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How Green Creativity Acts as a Mediator between the Intention of Female Entrepreneurship and Career Sustainability: A Research Conducted within the Context of Small and Medium-Sized Enterprises in Pakistan

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Abstract: *This research investigates how entrepreneurial intention affects career sustainability. It also examines green creativity's intervening role. The data was gathered from 150 women business owners from active small and medium enterprises, operating in Pakistan's three major cities. Via a closed-ended questionnaire. The data was analyzed using structural equation modeling with partial least squares. Resultantly, entrepreneurial intention is directly associated with career sustainability and green creativity. Additionally, green creativity meaningfully mediates for entrepreneurial intention-green creativity relationship. The study's findings provide individual female managers to introduce green innovation in businesses and further study delivers insightful knowledge that the Ministry of Commerce and company owners can utilize to encourage entrepreneurship in Pakistan. The study is limited to a single nation, and limited cities further exploration is highly to flourish the field of female entrepreneurship.*

Keywords: entrepreneurship intention; career sustainability; green creativity; small and medium enterprises

JEL Classification: M10, M15

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Introduction

Over the past few decades, there has been a large amount of study interest in the topic of entrepreneurial intention. The majority of research work has been carried out to determine the variables that affect the intention of entrepreneurs as well as to create models that can forecast their actions. The desire and commitment of an individual to launch their firm is known as entrepreneurial intention (Jan, Junfeng, & Iqbal, 2023). It is a complicated phenomenon that is impacted by many different things, such as individual traits, external circumstances, and prior entrepreneurial experiences. Strong entrepreneurial intentions increase the likelihood that someone will take the required actions to launch their own business.

Krueger and Carsrud (1993) emphasize the importance of EI as a reliable predictor of actual entrepreneurial activity. They claim that a person's desire to start and run a new business is a reliable indicator of their dedication to entrepreneurship and ability to overcome obstacles. EI not only predates entrepreneurial activity but it is also linked to economic advancement. According to the findings of the Global Entrepreneurship Monitor (GEM) project, a comprehensive worldwide entrepreneurship research program, locations with a higher percentage of individuals seeking to become entrepreneurs tend to promote more active entrepreneurial environments. In turn, these environments promote innovation, economic growth, and job creation (GEM Global Report, 2020).

There are several studies, that recently studied the impact of EI on different constructs. According to the latest study by S. Sharma and Rautela (2022), social support, risk-taking inclination, and self-efficacy all have a favorable impact on EI. According to a study by Li, Huang, Chau, and Yu (2021), entrepreneurial education has a favorable impact on EI. Phong, Thao, and Nguyen (2020) study discovered that entrepreneurial role models have a favorable impact on intention, but perceived obstacles to entrepreneurship have a negative impact. According to these studies, a variety of variables can be modified to encourage entrepreneurial purposes. Previous research discovered that, in addition to situational and individual characteristics such as an unfavorable financial environment, the absence of normal work career choices, age (Meoli, Fini, Sobrero, & Wiklund, 2020), and gender (Ward, Hernández-Sánchez, & Sánchez-García, 2019), influence entrepreneurial career intention (Su et al., 2021).

Despite their insight, prior studies on the effects of entrepreneurial intention neglected the female role (Jan et al., 2023). This disparity is especially remarkable given that studies have increasingly highlighted the significance of gender roles in today's environment. Women face more challenges than men when it comes to starting a business. Female entrepreneurial ambition faces several difficulties, limiting the potential growth and success of women-led firms. These impediments include religious, political, and cultural differences, a lack of mentorship, and limited access to capital. Societal expectations and biases create barriers, deterring women from

pursuing entrepreneurial opportunities (Jan et al., 2023). Furthermore, the lack of proper mentorship and networks further isolates female entrepreneurs, impeding the flow of knowledge and support that is required for long-term success.

This paper provides particular attention to female entrepreneurs since women in Pakistan experience distinct socio-cultural and structural issues that largely explain their entrepreneurship life. As compared to men, women face barriers of limited access to finance, restricted movement, reduced assistance in society, and the traditional gender expectations that affect their intentions, creativity, and sustainability in their careers (Jan, Junfeng, Iqbal, Raza, Naz, et al., 2025). The previous studies have demonstrated that women tend to have their unique motivations regarding sustainability and community benefit, and therefore, such constructs as green creativity become especially important when it comes to explaining the entrepreneurial actions of women.

By focusing on female entrepreneurs only, the study would be able to obtain a gender specific blueprint as opposed to considering gender as a demographic variable. This further provides an opportunity to investigate the way in which female entrepreneurial intention is converted to generate career sustainability using green creativity in the context of SMEs. The results will help advance gender sensitive policies and structures that are particularly specific to the women-led businesses in Pakistan.

Gender difference is a very important factor in establishing entrepreneurial intention and performance, especially in developing nations such as Pakistan. Studies also indicate that women are more likely to follow community-oriented and sustainability-oriented business strategies, and as such, green creativity has been particularly applicable to the entrepreneurial behaviour of women (Jan, Junfeng, Iqbal, Raza, Naz, et al., 2025). As opposed to men, women often incorporate environmental and social ideals into their entrepreneurial vision, and business is not merely a profit-making endeavor, but a way of social contribution and personal strength. Through the analysis of gender-related dynamics, the current research identifies the peculiarities of how female entrepreneurs use creativity as a tool to establish a sustainable career despite the limitations of the system. Knowing these gendered disparities contributes to the body of entrepreneurship, and it helps in the formulation of policies that are inclusive to empower women-based SMEs in Pakistan.

