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Ripple effect of gig work: How hands-on experience and networks shape future female entrepreneurs



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ABSTRACT

The rapid growth of the gig economy is reshaping traditional employment structures, creating new pathways for entrepreneurial activities, especially for women. Female entrepreneurship has always been a trending issue worldwide, particularly in developing conservative societies where females face social and gender bias. To enhance the role of females in society and engage them in economic development, an adequate business environment should be created, including opportunities in the gig economy. In this context, the Saudi government provides extensive support for current and potential female entrepreneurs across various aspects. This study builds on the Saudi government's efforts to understand the effects of gig economy engagement (GEE), experiential learning (EL), and network expansion (NE) on entrepreneurial intention (EI). A sample of 208 female students was collected, and the developed hypotheses were tested using partial least squares structural equation modeling. The findings were intriguing, as GEE had a direct, positive, and significant relationship with EI and NE but no substantial relationship with EL. Conversely, EL had a direct and positive relationship with EI, while NE exhibited a positive and significant relationship with EI. The developed model validates the study's context and has critical theoretical and practical implications for policymakers and researchers.

Introduction

The gig economy is gaining global popularity across various sectors (Patre, 2023). The gig economy, characterized by flexible, task-based work, can primarily be attributed to the digital revolution, which has brought significant shifts in labor markets and employment structures (Alturkey, 2024; Sankararaman et al., 2024). Earlier, Kassi and Lehdonvirta (2018) assessed the gig economy's potential to enhance temporal flexibility, alleviate local labor shortages, and create substantial innovative earning opportunities, which can be beneficial for occupations and countries experiencing unemployment. Participating in gig practices, exploring innovative opportunities and business ideas, and

becoming gig economy entrepreneurs are viable alternatives to paid work for females striving to meet the ongoing need for family income while balancing job options, family caregiving, and home obligations (Mouazen & Hernández-Lara, 2023). Davidson et al. (2023) predicted that the prevalence of gig-based individuals, who primarily act as frontline service providers to enhance consumer satisfaction, will continue to rise as customers seek access to unique experiences that fulfill their desire for alternative consumption forms. The gig paradigm expands job opportunities, promotes economic diversification, and encourages entrepreneurship and creativity, aligning with the fundamental objectives of Saudi Vision 2030 to revamp the education system, prioritize equal opportunities, and meet market needs by recognizing

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the crucial role of small and medium-sized enterprises (SMEs) in leading economic development. This is perhaps why the gig economy is gaining prominence in Saudi Arabia, with a predicted valuation of approximately USD 2.7 trillion by 2025 (Asfahani et al., 2023).

Although perceptions of artificial intelligence (AI)-induced job displacement risk remain higher among remote workers with frequent internet usage (Wang & Lu, 2025), the gig economy is a crucial component in understanding freelancing, technology management, online and digital work, and employment attitudes, thereby complementing entrepreneurial ecosystems (Mouazen & Hernández-Lara, 2023). Undoubtedly, self-employment and entrepreneurship are essential for creating economic opportunities. According to Sankararaman et al. (2024), the autonomy and flexibility offered by the gig economy empower individuals to pursue entrepreneurship, achieve a work–life balance, and supplement their income. Liñán and Chen (2009) found that intentions are crucial in determining whether to start a new firm. Additionally, Chin et al. (2022) emphasized the significance of networks for career success. To address the needs of this emerging gig environment and its ecosystems, universities are transforming into centers for experiential learning (EL), which is crucial for fostering constructive activities such as entrepreneurship (Bertoni & Bertoni, 2019).

Research on the gig economy is expanding; however, most studies focus on a Western perspective, and empirical exploration across diverse contexts, where the factors encouraging entrepreneurship may be unique, remains limited (Alturkey, 2024; Mouazen & Hernández-Lara, 2023). From a regional perspective, there is a lack of research on Arab nations (Mouazen & Hernández-Lara, 2023). Moreover, despite the global increase in the number of women in business, the proportion of female business leaders remains small, and the gender distribution varies significantly by region and sector (Alexeeva-Alexeev et al., 2025). Despite advancements in the entrepreneurial literature, significant gaps persist in its theoretical development, as insufficient academic effort is dedicated to studying the entrepreneurship cases of vulnerable groups, such as females, whose intentions and practices regarding the gig economy are underexplored (Mouazen & Hernández-Lara, 2023). For the gig paradigm, although its implications are far-reaching and profound, they are not yet fully understood (Kässi & Lehdonvirta, 2018).

Furthermore, despite the lengthy tenures and general satisfaction associated with gig work, most individuals intend to exit the gig economy within a year, as evidenced by the high turnover rates, with some platforms reporting a 500 % annual turnover rate (Alturkey, 2024; Davidson et al., 2023). Furthermore, while many gig platforms rely on digital personnel, little is known about their perceptions of engagement, which is crucial for their job performance (Davidson et al., 2023). As the youth are currently experiencing and continue to experience the gig economy firsthand, the world is witnessing a steady decline in the number of young people working full-time, which is an emerging serious issue for governments globally (Churchill et al., 2019). Although the advantages and difficulties of gig work are becoming more widely recognized, less is known about the factors that motivate younger people to choose gig work (Patre, 2023).

