
Proactive Personality and Entrepreneurial Intention among Internship Nursing Students: A Mediating Role of Individual Improvisation

Enas Elsayed Elsayah¹, Shima Mohamed Salem² & Marwa Hassan Ageiz³

¹ Lecturer of Nursing Administration, Faculty of Nursing, Menoufia University, Egypt.

² Lecturer of Nursing Administration, Faculty of Nursing, Menoufia University, Egypt.

³ Assistant Professor of Nursing Administration, Faculty of Nursing, Menoufia University, Egypt.

Abstract:

Background: A proactive personality enables students to overcome environmental constraints and move faster towards identifying opportunities, then developing positive improvisations as a critical strategy for dealing with emergencies and risks in the entrepreneur process. **Aim:** Investigate proactive personality and entrepreneurial intention among internship nursing students and individual improvisation as a mediating role. **Design:** A descriptive, correlational, and comparative research design was used. **Setting:** The research was conducted at the Faculty of Nursing, Menoufia University, Menoufia governorate. **Subjects:** Included a convenience sample of internship nursing students during the academic year 2022/2023 (n= 408). **Instruments:** Three instruments were used; (1) proactive personality scale, (2) Entrepreneurial Intention Questionnaire, (3) individual improvisation behavior scale. **Results:** Nearly half (48.5%) of studied internship nursing students had a high level of proactive personality while more than half (59.8%) and more than two-thirds of them (67.4%) had a moderate level of entrepreneurial intention and individual improvisation, respectively. Also, a highly positive significant correlation was observed between proactive personality and both entrepreneurial intention and individual improvisation among internship nursing students (p-value <0.0001). **Conclusion:** The results collectively indicated that individual improvisation has a mediating role in the relationship between proactive personality and entrepreneurial intention. **Recommendations:** Pay attention to the proactive personality traits among nursing students by academic nursing institutions to develop strategies for recruiting those with such traits and engaging them in experiential learning projects that necessitate hands-on fieldwork and operational research. Fostering entrepreneurial culture can be revealed through co-curricular. Additionally, consider improvisation techniques as basic nursing skills that need to be practiced in undergraduate courses.

Keywords: *Entrepreneurial intention, Individual improvisation, Nursing internship students & Proactive personality*

Introduction

The contemporary workplace has demonstrated an increased level of expectation, promoting the development of a more proficient, proactive, and enterprising employee with a professional demeanor. Nurses hold this perspective as well, as they are progressively expected to envision specialized, qualified care that is aligned with optimal care practices. This generates critical introspection regarding the actions they formulate, their objectives, and potential enhancements to said actions (Godsey et al., 2020). Furthermore, nurses are tasked with providing healthcare services to individuals, underscoring the significance of their practices being based on proactive measures that recognize the interconnectedness of the spiritual, bio-psychosocial, and human dimensions (Luo et al., 2022).

Proactive personality (PP) refers to the tendency of someone who is relatively stable to take the initiative to change the environment in which he or she finds him or herself and is not constrained by situational

influences. Proactive people have the ability and disposition to effectively deal with occupational constraints, engage in initiative, explore available opportunities, and persevere until meaningful change occurs. They are described as pathfinders who discover novel solutions to problems (McCormick et al., 2019). Proactive individuals possess a disposition that encourages deliberate action, which grants them control over their surroundings, future, and destiny. Instead of waiting for others to decide or make decisions for them regarding their future, they forge their own path (Yi-Feng Chen et al., 2021).

A proactive individual generates novel opportunities for the prevailing order to become more advantageous and adversarial, as opposed to merely passively conforming to customary circumstances. Proactive individuals are risk-taking, entrepreneurial, accountable, and committed to their endeavors. This is due to the fact that proactive behaviour inspires individuals to initiate and pursue a better future (Abid et al., 2021). A proactive personality is important in

healthy career development because it reflects the individual's proclivity to effect meaningful changes in their environment **(Bozbayındır & Alev, 2018)**. Individuals with proactive personalities typically have high autonomous motivation, which allows them to recognize and improve their sense of energy. Proactive personality types may actively pursue social support from outside sources in order to accomplish personal objectives. This is accompanied by an internal behavioral orientation that is more optimistic in nature **(Zhang & Gong, 2021)**.