Female entrepreneurial intention and career sustainability encounter numerous hurdles, which reflect systemic gender prejudices and societal conventions (Ali, Shabir, & Shaikh, 2021). Women seeking to be entrepreneurs frequently face challenges in accessing financial resources, with gender prejudice limiting funding opportunities and their ability to establish and expand firms. The continuing gender wage gap worsens financial inequality, restricting women's economic independence and stability throughout their careers. Furthermore, cultural preconceptions and expectations can hinder women from pursuing entrepreneurial opportunities, reinforcing traditional gender roles that may not be compatible with the demands of entrepreneurship.

In terms of career sustainability, chronic gender discrimination, income disparities, and limited access to leadership positions impede women's advancement in a variety of professional disciplines, limiting their capacity to attain long-term career success. Despite these hurdles, the number of female entrepreneurs worldwide has increased by 13% (Jan et al., 2023). This upward trend has continued, reflecting a global effort for increased female representation in both the public and private sectors. Securing funding to launch a new business is one of the hurdles Pakistani women face when they decide to become entrepreneurs (Biswas, 2023). Furthermore, Pakistan's unpredictable natural circumstances have hampered women entrepreneurs and the nation's socioeconomic development (Yousaf & Butt, 2020).

The EI is still in the early stages of developing general roots; therefore, despite intensive study, there isn't much empirical data to support it. Studies particularly focusing on female employees and entrepreneurship in the link between EI, GC, and CS have been lacking, according to prior research. Using this gap and concentrating on women, especially in developing countries like Pakistan, this study aims to provide actual evidence of these linkages. There has been a lot of research on gender in developed and developing nations, but none of it has specifically looked at the females in the relationships mentioned above. As a result, this study investigated how EI affects CS and GC. It also looks into how GC mediates the relationship between CS and EI.

Developed by Ajzen (1985), the theory of planned behavior (TPB) provides a useful framework for investigating the relationship between EI and CS. According to the theory of planned behavior (TPB), three major aspects drive entrepreneurial intention: perceived behavioral control, attitude, and subjective norm (Jan et al., 2023). The TPB can help individuals navigate the entrepreneurial road by shedding light on the issues that influence career sustainability. Perceived behavioral control, which reflects an entrepreneur's confidence in overcoming obstacles and sustaining their enterprise, is crucial for long-term success. By incorporating the TPB into the study of entrepreneurial intention and career sustainability, researchers can acquire a thorough understanding of the psychological forces that shape entrepreneurial decisions and influence the longevity of entrepreneurial careers. This research is useful in developing treatments and policies that promote long-term entrepreneurial careers while also contributing to a more resilient and thriving entrepreneurial ecosystem.

Several studies have discovered that the TPB is a reliable predictor of entrepreneurial intent. Krueger and Carsrud (1993), for example, conducted a study with university students and discovered that attitude, subjective norm, and perceived behavioral control all had a significant role in predicting entrepreneurial goals. The intentional entrepreneurial behavior model (IBM), developed by Shapero and Sokol (1982), is another notable paradigm for measuring entrepreneurial purpose. According to IBM, two important elements influence entrepreneurial intention: feasibility and desirability. In several research investigations, IBM, like the TPB, has proven its dependability in predicting entrepreneurial intent. C. C. Chen, Greene, and Crick

(1998), for example, analyzed a group of university students and discovered that both attractiveness and feasibility significantly influenced entrepreneurial inclination.

The research is novel in the sense that it combines green creativity as a mediating factor between the intention to become an entrepreneur and career sustainability among women, a factor that is not extensively studied in the literature. In comparison with the previous studies that generally discuss the subject of entrepreneurship, this study specifically touches on the gendered aspect of sustainable entrepreneurship in the socio-cultural setting of the SMEs in Pakistan, where women have unique institutional, cultural, and resource-based constraints. It contributes to the current body of research connecting the Theory of Planned Behavior (TPB) to sustainability-focused innovation and shows how environmental creativity changes the entrepreneurial intention to sustainability in careers. Additionally, the research also changes the discussion on the topic of women's involvement in entrepreneurship into the issue of women as agents of green innovation, a gap that is indeed critical not only in gender but also in sustainability studies. This attention to women only makes known context-dependent gains that are likely to be missed in mixed-gender research, and offers a new theoretical and practical avenue to inclusive and environmentally conscious entrepreneurship.

EI is an impact factor that positively influences career sustainability and green creativity via launching a business. Green creativity and career sustainability are evolving topics concerning EI. Only a few empirical studies are available investigating such phenomena (Kiani, Liu, Ghani, & Popelnukha, 2020; Yasir et al., 2021). However, there is no empirical evidence available to investigate such phenomena from a gender perspective in a developing country context. Therefore, this study emphasizes the impact of female EI on career sustainability and green creativity.

This study aims to investigate the impact of EI on career sustainability. It also investigates the mediating impact of GC between EI and CS. Four hypotheses are proposed to examine the above phenomena using structure equation modeling. The next section is the literature review, followed by the methodology, results, and discussion.