We respond to the call of Zwettler et al. (2024) for future researchers to examine how learning and networking interact to create opportunities for potential gig workers. Accordingly, this study is based on the following unanswered research questions: How does gig economy engagement (GEE) affect EL, network expansion (NE), and entrepreneurial intention (EI)? How does EL affect EI? How does NE affect EI? Hence, the research objective is to investigate the relationships between GEE, EL, NE, and EI among female university students in Saudi Arabia. This study contributes to the literature by focusing on females in an Arab nation, striving to understand the factors that foster EI under unique circumstances, thereby enabling a deeper understanding of the gig economy through a gendered lens and specific cultural context, which is missing in the existing literature. This insight will be beneficial for policymakers in formulating and implementing strategies to enhance female entrepreneurship in Arab nations. This study is organized into

the following sections: Introduction, Literature Review, Research Methodology, Data Analysis, Discussion, Conclusion, Limitations, and Future Studies.

Literature review

Study context

Gig platforms, spanning ride-sharing services to e-commerce marketplaces, have profoundly reshaped the global employment landscape over the past decade (Asfahani et al., 2023). Existing research posits that the significant rise in digital labor platforms, alongside a marked increase in gig work income, has redefined work by merging algorithmic management with the flexibility of freelancing, altering consumer behavior, and illustrating the transformative nature of the gig economy (Alturkey, 2024; Bogatyreva et al., 2023). Consistent with Saudi Arabia's Vision 2030 initiative, this shift from traditional jobs signifies a substantial change, emphasized by a focus on flexible structures and individual tasks, particularly for nations undergoing intense transitions, such as Saudi Arabia, which has unique socio-cultural norms. The gig economy is promising in Saudi Arabia, especially in entrepreneurship and healthcare; however, a holistic understanding of the gig paradigm in the Kingdom is insufficient (Asfahani et al., 2023). Therefore, this study identifies Saudi Arabia as an appropriate context for examining the interplay between GEE, EL, NE, and EI. Regarding the perspective of female students considered, we draw from the study by Churchill et al. (2019), who emphasized that female participation in paid work has significantly increased, driven by a substantial expansion of higher education opportunities for females and a changing industrial landscape. According to Churchill et al. (2019), youth unemployment is a persistent issue for governments. Younger generations, increasingly influenced by social changes, are entering a labor market where “work” is progressively supplanted by “tasks” and “gigs” characterized by highly nonstandard, casualized employment, which impacts their lives outside of work. Thus, to better understand and address this issue, this study focuses on female university students, using Saudi Arabia as a relevant data source.

Theoretical foundations

This study is grounded in the social cognitive theory (SCT) developed by Bandura (1986), as it aligns with the model's components and fulfills its purpose. The SCT posits that interactions among key elements shape individual learning and behavior. In this context, the gig economy serves as the external factor; EL functions as a personal factor; NE denotes a social factor; and EI is the ultimate behavioral outcome that results from these interactions. The SCT asserts that these three elements collaborate to generate an individual's final behavior. An individual learns through social interactions, experiences, external support, and structure, making this theory particularly relevant to understanding how gig work affects EIs among female students. More specifically, the gig economy (an external factor) offers future female entrepreneurs a practical environment to engage in short-term, skill-based work, exposing them to real-world business challenges. Through its practical experience, the gig economy allows future entrepreneurs to enhance their observational learning—a crucial factor in shaping EI—by observing peers succeed in gig work. Furthermore, it enables them to boost their self-efficacy and confidence in launching their business.

The SCT also indicates that individuals can learn through direct experiences (Bussey & Bandura, 1999), confirming the importance of the gig economy in enabling students to develop trial-and-error problem-solving skills and manage client demands. It also allows them to cultivate task-specific competencies, such as digital marketing and freelancing, making them more capable and better prepared for business establishments. Gig work further empowers future female entrepreneurs by connecting them with clients and other entrepreneurs, thereby

creating a robust social network and enhancing business opportunities. The SCT highlights that higher self-efficacy and outcomes will drive intentions; in this regard, gig work helps future female entrepreneurs gain evidence of capability and recognize viable income pathways, which are crucial elements of EI. Earlier, Akhtar et al. (2024) drew on the theoretical framework of SCT to investigate freelancers' engagement and performance, finding that the premise of SCT promotes observational learning in the gig economy. Thus, the theoretical framework of SCT supports the explanation of how freelancers' experience, engagement, and knowledge combine to influence gig performance (Akhtar et al., 2024, 2025).

Hypotheses development

Impact of the GEE on EL

GEE is the level of involvement in online work across gig platforms, characterized by flexible, task-based employment that produces innovative earning opportunities (Alturkey, 2024; Kässi & Lehdonvirta, 2018). EL, regarded as a method through which learning or knowledge creation occurs via hands-on, direct experiences, has recently gained significant importance in education (Mayer & Schwemmler, 2023; Spanjaard & Stegemann, 2018). Gig labor, characterized by its emphasis on flexible structures and individual tasks, involves people performing specific work for companies under clear contractual agreements rather than as permanent employees. On the other hand, EL emphasizes the role of "experience" for effective learning among individuals and entails possessing four stages of abilities—concrete experience, reflective observation, abstract conceptualization, and active experimentation (Bertoni & Bertoni, 2019). Engagement in experience, collaborative endeavors, emotional investment, and structured reflection serves as the basis for meaningful associations through experiential education (Walker & Rocconi, 2021). According to Davidson et al. (2023), gig employees' appreciation of their capability, leading to their work performance and the intrinsic motivation necessary for engagement in the gig economy, is associated with EL. Moreover, Zwettler et al. (2024) highlighted that gig practitioners are involved in learning, including the acquisition of skills. University students are inherently exposed to businesses seeking global expansion. Encouraging ongoing engagement rather than concentrating on selected discrete areas enables individuals to observe connections across fields, where learning is directly related to the actual work environment. Therefore, the following hypothesis is proposed:

H1. GEE positively and directly affects EL.