Extrapolating the boundaries of disciplinary knowledge and specific, linear actions, nursing students must be capable of proactive interaction in order to expand entrepreneurial opportunities in their work **(Richter et al., 2019)**. Entrepreneurs are defined as having the capacity or ability to identify opportunities and organize resources to implement an existing idea in a novel way. The entrepreneurial vision in nursing has taken on both social and commercial characteristics, associated with the recreation of something to create market benefits. It also connects the ability to promote creative processes and associations aimed at the emancipation of families, individuals, and communities **(Anwar et al., 2020)**.

Nurses, as entrepreneurs, are creative forces in the healthcare sector, developing and producing new approaches to meet the needs of patients. That is, entrepreneurial nurses are innovators who use their creativity to create new ideas, services, and products, or to develop new methods for using existing products in novel ways. It is proposed that entrepreneurship is a person's behavioral characteristic **(Schlepphorst et al., 2020)**.

A prospective call for the advancement of nursing science would be for nurses to contribute to long-term social development by offering entrepreneurial care that expands opportunities and tangible possibilities for communities, families, and individuals. Therefore, these practitioners adopt an active stance in recognizing the healthcare requirements of the populace while also advocating for and safeguarding the holistic well-being of individuals **(Backes et al., 2022)**. Entrepreneurship also allows for the profession reconfiguration through the new businesses, innovations development, and services. Some examples of advances in nursing entrepreneurship include autonomous consulting and advising, nursing office establishment, and home care. However, there are still new possibilities to be explored, particularly in terms of technological advancement **(Ippoliti et al., 2018)**.

While entrepreneurship is not overtly designated as a nursing competency, its significance within the healthcare system is reinforced by curricular

guidelines, institutional policies, and curricular practices. To meet the demands of the labor market and the swift transformations in the health sector, nursing education must therefore be found on entrepreneurship, innovation, and creativity **(Fernandes & Ferreira, 2022)**. Entrepreneurship can also facilitate the growth of competencies that are progressively esteemed in the realm of nursing education and practice, including caring management, leadership, conflict resolution, and emotional intelligence **(Arnaert et al., 2018)**.

Entrepreneurial careers are challenged by the economic environment's uncertainty, variability, and ambiguity; thus, entrepreneurial policy support allows individuals to leverage their improvisational ability to form their entrepreneurial intention. Furthermore, organizations must be adaptable, improvisational, and quick to respond to a variety of exceptions or seize instantaneous opportunities. The essence is that employees plan and act simultaneously to handle an urgent accident, allowing the organization to resolve the crisis and improve performance. On the contrary, employees do not conform to standardization; their cognitive and behavioral reactions vary among individuals. One specific and consistent response tendency of an individual to environmental changes is exemplified by the proactive personality trait **(Malucelli et al., 2021)**.

Activities that cannot be meticulously planned and may necessitate an individual to deviate from their established routines are situations in which improvisation is vital. Enhancing organizational effectiveness, and improvisation can facilitate prompt responses from businesses to shifts in the market environment and customer demand **(Gojny-Zbierowska & Zbierowski, 2021)**. Spontaneity and creativity converge in improvisation, as the term "improvisation" denotes the process of rapidly composing innovative solutions to emergent problems. Swift, impromptu (re)actions are required in high-speed environments. Individual improvisation is a phenomenon in which "workers modify their tasks in response to newly acquired information or are required to exceed their customary procedures in order to provide an original resolution to a given dilemma" **(Perrmann-Graham et al., 2022)**.

Nursing students must develop the ability to effectively navigate the inherent uncertainty of healthcare problems, given the profession's impermanence. In some instances, improvisation skills are already being practiced in the classroom, as they are explicitly required for teacher training students. Already introduced in problem-based learning for didactic purposes, this improves how physicians deal with uncertainty in their daily work. While educating students on how to handle

unforeseen medical circumstances, certain frameworks employ improvisational theatre techniques. Additionally, these improvisational techniques might facilitate effective instruction for educators during periods of uncertainty. They exhibit a notable capacity to foster the development of effective communication abilities and professional conduct (Harendza, 2020).