Literature Review

Entrepreneurial Intention and Career Sustainability

Career sustainability is the long-term viability and contentment in one's professional life, achieved through a balanced approach to personal growth, job security, work-life harmony, well-being, and societal impact (Peiró, Svicher, & Di Fabio, 2023). It hinges on a commitment to continuous learning and skill development in response to evolving job requirements T. Chin, Li, Jiao, Addo, and Jawahar (2019), as the World Economic Forum underscores the significance of adaptability in the ever-changing

job landscape. The relationship between entrepreneurial intention and career sustainability is an area of growing interest (Betáková, Havierniková, Okręglicka, Mynarzova, & Magda, 2020). Entrepreneurial intention, which reflects an individual's inclination to start and manage their own business, can influence career sustainability in several ways (Jan et al., 2023). This commitment to personal growth can enhance an individual's adaptability and, in turn, contribute to long-term career sustainability (Kautonen, Hatak, Kibler, & Wainwright, 2015).

Entrepreneurship encourages innovation and adaptability, which are vital for staying competitive in a changing job market. These qualities can enhance career sustainability by making individuals more resilient and relevant (Fayolle & Gailly, 2015). While entrepreneurship carries financial risks, a successful venture can lead to financial rewards, potentially contributing to career sustainability. Financial success in entrepreneurship can provide economic security (Content, Bosma, Jordaan, & Sanders, 2020). Balancing the demands of entrepreneurship is crucial for personal well-being and career sustainability. Achieving a healthy work-life balance can prevent burnout and enhance long-term career satisfaction (Urban & Kujinga, 2017). Entrepreneurship often allows individuals to align their work with personal values and passions. This alignment can contribute to career sustainability by increasing job satisfaction and a sense of purpose ((Liñán, Moriano, & Jaén, 2016).

M. Sharma, Luthra, Joshi, and Kumar (2022) discovered in another study that entrepreneurial intention functions as a mediator between self-efficacy and career perseverance. This indicates that EI and self-efficacy indirectly affect career sustainability. According to the study's authors, this is because self-sufficient individuals are more inclined to launch their own companies, which can result in a more stable job. Overall, the empirical evidence points to a favorable correlation between professional durability and entrepreneurial intention. This implies that those with a propensity for launching their own companies are more likely to have fulfilling careers. Thus, the following hypothesis is proposed:

H1: EI positively influences CS.

Entrepreneurial Intention and Green Creativity

Green creativity, often referred to as eco-creativity or sustainable innovation, is a concept that merges two essential aspects of the modern world: environmental sustainability and creative problem-solving. Green creativity is the capacity to come up with fresh concepts and sustainable, eco-friendly solutions, whereas entrepreneurial intention is the will and drive to launch a new company. An increasing amount of research indicates a good correlation between green creativity and entrepreneurial intention. For instance, a study by Wang, Mundorf, and Salzarulo-McGuigan (2022) discovered that among a sample of university students, green creativity significantly increased their intention to start their businesses. According to the study's authors,

this is because green creativity can assist business owners in seeing fresh market niches and coming up with creative fixes for environmental issues.

When individuals with entrepreneurial aspirations are motivated to address environmental issues, they can channel their creative energies into developing eco-friendly products, services, or processes (Y.-S. Chen, Chang, Lin, Lai, & Wang, 2016). Environmentally conscious entrepreneurs may align their intentions with the values of sustainability and environmental protection. According to a study by Wu et al. (2022), among a sample of Chinese millennials, green creativity is positively correlated with entrepreneurial intention. According to the study's authors, this is because green innovation can assist business owners in creating green ventures that are seen as more alluring and long-lasting.

According to a study by Yang and Liu (2021), green inventiveness is influenced by gender when it comes to the intention to start a business. The authors of the study discovered that male entrepreneurs had a larger positive correlation between green inventiveness and entrepreneurial intention than female entrepreneurs. According to Zhang, Sun, Yang, and Wang (2020), the association between entrepreneurial intention and green innovation is mediated by perceived social support.

According to the study's authors, green creativity can assist business owners in creating social networks with investors and other green business owners, which can help them get the support they need to launch and expand their enterprises. Green creativity can provide entrepreneurs with a competitive edge by differentiating their offerings in the market. Entrepreneurs to embrace sustainable practices may leverage this as a unique selling point (Gibb, Browning, Glover-Kapfer, & Jones, 2019).

EI can be a driver for addressing complex environmental challenges. Entrepreneurs may identify gaps in the market where eco-friendly solutions are needed and use their creative thinking to develop innovative approaches (Hockerts, 2017). Green entrepreneurs are more likely to be creative than traditional entrepreneurs, according to a different study by Rauch, Dallasega, and Unterhofer (2019). In summary, entrepreneurial intention and green creativity are interconnected in the sense that individuals with entrepreneurial aspirations can channel their creative energies toward developing innovative, environmentally sustainable solutions. Their intention to create and innovate in a business context is a driving force behind the development of green products, services, and ventures that contribute to a more sustainable and eco-conscious world. Therefore, the following hypothesis is proposed:

H2: EI positively influences GC.

Career Sustainability and Green Creativity

The relationship between career sustainability and green creativity is a dynamic one, with individuals who value sustainability and innovation often finding ways to align their professional growth with environmental responsibility. The relationship

between career sustainability and green creativity is a complex and emerging topic in research. In the business world, there is an increasing emphasis on sustainability. Individuals who integrate green creativity into their careers may drive their organizations to adopt more sustainable practices, contributing to career longevity (Schaltegger, Lüdeke-Freund, & Hansen, 2016). Green creativity is often associated with eco-innovation. Entrepreneurial individuals who are creatively inclined can establish businesses that prioritize environmental sustainability, ensuring the sustainability of their careers in the process (Hassan & Raziq, 2019). Career sustainability is closely linked to job satisfaction and overall well-being. Engaging in green creativity and contributing to environmental solutions can enhance an individual's job satisfaction, contributing to long-term career sustainability. Many organizations are recognizing the importance of green creativity and sustainability. Individuals who champion these principles in their careers can help drive their organizations toward greater sustainability and longevity.