Impact of the GEE on NE

In the gig economy, the network in which individuals are embedded, encompassing both the size and quality of associations with their colleagues, is influenced by workplace organizational engagement (Kuhn & Maleki, 2017). According to Mouazen and Hernández-Lara (2023), network density, reflected in the degree of connectedness among entrepreneurs, facilitates the flow of information, thereby easing the allocation of financial and human capital, knowledge, and talent that fosters innovative ideas. Moreover, Zwettler et al. (2024) noted that gig workers engage in role learning to acquire and maintain relationships by conducting extensive networking activities, such as employing elaborate, context-specific communication behaviors. Furthermore, Pilatti et al. (2024) highlighted that gig workers' ability to share information, negotiation strategies, and collective actions that enhance their bargaining power, autonomy, and overall position is facilitated by social networks. Empirically, Aamir et al. (2024) found that user engagement is directly significant to stakeholders' networks. Hence, the following hypothesis is proposed:

H2. GEE positively and directly affects NE.

Impact of the GEE on EI

The willingness to start a new business is referred to as EI (Ferreira-Neto et al., 2023). Conversely, the engagement factor, as a facilitator of new venture creation or innovation in existing ones, stimulates the development of entrepreneurial endeavors (Mouazen & Hernández-Lara, 2023). EI is seen as creating value by participating in risky, innovative, and proactive activities (Fini et al., 2012). In a recent study, Sankararaman et al. (2024) noted that engagement in the gig economy can foster entrepreneurship, promote labor market adaptability, diversify income sources, and thereby build economic resilience. Earlier, Miralles et al. (2017) found that current engagements determine the intention to launch a business venture. Empirically, Shen et al. (2025) found that students' involvement in entrepreneurship competitions is positively correlated with their EI. In a separate study, Masri et al. (2021) echoed that students' learning engagement moderately, positively, and significantly influences their EI. On the contrary, Wang and Lu (2025) highlighted that workers who frequently engage in digitized tasks are likely more aware of AI's labor market impact and feel their roles are more susceptible to automation, implying that GEE is not expected to affect EI in certain contexts directly. Other researchers have found that engagement mediates the impact of specific antecedents on EI (Cegarra-Navarro et al., 2024; Tantawy et al., 2021). Therefore, the following hypothesis is proposed:

H3. GEE positively and directly affects EI.

Mediating role of EL and NE

The conceptual framework, as illustrated in Fig. 1, proposes that EL and NE mediate the relationship between GEE and EI. Earlier, Karami and Tang (2019) identified a significant mediating role of networking capability and EL in the relationship between the performance of SMEs and entrepreneurial orientation. Pitan and Müller (2019) demonstrated a significant, positive, and indirect effect of university reputation on undergraduates' perceived employability through EL activities. Conversely, Mouazen and Hernández-Lara (2023) suggested that expanding networks promotes engagement and establishes a robust foundation for potential female entrepreneurs, indicating a possible mediating role of NE. On the other hand, several existing studies have revealed that GEE is not expected to directly affect EI in specific contexts (Cegarra-Navarro et al., 2024; Tantawy et al., 2021; Wang & Lu, 2025). Thus, the interplay of GEE, EL, and NE collectively enhances EI. Based on the existing literature and the developed conceptual framework, it is essential to test whether EL and NE function as mediators in fostering EI toward the gig economy. Hence, the following hypotheses are proposed:

H4. EL mediates the relationship between GEE and EI.

H5. NE mediates the relationship between GEE and EI.

Impact of EL on EI

EL has recently been adopted as an approach for entrepreneurial education. It is recognized as an effective tool for acquiring entrepreneurial knowledge due to its potential to positively influence EI and foster the development of entrepreneurial competencies and skills (Motta & Galina, 2023; Taneja et al., 2023). Students believe that experiential assessments provide greater opportunities to test their abilities and are more relevant to real-world business activities, thereby addressing the needs of emerging business markets and facilitating entrepreneurial decision-making and preparation for future careers (Spanjaard & Stegemann, 2018). According to Zwettler et al. (2024), due to the learning among gig workers, individuals develop an entrepreneurial identity and aspiration, enabled by their ability to utilize gig platforms for entrepreneurial activities. Empirically, Anwar and Abdullah (2021) found that EL, in terms of cognitive load, empirical learning, and self-efficacy, strongly predicts EI. Moreover, Taneja et al. (2024) demonstrated that EL has a positive effect on EI among students. Furthermore, Lin et al. (2023) posited that EL encompasses