Significance of the study

A proactive personality is a trait of disposition that generally signifies an enduring inclination to modify one's surroundings. Individuals possessing this particular personality type exhibit a lack of acquiescence to external pressures and circumstances. They are not restricted by their surroundings and are highly skilled at identifying novel business prospects and subsequently devising constructive innovations to alter the environment (Magni et al., 2018). Nationally, the Egyptian government promotes entrepreneurship through the Technology Innovation and Entrepreneurship Centre (TIEC), an Egyptian organization that provides financial assistance and training for private practice trials. Various opportunities for nursing entrepreneurship are available to investigate the profession of nursing's potential in nursing practice and raise awareness of the nursing services value (Ali et al., 2020). Based on the researchers' experience, internship nursing students are mostly concerned with nursing market opportunities and how to engage in new practices that will improve them economically and enhance nursing services. So, the present study aimed to investigate proactive personality and entrepreneurial intention among internship nursing students and individual improvisation as a mediating role.

Conceptual framework:

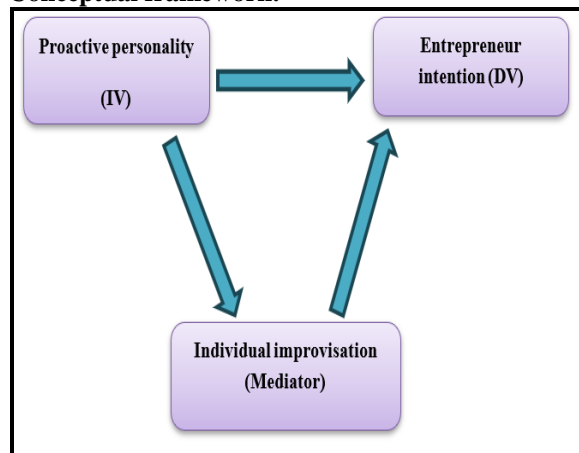


Figure (1): Proposed conceptual framework for the study variables.

IV :(Independent variable)

DV: (Dependent variable)

Aim of the study:

This study aimed to investigate proactive personality and entrepreneurial intention among internship nursing students and individual improvisation as a mediating role.

Research Questions:

1. What are the levels of proactive personality, entrepreneurial intention, and individual improvisation among internship nursing students?
2. Are there correlations between internship nursing students' proactive personality, entrepreneurial intention, and individual improvisation?
3. Is there a mediating role for individual improvisation in the relationship between proactive personality and entrepreneurial intention among internship nursing students?
4. Is there a difference in the levels of proactive personality, entrepreneurial intention, and individual improvisation of the internship nursing students regarding the type of training hospital?

Materials and Methods

Research Design

A descriptive correlational comparative research design was used.

Setting

The research was conducted at the Faculty of Nursing, Menoufia University. Menoufia Governorate, Egypt.

Subjects

The subjects of the current study involved a convenience sample from internship nursing students registered in the internship nursing program in the Faculty of Nursing, Menoufia University during the academic year 2022/2023.

The total number of internship nursing students was (N= 476), 55 students were excluded from the pilot study to avoid contamination of the results so the study subjects were (n= 421), however, the questionnaires were filled by (n=408) with a response rate 97%.

Data Collection Instruments

Three instruments were applied for data collection in addition to the socio-demographic data. As follow:

Instrument I: proactive personality scale

The questionnaire was adopted from the shortened version of Seibert, Crant, and Kraimer, (1999) Simplified Scale to measure the levels of internship nursing students' proactive personality. The scale contained ten items; each item was rated on a five-point Likert scale (1 – 5) as (1) for strongly disagree, (2) for Disagree, (3) for Neutral, (4) for Agree, and (5) for strongly agree. These items were summed to arrive at a proactive personality score .

Scoring:

The total scores ranged from 10 -50 and were classified into three levels:

- Low level of proactive personality < 60% of the total score (10-23).
- Moderate level of proactive personality 60% to less than or equal \leq 75% of the total score (24 – 37).
- High level of proactive personality > 75% of the total score. (38– 50).