The capacity to continue a fruitful and fulfilling profession over an extended period is known as career sustainability. Green creativity is the capacity to provide novel, sustainable, and ecologically beneficial ideas and solutions. An increasing number of studies indicate a good relationship between green innovation and career sustainability. The authors of the study hypothesize that this is because green creativity can assist people in creating more fulfilling and meaningful employment. A further study by Yang and Liu (2021) discovered that among a sample of green entrepreneurs, green innovation is positively correlated with career resilience. The authors of the study hypothesize that this is because green creativity might support people in overcoming obstacles and adjusting to changes in the workplace. According to Zhang et al. (2020), career well-being among a sample of sustainability experts is positively correlated with green innovation. The authors of the study hypothesize that this is the case because green creativity might support people in finding meaning and purpose in their jobs.

Green creativity is a mediator between entrepreneurial passion and career sustainability, according to a study by M. Sharma et al. (2022). The authors of the study contend that green creativity can facilitate the transformation of an entrepreneurial passion into a more fulfilling and meaningful profession. Overall, the empirical research points to the significant importance of green creativity in career sustainability. By creating initiatives and curricula that emphasize green creativity and career sustainability, educators and policymakers may help these fields. By coming up with fresh concepts for sustainable jobs, creating original solutions to environmental issues, and connecting with other green experts, people can also concentrate on honing their green creativity abilities. Therefore, it is hypothesized that:

H3: Career Sustainability positively influences GC.

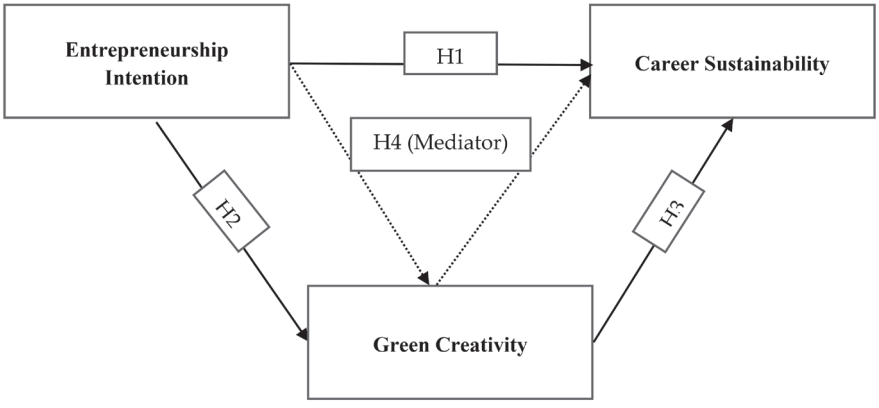
Mediating Role of Green Creativity

The mediating role of green creativity is a concept that pertains to its function as an intermediary or middle step in a cause-and-effect relationship between two other variables or constructs. In this context, it typically involves examining how green creativity acts as a mediator between certain factors, influencing or explaining the relationship between those factors. The mediating role of green creativity can help you understand the underlying mechanisms or processes that connect environmental values and sustainable practices. By examining this mediation, you can gain insights into how individuals' creative thinking and innovation, focused on sustainability, influence the relationship between their values and behaviors.

Green creativity may mediate the relationship between an individual's environmental values and career sustainability. Environmental values drive a person's desire for a more sustainable lifestyle and career, and green creativity can be mediated by translating these values into innovative, sustainable career practices. Green creativity can mediate the link between an individual's engagement in sustainable work practices and their long-term career sustainability. Creative solutions for eco-friendly work practices can enhance job satisfaction and contribute to a sustainable, fulfilling career. In the workplace, green creativity can mediate the connection between an organization's commitment to sustainability and an individual's career sustainability. When organizations prioritize green creativity and eco-innovation, employees may find more opportunities for career growth and development within those organizations. Therefore, the following hypothesis is suggested:

H4: GC mediates positively between EI and CS.

Figure 1: Conceptual model



Methodology

Sampling

The study's sample consists of female entrepreneurs working in different cities in Pakistan. For convenient sampling (Stratton, 2021), three major cities (Karachi, Lahore, and Peshawar) were selected. A total of 250 questionnaires were distributed, out of which 150 completed questionnaires from all aspects were used in this study for analysis; every respondent was a female in this study.

Typically, unlike their male counterparts, women tend to incorporate social responsibility, attention to the environment, and the welfare of the community in their business-related activities, which means that they are in a unique position to investigate notions as green creativity or sustainable careers. In addition, within the traditional cultural context of Pakistan, women have structural barriers entrenched in the traditional culture, such as access to entrepreneurial networks, approval in society, and professional mentorship (Jan, Junfeng, Iqbal, Raza, Baig, et al., 2025; Jan, Junfeng, Iqbal, Raza, Naz, et al., 2025). These obstacles define a very new entrepreneurial experience, which cannot be completely comprehended via gender-neutral studies (Jan et al., 2023). Dwelling on the female figure exclusively, this research is supposed to highlight the unarticulated strength, adaptive capability, and potential of innovation of women, which is to provide new dimensions that could be used to develop gender-specific policies and empower the future generations of female entrepreneurship in an emerging economy.