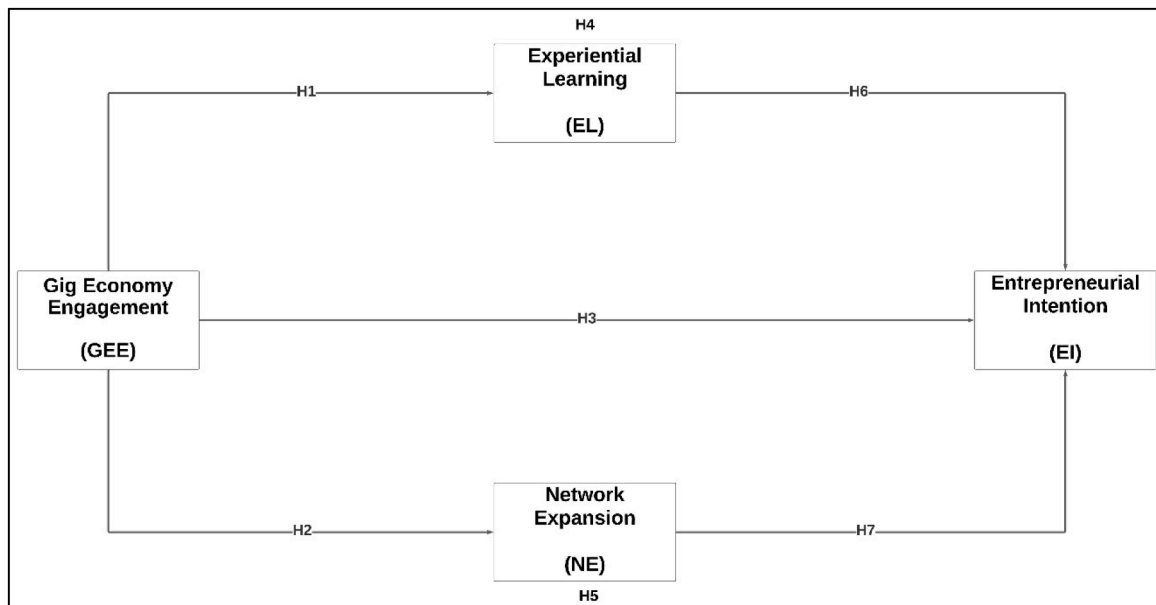


Fig. 1. Conceptual model. source: author's development.

entrepreneurial education and social network learning, thereby significantly and positively impacting students' EI. More recently, Al Issa et al. (2025) found that EL enhances social EI, specifically among university students. Therefore, the following hypothesis is proposed:

H6. EL positively and directly affects EI.

Impact of NE on EI

Social networks provide access to essential resources necessary for creating entrepreneurial ventures, thereby influencing individuals' intentions to start a business (Osorio et al., 2017). Chin et al. (2022) emphasized the significance of networks for career success. According to Mouazen and Hernández-Lara (2023), network density acts as an enabler of the entrepreneurial ecosystem, constituting forces that support entrepreneurial initiatives and facilitate the emergence and flourishing of entrepreneurs. Spanjaard and Stegemann (2018) noted that networking represents the most valuable experience, playing a vital role across industries and offering individuals opportunities that enhance their understanding of the corporate world. Empirically, Yang et al. (2025) demonstrated the importance of network ties for EI. It is perceived that for deliberate EI, active participation in networks, along with diverse prior experiences, can be more critical for potential entrepreneurs, as it aids in configuring and identifying the multiple resources required for subsequent entrepreneurial behaviors (Quan, 2012). Similarly, Xiao and Fan (2014) found that social network dimensions, including network size and heterogeneity, have a significant influence on EI. In the context of students, Twum et al. (2021) found that network ties have a substantial impact on students' EI. Therefore, the following hypothesis is proposed:

H7. NE positively and directly affects EI.

Conceptual model

The study model was developed following a thorough review of the existing literature and a detailed analysis, resulting in the creation of an accurate model supported by a solid theoretical foundation. This model comprises four key concepts—GEE, EL, NE, and EI. Fig. 1 depicts the conceptual model of the study, illustrating that GEE is the independent variable; EL and NE are mediator variables; and EI is the dependent variable. This model was tested. The following Fig. 1 shows the conceptual model of this study:

Research method

To achieve the objectives of this study, the researcher employed a quantitative deductive research method, which is deemed suitable as it necessitates empirical data and a well-developed theory. A sample of 208 female students studying various business specializations, including human resources, accounting, executive secretary, and other fields in an applied science college affiliated with King Faisal University was gathered to understand how engagement with the gig economy encourages them to develop greater EL, expand their networks, and enhance their EI. The sample comprised diploma students who generally graduate and enter the workforce earlier than their peers, making their career preparedness and early exposure to gig work particularly relevant to this study.

Purposive and convenience sampling methods were employed, as this study aimed to target only female students. The sample collected was adequate according to the 10-time rule of thumb (Hair et al., 2019; Kock & Hadaya, 2016). This nonprobability sampling method can be applied in both quantitative and qualitative research; it is also straightforward and cost-effective (Etikan et al., 2015; Stratton, 2021). The original measures for assessing the study concepts were in English. As the respondents were from an Arab country, it was essential to translate the questions into Arabic to ensure the study's context was accurately represented. Following the translation, this study meticulously checked the adequacy of both the translation and the data. We ensured the validity of the questionnaire with a competent Arabic-English translator and professional academics. With no issues arising, the questionnaire was distributed in February 2025 and completed online in April 2025. The researcher took care to include an optional questionnaire for respondents, inquiring about their willingness to participate to uphold high ethical standards. No one was compelled to complete the questionnaire, highlighting our commitment to ethical research practices.