Instrument II: Entrepreneurial Intention Questionnaire

The entrepreneurial Intention Questionnaire was developed by Orman (2009) to assess internship students' intention to become an entrepreneur and consisted of six items. Each item was rated on a five-point Likert scale (1 – 5) as (1) for strongly disagree, (2) for disagree, (3) for Neutral, (4) for Agree, and (5) for strongly agree. These items were summed to arrive at the entrepreneurial intention score.

Scoring:

The total scores ranged from (6 -30) and were classified into three levels:

- Low level of entrepreneurial intention: less than < 60% of the total score (6 – 14).
- Moderate level of entrepreneurial intention: 60% to less than or equal \leq 75% of the total score (15– 23).
- High level of entrepreneurial intention: more than > 75% of the total score (24– 30).

Instrument III: Individual Improvisation Questionnaire

This was developed by Vera and Crossan (2005) to measure internship nursing students' level of improvisation and consisted of 7 items. Each item was examined on a five-point Likert scale (1 – 5) as (1) for strongly disagree, (2) for Disagree, (3) for Neutral, (4) for Agree, and (5) for strongly agree.

The total scores ranged from (7 -35) and were classified into three levels:

- Low level of individual improvisation: less than < 60% of the total score (7 – 16).
- Moderate level of individual improvisation: “60% to less than or equal \leq 75% of the total score (17– 26).
- High level of individual improvisation: more than > 75% of the total score. (27– 35).

The face and content of the data collection instruments validity were assessed by professors and assistant professors in the field of Nursing Administration and Community Health Nursing who examined the instruments for relevancy, fluency, clarity, and component simplicity in the instruments. Also, instruments were judged for the items' completeness and clarity.

Reliability of Instruments:

The reliability of the original instruments (Proactive personality, Entrepreneurial intention, and Individual

improvisation) was ($\alpha = 0.86$), ($\alpha = 0.86$), and ($\alpha = 0.79$) receptively; then evaluated in the current study by utilizing the test-retest method two weeks apart between them to be ($\alpha = 0.88$), ($\alpha = 0.84$), and ($\alpha = 0.81$) receptively.

Pilot Study:

Pilot research was applied to evaluate the instruments' feasibility and clarity besides determining how long it would take to fill them. Ten percent (55 students) of the recruited sample were included in the pilot study and then excluded from the research to avoid data contamination because some modifications were done on the instruments such as the arrangement of questions.

Ethical Considerations:

The research was carried out in strict adherence to ethical guidelines and consideration of the participants' rights. Before commencing the study, written consent was obtained from the Ethical and Research Committee of the Faculty of Nursing at Menoufia University. (IRP no 920). To safeguard the rights of the participants, their involvement was voluntary; thus, their consent to participate was obtained online through WhatsApp group after a comprehensive explanation of the study's objectives, characteristics, duration, potential advantages, and data collection methodology. The participants were assured that the information would be handled with the utmost confidentiality. Moreover, to protect their anonymity, they were not obligated to provide their names; additionally, they retained the prerogative to withdraw their responses at any given moment.

Data Collection Procedures:

The Dean of the Faculty of Nursing at Menoufia University granted official permission to collect data and carry out the study. The researchers collected data from the first of April 2023 to the end of June 2023.

The researchers contacted students through their WhatsApp and Facebook groups and explained the study purpose and the timing of data collection, which started on 1 April and continued until June, and the link closed after that. Also, data was collected through the link (<https://forms.gle/FLz6rBvyAEKSiDpRA>) that was sent to students on WhatsApp and Facebook groups. Moreover, the researchers were available for students through for any clarifications required. After the due time for data collection was reached the researchers started to revise the students' response dashboard to ensure that the required study sample had finished and no missed responses. The researchers then started data entry to make an analysis.