Measures

Standardized measures were used to collect data. Six questions make up the entrepreneurial intention scale, which was primarily created and validated by Liñán and Chen (2006). Participants were asked to rate these topics on a five-point Likert scale, where "1" denoted strongly disagreeing and "5" denoted strongly agreeing. For career sustainability, the scale developed by T. Chin, Jawahar, and Li (2022) was used. A six-item questionnaire developed by Joshi and Dhar (2020) was employed to measure green creativity. A sample item is "the member of the green product development project suggests new ways of achieving environmental goals".

Data Collection Procedure

Participants' information was collected via a questionnaire survey approach. In this study, 250 personnel from Pakistan were selected from all administrative divisions. Of the 250 eligible respondents, 220 questionnaires were returned. 70 questionnaires were eliminated due to the lack of information from respondents; the remaining 150

completed questionnaires were included in this study's data analysis. A sample size of 150 participants, divided into multiple age groups, was included in the study. In particular, 22 people (15%) were under 25 years old; 75 people (50%) were between the ages of 36 and 35; 36 people (24%) were between the ages of 36 and 45; and 17 people (11%) were over 45. 10 (7%) of the sample's participants were on entry-level jobs; 110 (73%) were supervisors; 28 (19%) were managers; and 2 people (1%) were in the role of owner/CEO. The participants held a range of educational qualifications, including undergraduate (61), master's (81), doctorate (1), and basic/secondary (8) degrees. These degrees were represented by the proportions of 5%, 41%, 53%, and 1%, respectively. Table 1 presents demographic inequalities and a range of population characteristics.

Table 1: Respondents' characteristics

Respondents characteristics		**Frequency**	**Percent**
Age group	Under 25	22	15
	26-35	75	50
	36-45	40	27
	Over 45	13	8
Education	Secondary or Basic	8	5
	Undergraduate	60	40
	Masters	81	54
	PhD	1	1
Career Level	Entry level	10	7
	Supervisor	110	73
	Manager	28	19
	Owner/ CEO	2	1
Total		150	100

Results and Discussion

Initially, the research employed the Statistical Package for Social Sciences (SPSS v.24) for descriptive statistics. The highest mean score for green creativity was 3.14 with a standard deviation of 0.87, the career sustainability mean score was 3.11 with a standard deviation of 0.89, and the lowest mean score for entrepreneurial intention was 3.04 with a standard deviation of 0.95 was recorded.

Table 2: Mean, SD, CA, CR, and AVE

Constructs	**Mean**	**SD**	**CA**	**CR**	**AVE**
Career Sustainability	3.11	0.89	0.935	0.943	0.582
Entrepreneurial Intention	3.04	0.95	0.912	0.932	0.694
Green Creativity	3.14	0.87	0.887	0.914	0.639

SD, standard deviation; CA, Cronbach alpha; CR, composite reliability; AVE, average variance extracted

In addition to this, the minimum and maximum values of each item are 1 and 5, respectively. Similarly, Table 3's skewness and kurtosis results demonstrated normal data concerning the suggested threshold of -2 to +2 (C. Sharma & Ojha, 2020).

Table 3: Descriptive statistics

Construct	Items	Obs	Min	Max	Mean	SD	Kurtosis	Skewness
Career Sustainability	CS1	150	1.00	5.00	3.160	1.176	-.857	-.115
	CS2	150	1.00	5.00	3.253	1.199	-.819	-.076
	CS3	150	1.00	5.00	3.040	1.048	-.668	.026
	CS4	150	1.00	5.00	3.080	1.046	-.662	.195
	CS5	150	1.00	5.00	3.120	1.158	-.725	-.080
	CS6	150	1.00	5.00	3.073	1.176	-.680	-.119
	CS7	150	1.00	5.00	3.013	1.129	-.376	-.253
	CS8	150	1.00	5.00	3.060	1.194	-.780	-.189
	CS9	150	1.00	5.00	3.207	1.249	-.913	-.127
	CS10	150	1.00	5.00	3.133	1.230	-.823	-.170
	CS11	150	1.00	5.00	3.027	1.300	-1.094	-.050
	CS12	150	1.00	5.00	3.200	1.135	-.910	.073
Entrepreneurship Intention	EI1	150	1.00	5.00	3.133	0.981	-.322	-.055
	EI2	150	1.00	5.00	3.053	1.152	-.594	-.132
	EI3	150	1.00	5.00	3.027	1.215	-.782	.017
	EI4	150	1.00	5.00	2.987	1.123	-.760	.026
	EI5	150	1.00	5.00	3.027	1.187	-.808	.046
	EI6	150	1.00	5.00	3.013	1.221	-.732	-.138
Green Creativity	GC1	150	2.00	5.00	3.187	0.679	-.337	.011
	GC 2	150	1.00	5.00	3.080	1.052	-.563	-.057
	GC 3	150	1.00	5.00	3.087	1.036	-.737	.192
	GC 4	150	1.00	5.00	3.187	1.287	-1.002	-.240
	GC 5	150	1.00	5.00	3.147	1.250	-.889	-.219
	GC 6	150	1.00	5.00	3.193	1.235	-1.052	-.094

The researchers' method of choice for data analysis was partial least squares structural equation modeling (PLS-SEM). PLS-SEM is a more advantageous strategy than other traditional multivariate methods (Iqbal, Li, Yang, & Sindhu, 2022). A bootstrapping procedure is used in PLS-SEM, a statistical technique that provides a robust analysis. Standard errors for route coefficients are produced by this method, which helps researchers evaluate the importance of their results (J. Hair, Joe F, Sarstedt, Matthews, & Ringle, 2016; Nitzl, Roldan, & Cepeda, 2016). Initially, several presumptions were evaluated, including multicollinearity, normality, and variance from the common method (Tabachnick, Fidell, & Ullman, 2007). Joseph F Hair, Black, Babin, and Anderson (2010) analyzed and interpreted the data using a two-step methodology that included measurement and structural models. The researchers then looked into the data's reliability, validity, and structural validity. Using a two-step technique, the measurement model was evaluated first, followed by the structural model using partial least squares structural equation modeling (Iqbal et al., 2022).