Measures of the study

The research model was developed following a thorough review of the existing literature. It comprises four concepts, with indicators measuring the concepts that have been developed and adapted based on prior literature. First, the GEE measures were adapted from the studies by Alturkey (2024) and Kässi and Lehdonvirta (2018). An example of the

questions used to measure GEE is “I regularly earn income through freelance/gig work (e.g., social media management, reselling products, and graphic design).” The measures of the second concept, EL, were adapted from the study by Spanjaard et al. (2018). An example of the items is “My gig work provides hands-on experience relevant to my career goals.” The measures of the third concept, NE, were adapted from the study by Kuhn and Maleki (2017). An example of the items is “People I have worked with in gigs and would recommend me to others.” The final concept, EI, adapted its measures from the study by Liñán and Chen (2009). A sample of these measures was “I am ready to do anything to be an entrepreneur.” All the developed measures were rigorously tested and reported to be reliable and valid, ensuring the model’s credibility. Hence, they were applied in the model of this study.

Data analysis

This study employs partial least squares structural equation modeling (PLS-SEM) for data analysis, which extends the relevant analysis of multiple dependent relationships with latent variables, as Byrne (2016) described. PLS-SEM has a higher statistical power than covariance-based SEM because its parameter estimation methods operate efficiently (Hair et al., 2014). This technique offers improved reliability and permits using data with non-normal distributions (Hair et al., 2017; Rasoolimanesh et al., 2021).

Demographic information analysis

Table 1 presents the demographic information of the respondents. As presented in Table 1, the total sample for this study comprised 208 female students from an applied science college affiliated with King Faisal University. Most of the respondents (84.6 %) were single; 9.6 % were married; and 5.8 % were classified as “neither married nor single.” Regarding age, nearly all respondents (99 %) were 18–27 years old, with only 1 % falling into the 28–37 age group. All respondents possessed various types of diplomas as their educational qualifications.

Measurement and structural model analysis

Analysis of the measurement model

Researchers employing PLS-SEM in their studies are advised to commence their analysis by evaluating the validity and reliability of the constructs within the developed model, alongside their indicators. Therefore, Cronbach’s alpha (CA) and composite reliability (CR) were utilized to assess the reliability and validity of the model’s constructs. To ensure that the model demonstrates good reliability and validity, the CA and CR scores should be 0.70–0.95 to prevent redundancy among indicators, as this threshold ensures better internal consistency and reliability of the items used to measure their corresponding constructs. Furthermore, it is essential to examine the average variance extracted (AVE) score, as it indicates the capacity of the indicators of a construct to represent the underlying concept. The acceptable threshold for AVE is generally 0.50 or higher (Hair et al., 2019), as a high level of AVE signifies better convergent validity. In Table 2, the results for CA, CR, and AVE are all satisfactory and meet the specified thresholds (Hair et al.,

Table 1
Demographic analysis of the respondents.

Variable	Description	Frequency	Percentage (%)
Marital Status	Single	176	84.6
	Married	20	9.6
	Other	12	5.8
	Total	208	100 %
Age	18–27 years	206	99.0
	28–37 years	2	1.0
	Total	208	100 %
Educational Level	Diploma	208	100 %
	College	Applied College	208

Table 2
Reliability and validity tests of the variables.

	CA	CR	AVE
EI	0.915	0.915	0.702
EL	0.899	0.900	0.713
GEE	0.906	0.915	0.572
NE	0.915	0.916	0.747

2017). Table 2 presents the results of the reliability and validity tests.

The reliability of the construct’s indicator loadings must be evaluated. Indicators with loadings of 0.70 and above suggest good reliability; however, in exploratory research, a score of 0.60 can also be accepted (Fan et al., 2021; Hair et al., 2019). Items with adequate factor loadings demonstrate the construct’s ability to explain 0.50 of the variance in their indicators. Table 3 displays the accepted results according to the threshold.

This study proceeds to test the discriminant validity among the study’s constructs using the heterotrait–monotrait ratio (HTMT), where scores below 0.85 indicate acceptable discriminant validity. Thus, the study’s variables are distinct from one another. As presented in Table 4, all the HTMT scores are below the threshold of 0.85 (Hair et al., 2019), indicating good discriminant validity and confirming that the study variables do not overlap and measure different concepts. Table 4 presents the results of the HTMT test.

Table 5 presents the results of the Fornell–Larcker criterion test.

The Fornell–Larcker criterion is another method for measuring the discriminant validity of the study’s constructs. Table 5 indicates that there is acceptable discriminant validity, although EL and GEE are quite similar, which requires further attention in future research.

