomes.

In summary, this study underscores the importance of an integrated approach to entrepreneurship—one that combines interpersonal intelligence and perceptual insight to promote opportunity recognition and ethical decision-making. Such integration not only strengthens individual entrepreneurial capacity but also supports the development of sustainable, human-centered ventures in complex and evolving business environments.

Further Research Implications

Despite its contributions, this study has limitations. While it offers valuable insights into the relationship between interpersonal intelligence, neuromarketing perceptions, and entrepreneurial opportunity recognition, it does not encompass the full complexity of the phenomenon. First, the sample is limited to university management students in Nepal, which may restrict generalizability. Second, while the study explored interpersonal intelligence, future studies could examine other intelligences (e.g., emotional, cultural, analytical) and their effects on opportunity recognition. Longitudinal studies would also offer more profound insight into how these traits evolve. Moreover, future research could apply this model in other cultural or industrial settings or explore the role of gender, entrepreneurial education, and institutional support in shaping neuromarketing perceptions and entrepreneurial cognition.

Additionally, applying the current or an alternative methodological approach to diverse populations or contexts, such as aspiring entrepreneurs in the private sector, rural innovators, or individuals from other cultural backgrounds, would allow researchers to explore contextual variations and improve the external validity of the results. Expanding the study across different economic sectors or industries could also provide comparative insights and reveal sector-specific patterns in the role of intelligence and neuromarketing in entrepreneurship. By addressing these areas, future research can build a more comprehensive and nuanced understanding of how individuals recognize and act upon entrepreneurial opportunities, ultimately contributing to the advancement of theory, practice, and policy in entrepreneurship and innovation.

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Appendix

Appendix A: Crossloading (LoC)

Items	Consciousness and Cognition	Ethics	Entrepreneurial Opportunity Recognition	Interpersonal Intelligence	Interest and Participation
CC1	0.762	0.384	0.502	0.282	0.484
CC2	0.749	0.339	0.496	0.203	0.422
CC3	0.892	0.672	0.496	0.527	0.632
CC4	0.834	0.746	0.392	0.501	0.71
CC5	0.831	0.78	0.404	0.563	0.707
E1	0.598	0.861	0.361	0.634	0.64
E2	0.617	0.887	0.479	0.663	0.623
E3	0.642	0.866	0.459	0.57	0.617
E4	0.671	0.885	0.431	0.577	0.624
E5	0.632	0.784	0.46	0.588	0.702
EOR1	0.587	0.494	0.873	0.561	0.601
EOR2	0.535	0.479	0.932	0.552	0.614
EOR3	0.438	0.487	0.884	0.606	0.579
EOR4	0.466	0.423	0.913	0.524	0.574
EOR5	0.466	0.418	0.895	0.574	0.533
II1	0.492	0.585	0.525	0.817	0.619
II2	0.414	0.513	0.525	0.749	0.484
II3	0.343	0.565	0.457	0.8	0.483
II4	0.428	0.537	0.542	0.796	0.503
II5	0.415	0.624	0.443	0.82	0.525
IP1	0.651	0.63	0.611	0.595	0.875
IP2	0.63	0.723	0.464	0.588	0.885
IP3	0.655	0.626	0.656	0.587	0.916
IP4	0.662	0.647	0.612	0.564	0.913
IP5	0.68	0.721	0.515	0.607	0.865

Appendix A: Crossloading (HoC)

Items	Entrepreneurial Opportunity Recognition	Interpersonal Intelligence	Neuromarketing Perceptions
EOR1	0.873	0.562	0.616
EOR2	0.932	0.553	0.599
EOR3	0.886	0.607	0.556
EOR4	0.912	0.525	0.539
EOR5	0.894	0.575	0.521
II1	0.526	0.817	0.626
II2	0.526	0.752	0.52

II3	0.458	0.799	0.516
II4	0.542	0.797	0.541
II5	0.444	0.817	0.578
NP – CC	0.556	0.528	0.896
NP – E	0.513	0.709	0.913
NP – IP	0.646	0.659	0.918

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