Measurement Model Assessment

It is essential to assess each concept's discriminant validity, convergent validity, internal consistency, and reliability before analyzing the structural model (Joseph F Hair et al., 2010; Henseler, Ringle, & Sinkovics, 2009). PLS-SEM was used in this study because it is widely recognized and used by scholars in a variety of academic domains. This study's innovative approach to developing standards for thorough data analysis is what makes it appropriate (Babar Iqbal, Li, Nie, Raza, & Qurban Jan, 2023; Joseph F Hair, Risher, Sarstedt, & Ringle, 2019).

Individual Item Reliability

To assess the reliability of each item, the researchers used factor loading (Duarte & Raposo, 2010; Sarstedt, Ringle, Smith, Reams, & Hair Jr, 2014). According to Joseph F Hair et al. (2019), a minimum threshold of 0.7 or higher is required to retain an item. Table 4 shows that every factor loading in our analysis satisfies the predetermined standards.

Table 4: Factor loadings and variance-inflated factor

Construct	Items	Loading	VIF
Career Sustainability	CS1	0.707	2.131
	CS10	0.805	2.772
	CS11	0.781	2.527
	CS12	0.738	2.103
	CS2	0.716	2.151
	CS3	0.769	2.213
	CS4	0.788	2.376
	CS5	0.742	2.070
	CS6	0.759	2.190
	CS7	0.742	2.252
	CS8	0.823	2.866
	CS9	0.776	2.470
Entrepreneurship Intention	EI1	0.833	2.287
	EI2	0.865	3.090
	EI3	0.852	2.586
	EI4	0.831	2.351
	EI5	0.804	2.165
	EI6	0.811	2.451
Green Creativity	GC1	0.776	1.792
	GC 2	0.831	2.336
	GC 3	0.787	2.130
	GC 4	0.794	1.988
	GC 5	0.809	2.011
	GC 6	0.798	2.000

*Note: VIF = Variance Inflated Factor

Internal Consistency

Researchers often use Cronbach's alpha (CA) and composite reliability (CR) to assess an instrument's internal consistency. According to multiple studies (Joseph F Hair et al., 2019; Hair Jr, Hult, Ringle, & Sarstedt, 2016), the measurements typically use a minimum threshold of 0.70. According to Bagozzi, Yi, and Phillips (1991), Table 2 displays the structures' internal consistency and dependability. A statistical tool for assessing method bias and collinearity effects is the variance-inflated factor (VIF). Ringle, Wende, and Becker (2015) state that it is generally recommended to take into account a VIF threshold of 0.5 or less, as shown in Table 4.

Convergent and Discriminant Validity

Convergent validity was assessed using the average variance extracted (AVE) method with a minimum threshold of 0.50 (Iqbal et al., 2022). In this study, all AVE values were greater than 0.50, as shown in Table 2. According to the AVE values in Table 2, this study meets good convergent validity.

Fornell and Larcker (1981) state that discriminant validity can be measured using an AVE value of 0.5 or higher. To demonstrate discriminant validity, the square root of the AVE should also be greater than the correlations between the latent components. As indicated in Table 5, all latent variable AVE values were higher than the cutoff. The square root of the average variance extracted (AVE) was found to be larger than the correlations between the latent components, as shown in Table 5. All dimensions show satisfactory discriminant validity in the current study.

Table 5: Discriminant validity

Constructs	CS	EI	GC
CS	0.763		
EI	0.653	0.833	
GC	0.751	0.611	0.799

Structural Model Assessment

The predictive ability of the model is gauged by the R^2 coefficient (Sarstedt et al., 2014). Specific thresholds for interpreting the R^2 value were proposed by W. W. Chin (1998), who classified an R^2 value of 0.60 as vital, 0.33 as moderate, and 0.19 as weak. The R^2 and Q^2 values for the CS and GC variables are shown in Table 6. The GC has a coefficient of determination (R^2) of 0.373, while the CS variable has an R^2 of 0.625. For CS, the obtained Q^2 value is 0.347, and for GC, it is 0.230, while the F2 values of EI and GC were 0.161 and 0.526, respectively, showing the validity of our study model.