Analysis of the structural model

The structural model is generated using PLS-SEM, which has been depicted in the following Fig. 2:

Testing hypotheses is a crucial step in evaluating the structural model. Table 6 presents the results of the tested hypotheses. According to Table 6, all hypotheses were accepted except the third hypothesis. Further elaboration on the results of this hypothesis can be found in the discussion section. Table 6 also indicates that, given the rejection of the third hypothesis, this study has full mediation in accordance with the

Table 3
Indicators loadings.

	EI	EL	GEE	NE
EI1	0.788			
EI2	0.846			
EI3	0.842			
EI4	0.890			
EI5	0.827			
EI6	0.830			
EL1		0.815		
EL2		0.820		
EL3		0.860		
EL4		0.860		
EL5		0.865		
GEE1			0.699	
GEE2			0.689	
GEE3			0.757	
GEE4			0.791	
GEE5			0.795	
GEE6			0.788	
GEE7			0.833	
GEE8			0.628	
GEE9			0.805	
NE1				0.848
NE2				0.849
NE3				0.892
NE4				0.844
NE5				0.886

Table 4
HTMT results.

EL (-) EI	0.732
GEE (-) EI	0.650
GEE (-) EL	0.823
NE (-) EI	0.762
NE (-) EL	0.821
NE (-) GEE	0.785

Table 5
Fornell–Larcker criterion.

	EI	EL	GEE	NE
EI	0.838			
EL	0.669	0.844		
GEE	0.605	0.760	0.757	
NE	0.700	0.747	0.725	0.864

guidelines of Hair et al. (2011).

It is also important in a structural model to assess its quality, reliability, and usefulness. Accordingly, R², F², Q², and variance inflation factors (VIF) are evaluated, and their results are detailed in Table 7.

Table 7 reveals that the R² values for EI (0.540), EL (0.577), and NE (0.526) demonstrate substantial explanatory power (Cohen, 1988), indicating that exogenous variables can account for a larger proportion of variance in the endogenous variables. The f² effect size, according to Cohen (1988), reveals that GEE has a significant impact on both EL (1.365) and NE (1.111) but a negligible effect on EI (0.004). Further, NE has a medium effect on EI (0.154), while EL has a small effect (0.065).

Additionally, the results of all the VIF values indicate that all scores reported in Table 7 fall below the threshold of 3, confirming the absence of multicollinearity issues and assuring the robustness of the model. Table 7 also presents the results for Q², which describe the predictive relevance of the model. Here, the results for EI (0.370), EL (0.404), and NE (0.390) are all positive, demonstrating that the model possesses acceptable predictive relevance (Hair et al., 2019). Using the single Herman factor method, the common method bias was also assessed, and the result was below the threshold of 0.50, confirming no bias in the

study data (Podsakoff et al., 2003).

Discussion

The findings revealed a significant positive effect of GEE on EL, confirming H1. Aligning with previous studies, this finding implies that learning through experiences (Spanjaard & Stegemann, 2018; Mayer & Schwemmler, 2023) is based on meaningful associations developed through engagement in the experience (Davidson et al., 2023; Walker & Rocconi, 2021). The flexible, task-based employment (e.g., social media management, reselling products, and graphic design) and income provided by the gig economy enable individuals to learn most effectively by actively participating in tasks related to their gig work (Alturkey, 2024;

Table 6
Results of tested hypotheses.

Hypothesis	Path	β	T. Value	P. Value	Result
H1	GEE → EL	0.760	20.528	0.000	Supported
H2	GEE → NE	0.725	17.629	0.000	Supported
H3	GEE → EI	0.069	0.731	0.465	Not Supported
H4	GEE → EL → EI	0.225	2.178	0.029	Full mediation
H5	GEE → NE → EI	0.312	3.791	0.000	Full mediation
H6	EL → EI	0.296	2.172	0.030	Supported
H7	NE → EI	0.430	3.821	0.000	Supported

Table 7
Results of R², F², Q², and VIF.

Variables / Relationships	R ²	f ²	VIF	Q ²
EI	0.540	–	–	0.370
- EL → EI	–	0.065	2.925	–
- GEE → EI	–	0.004	2.729	–
- NE → EI	–	0.154	2.611	–
EL	0.577	–	–	0.404
- GEE → EL	–	1.365	1.000	–
NE	0.526	–	–	0.390
- GEE → NE	–	1.111	1.000	–

Source: Primary data.