Statistical Analysis:

A form that was specifically engineered to facilitate the computer entry process was utilized to convert the encoded data. The statistical package for the social sciences, SPSS version 22, was utilized to input and analyze the data. Excel was utilized to generate the graphics. The means (X) and standard deviations were utilized to present quantitative data (SD). Tables of frequency distributions, numerical values, and percentages were utilized to present the qualitative data. Using the chi-square (χ^2) test, the data was

analyzed. The Fisher Exact test was utilized, although, if the expected value of any cell in the table was < 5 . Pearson correlations were used to test the relationships among all variables. The level of significance was set as P value < 0.05 for all significant tests. Hierarchical linear regression analysis was performed to test the mediating effects of individual improvisation in relation to proactive personality and entrepreneurial intention among internship nursing students.

Results

Table (1): Distribution of Internship Nursing Students According to Their Personal Data (n=408)

Personal Data	N0.	%
Age (Mean \pm SD)	22.5 \pm 0.6 Years. Range(22 – 24 years)	
Gender:		
• Male	92	22.5
• Female	316	77.5
Training Hospitals:		
• Governmental Hospitals	277	67.9
• Private Hospitals	131	32.1
Total	408	100

Table (2): Proactive Personality, Entrepreneurial Intention, and Individual Improvisation Levels among Studied Internship Nursing Students (n=408)

	Total levels						Total		X ² Test	P
	Low		Moderate		High		N	%		
	N	%	N	%	N	%				
Proactive Personality	19	4.7	191	46.8	198	48.5	408	100	38.3	<0.0001
Entrepreneurial Intention	19	4.7	244	59.8	145	35.5	408	100		
individual improvisation	21	5.1	275	67.4	112	27.5	408	100		

Table (3): Correlation between Proactive Personality, Entrepreneurial Intention, and Individual Improvisation among Studied Internship Nursing Students (n=408)

	Entrepreneurial Intention		Individual improvisation	
	R	P	R	P
Proactive personality	0.67	<0.0001	0.63	<0.0001

Table (4): Multiple linear Regression Analysis of Proactive Personality, Individual Improvisation, and Entrepreneurial Intention among Studied Internship Nursing Students (n=408)

	Variable	B	β	T	P-value	R ²	F
Level 1	(Constant)	7.824	—	7.940	.000	.393	264.323
	Proactive Personality	.424	.628	16.258	.000		
Level 2	(Constant)	3.304	—	3.324	.001	.511	213.708
	Proactive Personality	.213	.316	6.758	.000		
	Entrepreneurial Intention	.561	.465	9.959	.000		
Level 3	(Constant)	5.310	—	7.071	<.001	.556	255.744
	Proactive Personality	.227	.405	9.549	<.001		
	individual improvisation	.350	.423	9.959	<.001		

Table (5): Testing the Mediating Effect of Individual Improvisation, in Relation to Proactive Personality, and Entrepreneurial Intention among Studied Internship Nursing Students (n=408).

Model	Dependent variable	Independent variable	B	B	T	P-value
Model 1	Entrepreneurial Intention	Proactive Personality	.376	.671	18.222	<.001
Model 2	Entrepreneurial Intention	individual improvisation	.561	.677	18.545	<.001

Table (6): Comparison of Proactive Personality Levels among Studied Internship Nursing Students According to Type of Hospital (n=408)

Types of Hospitals	Proactive Personality Levels among Internship Nurses						Total		χ^2	P
	Low PP		Moderate PP		High PP		N0.	%		
	N0.	%	N0.	%	N0.	%				
Governmental H.	12	4.3	126	45.5	139	50.2	277	100	1.40	0.61 NS
Private H.	7	5.3	65	49.7	59	45	131	100		
Total	19	4.7	191	46.8	198	48.5	408	100		

Table (7): Comparison of Entrepreneurial Intention Levels among Studied Internship Nursing Students According to Type of Hospital (n=408).

Types of Hospitals	Entrepreneurial Intention levels among Internship Nurses						Total		χ^2	P
	Low EI		Moderate EI		High EI		N0.	%		
	N0.	%	N0.	%	N0.	%				
Governmental H.	10	3.6	171	61.7	96	34.7	277	100	2.8	0.25 NS
Private H.	9	6.9	73	55.7	49	37.4	131	100		
Total	19	4.7	244	59.8	145	35.5	408	100		

Table (8): Comparison of Individual Improvisation levels among Studied Internship Nursing Students According to the Type of Hospital (n=408).