Table 6: Predictive relevance and model fit

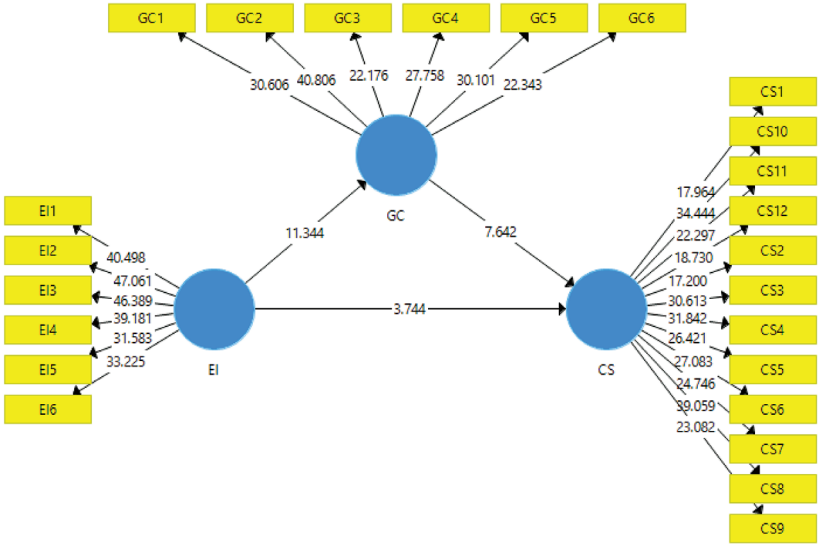
Constructs	Q^2	R^2	F^2	SRMR
CS	0.347	0.625		0.069
EI			0.161	
GC	0.230	0.373	0.526	

To assess the hypothesis's statistical significance, the research used the bootstrapping method, specifically using 5,000 bootstrap samples (Joseph F Hair et al., 2010; Joe F Hair, Ringle, & Sarstedt, 2011). Hypothesis 1 (H1), which proposes a significant and positive association between EI and CS ($\beta = 0.311$, $t = 3.749$, $p = 0.000$), is empirically supported by the data in Table 7 and Figure 2. As a result, the H1 hypothesis is confirmed. The study's findings, which showed a statistically significant correlation between EI and GC ($\beta = 0.611$, $t = 11.328$, $p = 0.000$), validated Hypothesis 2. Hypothesis 3 is supported by the coefficients $\beta = 0.561$, $t = 7.715$, and $p = 0.000$. As suggested by Baron and Kenny (1986), partial mediation was supported by the statistically significant result ($\beta = 0.343$, $t = 6.335$, $p = 0.000$) obtained from the analysis. The results of the study validated the idea that GC acts as a mediator in the relationship between CS and EI.

Table 7: Structural model

Hypothesis	Relationship	Beta	SE	t-Value	p-Value	Decision
H1	EI → CS	0.311	0.083	3.749	0.000	Supported
H2	EI → GC	0.611	0.054	11.328	0.000	Supported
H3	GC → CS	0.561	0.073	7.715	0.000	Supported
H4	EI → GC → CS	0.343	0.054	6.335	0.000	Supported

Figure 2: Hypotheses results



Discussion

The results of the study show that EI significantly predicts CS. The findings corroborate the hypothesis put forth in previous research that EI provides job stability through autonomy and self-employment. People who launch and run their enterprises successfully may have more career control (Urban & Kujinga, 2017). According to Yasir et al. (2021), there is a positive correlation between entrepreneurial intention and career sustainability. This is because entrepreneurs tend to feel more in control of their lives and careers. Furthermore, the need for personal fulfillment is more likely to motivate them than financial gain.

The current study's results demonstrated a strong correlation between EI and GC and validated the results of previous research (Jiang, Wang, Wang, & Li, 2020). This is likely since green innovation helps entrepreneurs create environmentally friendly businesses that are perceived as more enticing and durable. The intention of entrepreneurs is consistent with the overarching objective of reducing environmental issues and fostering a more sustainable future.

The relationship between the GC and CS is strong and good. Creative thinkers with an entrepreneurial spirit can launch companies that place a high priority on environmental sustainability and also guarantee the sustainability of their employees' employment (Ogbeibu, Emelifeonwu, Senadjki, Gaskin, & Kaivo-oja, 2020). Green innovation and career sustainability have a good correlation. Individuals who incorporate sustainability into their profession display adaptability and foresight, which are highly rewarded in a society where environmental concerns are paramount.

GC has a major mediating function in the relationship between career sustainability and entrepreneurial ambition. As individuals embark on entrepreneurial adventures with sustainability in mind, their green creative endeavors help to establish environmentally conscious practices within their businesses. This, in turn, affects the long-term viability of their careers (Zahrani, 2022).

Conclusion

Business initiation is primarily dependent on CS and EI (Jan et al., 2023). The complicated relationship between EI and CS is influenced by several variables, such as individual objectives, risk tolerance, and the capacity to handle and adjust to the difficulties of entrepreneurship. Entrepreneurship carries risks and uncertainties (Bodnar, Rieznikova, & Kravets, 2019) that can affect a person's ability to sustain a career, even though it can also present opportunities for financial success, job security, and personal growth. The alignment of EI and CS provides a variety of benefits, ranging from personal and financial progress to positive societal and environmental outcomes (Vuorio, Puumalainen, & Fellnhofer, 2018). This collaboration results in a comprehensive

approach to professional development that goes beyond individual accomplishment and contributes to the well-being of communities and the overall economy.

EI and GC are interconnected ideas that, when combined, lead to more ecologically sustainable and innovative corporate operations (Jiang et al., 2020). The combination of EI and GC provides a powerful framework for developing enterprises that not only prosper economically but also positively impact the environment and society. Entrepreneurs who embrace green ingenuity are well-positioned to lead in a world where sustainability is becoming more appreciated and anticipated.