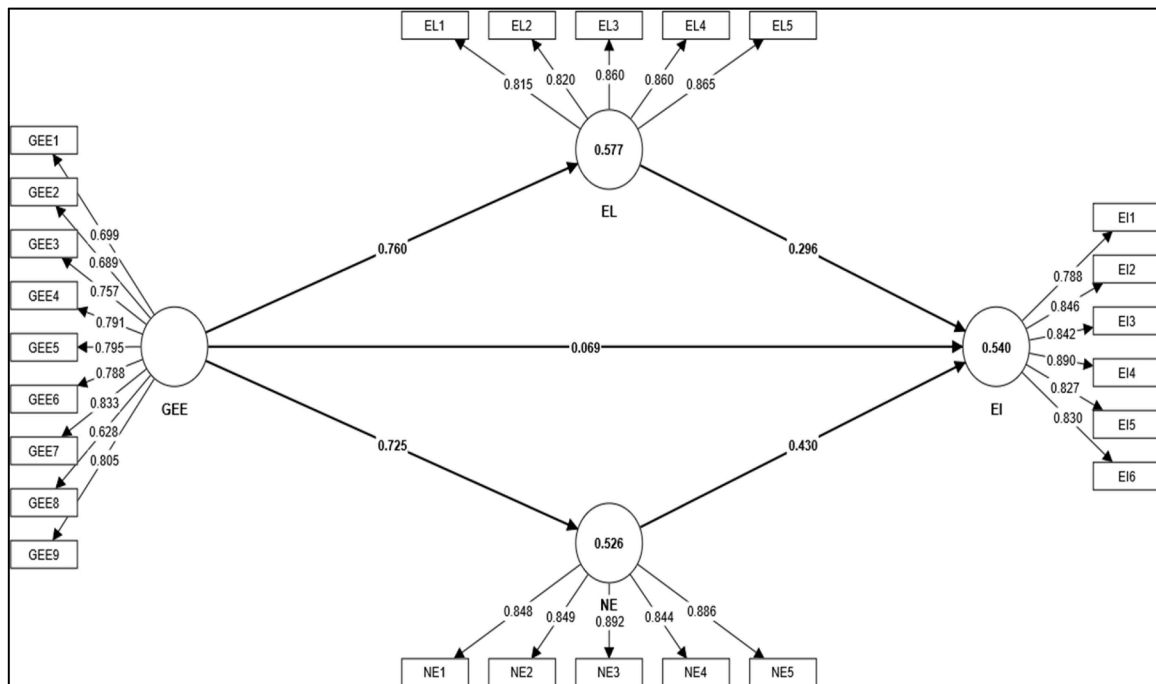


Fig. 2. Path coefficient and structural model. Source: Primary data.

Kässi & Lehdonvirta, 2018; Sankararaman et al., 2024). The findings further demonstrated a significant positive effect of GEE on NE, confirming H2. This implies that, within the context of the gig economy, engagement is influenced by the workplace network in which individuals are embedded (Kuhn & Maleki, 2017). Moreover, consistent with Mouazen and Hernández-Lara (2023), this supports the notion that GEE facilitates individuals in expanding their network, including clients, suppliers, and mentors (Alturkey, 2024; Kuhn & Maleki, 2017). Concurring with Zwettler et al. (2024), this study contends that gig workers engage in role learning to acquire and maintain extensive networking relationships through their gig experience and relevant skills.

Regarding the influence of GEE on EI, the data do not reveal any significant effect, thus preventing this study from confirming H3. However, the positive beta value implies that if there were an association, the impact of GEE on EI would have been positive. Contrary to the existing literature, this study indicates that for female university students in Saudi Arabia, diverse gig work experience across multiple gig platforms is less crucial for fostering readiness to create value through risky, innovative, and proactive activities. As SCT states that the components must collaborate, the fact that a direct and isolated relationship is not significant is consistent with the theory, lending robustness to the results. Moreover, consistent with the study by Wang and Lu (2025), this finding indicates that workers who frequently engage in digitized tasks are likely more aware of AI's labor market impact and feel their roles are more susceptible to automation, reflecting that GEE is not expected to affect EI in specific contexts directly. In the context of Saudi Arabia, with its unique cultural setting, other factors may be more essential for developing the willingness to start a new business.

The results further illustrate a significant mediating effect of EL in the relationship between GEE and EI, confirming H4. These findings support the conceptual framework depicted in Fig. 1. Aligning with previous research (Cegarra-Navarro et al., 2024; Pitan & Müller, 2019; Tantawy et al., 2021), this implies that the relationship between engagement and EI is indirect, rather than direct, through EL. Similarly, the path analysis results demonstrate a significant mediating effect of NE in the relationship between GEE and EI, confirming H5. This further reinforces the developed research framework. Together, the results for H4 and H5 support the study by Karami and Tang (2019), establishing a significant mediating role of NE and EL in the relationship between GEE and EI among female university students in Saudi Arabia.

EL positively and significantly influences EI, thereby confirming H6. This demonstrates that learning through active engagement in tasks in the gig economy prepares individuals to start and manage their businesses. The findings resonate with existing research (Al Issa et al., 2025; Anwar & Abdullah, 2021; Lin et al., 2023; Taneja et al., 2024), indicating that the skills and knowledge necessary to enhance gig work, along with hands-on experience relevant to the objectives, bolster the determination and willingness to establish a business in the future. Lastly, NE has a significant positive effect on EI, thus validating H7. Social networks provide access to essential resources needed for launching entrepreneurial ventures, thereby influencing one's intention to launch a business venture (Osorio et al., 2017). Aligning with prior studies (Chin et al., 2022; Osorio et al., 2017; Quan, 2012; Twum et al., 2021; Xiao & Fan, 2014; Yang et al., 2025), this implies that cultivating a diverse network (e.g., clients, suppliers, and mentors) and maintaining regular contact with that network enhances the willingness, determination, and seriousness to start a business.