Types of Hospitals	Individual Improvisation levels						Total		χ^2	P
	Low II		Moderate II		High II		N0.	%		
	N0.	%	N0.	%	N0.	%				
Governmental H.	13	4.7	187	67.5	77	27.8	277	100	0.38	0.82 NS
Private H.	8	6.1	88	67.2	35	26.7	131	100		
Total	21	5.1	275	67.4	112	27.5	408	100		

Table (1): Shows that most of the study sample aged between 22 to 24 years old with a mean age of 22.5 ±0.6, most of them are female (77.5%), and slightly more than two-thirds of them (67.9%) are trained in governmental hospitals.

Table (2): Highlights that there is a highly significant difference between entrepreneurial intention, proactive personality, and individual improvisation levels among studied internship nursing students at (p-value <0.0001). Nearly half of them show a high level of proactive personality (48.5%). while more than half (59.8%) and more than two-thirds of them (67.4%) had a moderate level of entrepreneurial intention and individual improvisation, respectively.

Table (3): Presents that there is a positive strong highly significant correlation between proactive personality as the independent variable, and each entrepreneurial intention and individual improvisation as dependent variables (r=0.67, p<0.0001) (r=0.63, p<0.0001) respectively.

Table (4): Reveals that at Level 1, the constant value was 7.824, indicating that without any influence from proactive personality; individuals displayed a mean level of entrepreneurial intention at 7.824. Proactive personality exhibited a significantly positive association ($\beta = 0.628, p < .001$) with entrepreneurial intention, explaining 39.3% of the variance and yielding an F-statistic of 264.323. At Level 2, the constant value was 3.304, suggesting that entrepreneurial intention decreased when individual

improvisation was not considered. Both proactive personality ($\beta = 0.316$, $p < .001$) and individual improvisation ($\beta = 0.465$, $p < .001$) displayed a significant positive influence on entrepreneurial intention, with the model accounting for 51.1% of the variance and an F-statistic of 213.708. At Level 3, the constant was 5.310, indicating the baseline entrepreneurial intention in the presence of both proactive personality and individual improvisation. Proactive personality ($\beta = 0.405$, $p < .001$) and individual improvisation ($\beta = 0.423$, $p < .001$) continued to exhibit significant positive relationships with entrepreneurial intention, explaining 55.6% of the variance and producing an F-statistic of 255.744.

Table (5): Presents a series of regression models that further delve into the intricate relationships between individual improvisation, proactive personality, and entrepreneurial intention among internship nursing students. In Model 1, entrepreneurial intention is significantly influenced by proactive personality ($B = 0.376$, $\beta = 0.671$, $t = 18.222$, $p < .001$), reflecting the pivotal role of proactive personality in entrepreneurial intentions. The model explains 67.1% of the variance in entrepreneurial intention. Then, Model 2 shows that entrepreneurial intention is positively and significantly affected by individual improvisation ($B = 0.561$, $\beta = 0.677$, $t = 18.545$, $p < .001$). This finding underlines that students engaged in more individual improvisation are more likely to have stronger entrepreneurial intentions, with the model explaining 67.7% of the variance. These results collectively indicate that proactive personality plays a pivotal role in fostering entrepreneurial intention, and this relationship is further enhanced when individual improvisation is taken into account.

Table (6): Indicates that more than half of studied internship nursing students who have practical training at governmental hospitals showed high proactive personality (50.2%). Whereas, nearly half of studied internship nursing students who have practical training at private hospitals have moderate proactive personality (49.7%). In addition, there is no significant difference in proactive personality levels among internship nursing students according to the type of hospitals at which studied internship nursing students had their practical training ($p=0.61$).

Table (7): Shows that approximately two-thirds of studied internship nursing students (61.7%), who have practical training at governmental hospitals and more than half of studied internship nursing students (55.7%) who have practical training at private hospitals show moderate entrepreneurial intention. In addition, there is no significant difference in entrepreneurial intention levels among internship nursing students according to the type of hospitals at

which studied internship nursing students had their practical training ($p=0.25$).