In terms of firm size, the majority of studies indicated a positive correlation between EI, CS, and GC (Yasir, Babar, Mehmood, Xie, & Guo, 2023). How GC acts as a mediator between EI and CS reveals a dynamic interaction that promotes long-lasting and environmentally conscious career paths. It draws attention to the potentially revolutionary nature of incorporating eco-friendly practices into business endeavors. This combination not only synchronizes individual ambitions with more general sustainability objectives but also lays the groundwork for robust, meaningful, and long-lasting career paths.

Theoretical and Practical Implications

The current study contributes a lot of theoretical value as the Theory of Planned Behavior (TPB) has been applied to the behavioral aspects of female entrepreneurship and sustainability. In the past, TPB described entrepreneurial intention in terms of three determinants, which include attitude, subjective norms, and perceived behavioral control. This study enhances TPB through the inclusion of green creativity as a mediating variable to show how this intention can be converted into sustainable entrepreneurship by women. It shows that intention in the case of female entrepreneurs is not enough without its correlation with creative abilities, providing harmony with the environmental and social values. Moreover, the study puts TPB into perspective of a gendered context, demonstrating that external sources of restrictions - including cultural norms and lack of support - uniquely influence behavioral control among women. Therefore, the study not only confirms TPB in the context of a developing economy but also adds to its explanatory ability by incorporating sustainability-oriented creativity as a behavioral driver. Such a theoretical combination helps gain a better insight into how women entrepreneurs transform intention into long-term career sustainability due to innovative and purpose-driven entrepreneurial practices.

This unification of GC, CS, and EI has important theoretical ramifications for many different fields. The relationship between CS and EI upends conventional career development models by highlighting the significance of integrating sustainability objectives into one's professional trajectory. This implies that to take into consideration the changing expectations of people looking for fulfilling careers that respect the environment, it may be necessary to review and broaden the scope of

current theories of career development. Furthermore, by emphasizing the cognitive and motivational elements driving people to incorporate eco-friendly practices into their entrepreneurial pursuits, the inclusion of green creativity as a mediator between entrepreneurship intention and career sustainability improves psychological models.

This paper provides some of the practical contributions that can be considered by policymakers, business support organizations, and women entrepreneurs. First, the findings by bringing out the centrality of green creativity stimulate entrepreneurship training programs to incorporate innovation and environmental thinking in the capacity-building of women. Targeted workshops aimed at training female entrepreneurs to produce eco-friendly goods and greener business behaviour can be developed by business incubators, particularly the Pakistani ones. Second, the findings indicate that financial support is not the only way through which policy interventions can be made, but confidence, network, and mentorship opportunities must be developed to enable women to translate their intentions into viable and sustainable ventures. Third, the research encourages SMEs and industrial organizations to provide inclusive conditions in which women are motivated to be experimental, innovative, and spearhead sustainability-oriented programs. Lastly, learning institutions that provide entrepreneurship training can include sustainability and creativity classes to produce future female leaders who would be able to juggle between economic development and environmental concern. All of these practical applications are used to build the entrepreneurial ecosystem with women, which is consequently leading to the sustainable development of their careers and the country as a whole.

This study's practical ramifications are far-reaching, influencing female managers' decisions, corporate strategy, and social growth. Individually, budding entrepreneurs might profit by aligning their professional trajectories with sustainability objectives and incorporating green creativity into their businesses. This not only increases their market appeal but also promotes personal fulfillment and resilience in the face of changing economic and environmental situations. Fostering a culture that promotes green creativity and aligns entrepreneurship with sustainability goals can lead to innovation, cost savings, and increased corporate social responsibility. This strategy not only attracts environmentally conscious employees but also positions organizations as pioneers in sustainable operations, appealing to a growing market of eco-conscious consumers.

At the societal level, supporting entrepreneurship with a sustainability focus and cultivating green creativity can result in beneficial environmental and social transformations. Policymakers and educators may play an important role in supporting entrepreneurship education that incorporates sustainability concepts, providing individuals with the skills required to develop sustainable companies and contribute to a more ecologically responsible economy. In essence, the practical implications highlight the potential for combining entrepreneurship, career sustainability, and green innovation to improve individual, organizational, and societal results, thus promoting a more sustainable and resilient future.

Limitations and Future Work

Our study, like any research, has certain limitations that need to be acknowledged. The primary limitation is that our sample was limited to three major cities. It is recommended that future investigators expand their study to a national level to obtain more inclusive results that account for regional and cultural differences. Furthermore, we advise that future scholars think about performing a comparative analysis among various Islamic nations, as this can offer insightful information. In addition, future research studying women managers, entrepreneurs, and workers in emerging nations ought to use a mixed-methods approach. Combining qualitative and quantitative methodologies can lead to a more nuanced understanding of the subject. To get a more thorough grasp of the research issue, it is also advised that future studies include a wider range of factors. Lastly, future research needs to look at any potential aggravating factors that can influence the interaction between the elements mentioned above and the mindset of female entrepreneurs. Integrating factors like intelligence or financial literacy, for instance, could shed light on how these characteristics might either support or undermine the relationship under investigation.

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Conflicts of interest/Competing interests

There is no conflict of interest/Competing interests

Availability of data and material

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Code Availability

The computer program results are shared through the tables in the manuscript.

Authors' Contributions

Shahina Qurban Jan: Conceptualization, Methodology, Writing – Original draft preparation, Validation.
Jiang Junfeng: Supervision, Writing – Reviewing and Editing.
Muhammad Babar Iqbal: Data curation, Software, Writing – Reviewing and Editing.
Bilawal Ansari: Writing – Reviewing and Editing.

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