Theoretical implications

Research on the gig economy is expanding, with most focusing on the Western perspective and empirical exploration across diverse contexts. However, studies on areas where the factors that encourage entrepreneurship may be unique are limited (Alturkey, 2024; Mouazen & Hernández-Lara, 2023). Thus, this study broadens entrepreneurial

literature, particularly by enriching the body of knowledge on EI in the gig economy. From a regional perspective, this study enhances research on Arab nations, which has been reported to be inadequate (Mouazen & Hernández-Lara, 2023). Additionally, this study addresses significant gaps in the theoretical development of the entrepreneurial literature by focusing on the entrepreneurial cases of vulnerable groups, such as females, whose intentions and practices regarding the gig economy have been underexplored (Mouazen & Hernández-Lara, 2023). In particular, the insignificant effect of GEE on EI in the model reflects the robustness of the results. It adds empirical support to the SCT, highlighting that the components must collaborate, and hence, a direct and isolated relationship is not significant.

Furthermore, while many digital platforms rely on gig workers, little is understood about their perceptions, which are crucial for the gig economy (Davidson et al., 2023). Regarding youth who are currently experiencing and will continue to experience the gig economy firsthand, there is limited knowledge about the factors that motivate them to choose gig work (Patre, 2023). Therefore, this study significantly enhances the understanding of the antecedents of EI in the gig economy by examining the determinants (i.e., GEE, EL, and NE) of EI among university students. Overall, this study makes a theoretical contribution by responding to the call of Zwettler et al. (2024) for research on the effect of learning and networking on creating opportunities for gig workers.

Practical implications

Despite the lengthy tenures and overall satisfaction with the gig economy, most participants intend to quit the gig economy within a year, as demonstrated by high turnover rates, with some platforms reporting a 500 % yearly turnover rate (Alturkey, 2024; Davidson et al., 2023). The insights revealed in this study concerning the factors (i.e., GEE, EL, and NE) that influence EI among university students are crucial for government policymakers and gig platform managers in developing policies and strategies aimed at reducing the high turnover of gig workers by enhancing GEE, EL, and NE among young individuals, which can address the pressing issue of youth unemployment worldwide (Churchill et al., 2019). This study aimed to examine the interplay between GEE, EL, NE, and EI among female university students in Saudi Arabia. It focuses on females in an Arab nation, aiming to understand the factors that encourage EI under unique conditions, thereby contributing to a deeper understanding of the gig economy through a gender perspective and specific cultural context, which will be beneficial for policymakers in formulating and applying strategies to boost female entrepreneurship in Arab nations. Based on the findings, government policymakers can develop policies to incentivize gig work with entrepreneurial outcomes and build platforms to support national networks and enhance EL. For universities, it would be beneficial to integrate the gig economy into entrepreneurship education and facilitate NE and EL activities by collaborating with their industry partners and alumni involved in the gig economy. Finally, gig platforms can use the findings to expand into entrepreneurial ecosystems and female-focused communities rather than just existing as a marketplace, particularly in collaboration with universities, governments, and developmental stakeholders.

Conclusion, limitations, and future studies

Students are regarded as potential entrepreneurs; therefore, supporting and preparing them for future business opportunities are crucial, particularly female students, who have consistently encountered significant social and cultural challenges. Thus, this study aimed to understand the effects of GEE, EL, and NE on EI. It collected a sample of 208 female students enrolled at an applied science college affiliated with King Faisal University—one of the leading universities in Saudi Arabia. The findings of this study answered the research questions presented in the introduction. GEE revealed its ability to positively affect both EL and

NE among female students, although it did not directly predict EI. Furthermore, both EL and NE demonstrated full mediation within the study's model. Ultimately, EL and NE had a direct impact on EI. The study confirmed that the model is applicable to the context. It established that involvement in the gig economy is essential for female students, as it helps them to enhance their EI, gain more experience, and develop better networks with various stakeholders.

By analyzing GEE, NE, and EL, this study contributes new insights to SCT, affirming that individual learning and behavior require three key elements—personal, behavioral, and environmental factors.

Despite reporting favorable outcomes, the study has some limitations. First, it was based on a small sample size collected from one key university in Saudi Arabia, which may restrict the generalizability of the findings. We acknowledge that collecting data from the female population in a single center may introduce some bias. Additionally, the study employed a cross-sectional research design rather than a longitudinal one, which may introduce some bias in the responses. Furthermore, the data were collected using purposive and convenience sampling, which may have limited the opportunity for random sampling during data collection, thereby further limiting the generalizability of the findings. Thus, future studies should aim to expand the sample size to include more respondents and may involve male students. Future research might utilize both cross-sectional and longitudinal designs to improve data collection. Moreover, the model can be extended to include additional moderators and mediators and can examine the influence of control variables.

Additionally, there are potential practical limitations in implementing the study's recommendations. While the article has valuable implications for governments, universities, and platforms, it is essential to acknowledge that factors such as unequal access to digital infrastructure, limited institutional resources, or cultural barriers may affect the effectiveness of these proposals.

Declarations

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CRedit authorship contribution statement

Ali Saleh Alshebami: Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Data curation, Conceptualization. **Syed Ali Fazal:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis. **Mohammad Bin Amin:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Abdullah Hamoud Ali Seraj:** Writing – original draft, Project administration, Methodology, Investigation, Conceptualization. **Abu Elnasr E. Sobaih:** Supervision, Software, Resources, Project administration, Methodology. **Judit Oláh:** Writing – review & editing, Supervision, Project administration, Funding acquisition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.stae.2025.100118](https://doi.org/10.1016/j.stae.2025.100118).

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