Table (8): Indicates that slightly more than two-thirds of studied internship nursing students (67.5%) and (67.2%) who have practical training at governmental hospitals and private hospitals respectively show moderate individual improvisation. In addition, there is no significant difference in individual improvisation levels among internship nursing students according to the type of hospitals at which studied internship nursing students had their practical training ($p=0.82$).

Discussion

Nursing education is commonly perceived as a challenging and demanding academic discipline. As health care evolves, nursing students are obligated to obtain professional knowledge, skills, and competence in order to deliver high-quality care in their future careers (Labrague et al., 2018). Consequently, individuals who possess a proactive disposition will have the capacity to recognize and exploit novel prospects as they present themselves. This personality type consists of students who are proactive, persistent, and determined to achieve their objectives. They desire to influence the environment, identify and resolve problems, and alter the organization's mission (Lestari et al., 2022).

In addition to enhancing organizational effectiveness, individual improvisation can facilitate prompt responses of businesses to environmental and customer demands (Wu, & Ma, 2019). Individual improvisation therefore served as a mediator between entrepreneurial intention and proactive personality among nursing students completing an internship and the subject of the present study.

The current study findings were discussed in light of the research questions as follows: The level of proactive personality from nursing internship students' perspective. In the current study revealed that; nearly half of internship nursing students had a high level of proactive personality. From the researchers' point of view, competency-based education offered by the faculty of nursing prepared students to have creative thinking skills and competencies, improved their personality traits, and helped them identify new opportunities and solve problems. Moreover, develop their creative skills and encourage them to think outside the box.

This was in harmony with, Mohamed, et al., (2023) who concluded that more than half of healthcare students had a high level of proactive personality. In the same way, nursing students have a high level of proactive personality, according to Al-Mamary & Alshallaqi (2022), which enables them to actively scan their surroundings for opportunities, initiate and

execute action, and persevere until they reach their objectives.

Additionally, **Astrini et al., (2020)** stated that the proactive personality level among Indonesian students was high. Furthermore, **Hu et al., (2018)** found that proactivity is the active attempts made by the students to effect changes in his or her environment and the highest percentage of students had perceived a high level of proactive personality.

In contrast to these findings, **Naz, et al., (2020)** found that more than two-thirds of study subjects had a moderate level of proactive personality. Also, **Hussain & Malik, (2018)** revealed that most university students had a moderate level of proactive personality.

Regarding the level of entrepreneurial intention among internship nursing students, the current study findings revealed that more than half of internship nursing students had a moderate level of entrepreneurial intention. Based on the researchers' point of view; It may be due to internship nursing students not studying entrepreneur courses in the undergraduate program. Also, they have not provided courses that discuss the dynamics of entrepreneurship to assist students in developing innovative business practises for the future. Undoubtedly, the dissemination of entrepreneurial culture cannot be achieved solely through extracurricular engagements such as seminar participation, academic pursuits, social clubs, event coordination, or community development activities.

Numerous researches have verified that there is a favorable correlation between entrepreneurial intention and entrepreneurial education (**Tomy, & Pardede, 2020**). Another study also supported the notion that entrepreneurship education motivates internship nursing students to pursue entrepreneurship as a career and improves their entrepreneurial skills and reported that three-quarters of Minia and Cairo nursing intern students had moderate levels of entrepreneurial intention (**Zayed Mohammed et al., 2022**). Moreover, **Ndofirepi. (2020)** found that those students were more interested in starting their careers after receiving entrepreneurial education; this result was congruent with, **Mohamed et al., (2023)** who concluded that two-thirds of healthcare students had a moderate level of entrepreneurial intention.

Additionally, **Lestari et al., (2022)** found that the highest percentage of students had a moderate level of entrepreneurial intention. Moreover, a study by **Mirandaa et al., (2018)** about the determinants of entrepreneurial intention proved that more than half of the study subjects had moderate entrepreneurship intention levels. In contradiction to these findings, **Ali et al., (2020)** concluded that study participants had a low level of entrepreneurial intention. Also, **Nawaz et**

al., (2019) revealed that entrepreneurial intention levels among university students was high.

According to the first research question about the level of individual improvisation among internship nursing students, the present study findings confirmed that slightly more than two-thirds of internship nursing students had a moderate level of individual improvisation. This outcome could be rationalized due to the worsening employment situation of university graduates, the adverse effects of the Covid-19 pandemic, and the progress of the economy. College students are subject to intense employment pressure. All previous situations helped nursing students to practice under a great deal of complexity that prepared them to some extent to improvise to be able to adapt to an ever-changing practice environment. Furthermore, **Balachandra (2019)** demonstrated that in a dynamic and complex environment, individual improvisation is an effective method for obtaining unforeseen opportunities and adapting to rapid change. Additionally, improvisation can provide crucial strategies for handling emergencies effectively.

The result of the current study was confirmed by **Zhang et al., (2023)** who found that the highest percentages of the participants had moderate individual improvisation levels. Moreover, **Guo et al., (2022)** concluded that most university students had a moderate level of improvisation. On the other hand, this result was contradicted by **Mannucci et al., (2021)** who found that most of the study subjects had low levels of improvisation. Additionally, **Ciocianu, (2019)** proposed that the studied sample level of individual improvisation was high .

According to the correlation between internship nursing students' proactive personality, entrepreneurial intention, and their individual improvisation, the present study findings reported that there was a positive strong highly significant correlation between proactive personality and each of entrepreneurial intention and individual improvisation. This result may be explained by the fact that nursing students completing an internship and possessing a proactive personality are more inclined to initiate a change and opt to begin their own practice when confronted with unsatisfactory working conditions or employment conditions. Furthermore, they exhibit enhanced spontaneity, improved adaptability to changes, heightened future orientation, and heightened capability in identifying and seizing opportunities.

Regarding the study question about whether there is a mediating role for individual improvisation in the relation between proactive personality and entrepreneur intention among internship nursing students, a series of regression models and multiple

regression analysis collectively proved the mediating individual improvisation role in the relation between entrepreneur intention and proactive personality among internship nursing students.

The current study findings were consistent with the proposed conceptual framework which clarified that proactive personality plays a pivotal role in fostering entrepreneurial intention, and this relationship is further enhanced when individual improvisation is taken into account. From the researchers' point of view being proactive helps to put yourself on the first step to discovering a new world and engaging in different practices or business however it is not smooth enough, sometimes things go the other way of our will, individuals who can improvise in complex situations are less liable to fail due to the fact that it provides them with the opportunity to develop critical skills in people management, business management, and marketing that are vital for the success of their venture.

In the same line; **Mohamed et al., (2023)** claimed that a proactive personality directly and positively impacted entrepreneurial intention. Also, **Kumar, & Shukla, (2022)** revealed that students' proactive personality was significantly, influenced by entrepreneurial intention and creativity. Furthermore, **Al-Mamary & Alshallaqi (2022)** have established that students who possess proactive personalities are capable of actively perusing their surroundings for advantageous circumstances, instigating and carrying out actions, and persevering until they succeed in attaining their objectives. Their capacity to seize new opportunities, anticipate potential obstacles, and formulate workable responses was thus enhanced by their initiative, intelligence, and willingness to do so. Similarly, **Lestari et al. (2022)** demonstrated that entrepreneurial intention can be predicted by proactive personality. Additionally, students with proactive personalities intended to pursue entrepreneurship in the future.

Besides, **Ciocianu, (2019)** proved that proactive personality promotes individual improvisation. In addition, a proactive attitude can be conceived as an individual favorable disposition toward taking initiative in upgrading current circumstances or creating new ones to face barriers and obstacles. Additionally, the result of the current study was concurrent to **Wu & Ma, (2019)** who showed that proactive personality is positively related to individual improvisation. Also, they supported those individuals with proactive personalities who had a stronger responsible sense, stimulated internal motivation, were good at discovering the nature of the problem, and then performed improvisation spontaneously and creatively. On the contrary, the result of **Naz, et al., (2020)** demonstrated that a

proactive personality is not significantly related to the entrepreneurial intention of university students. In addition, **Gojny-Zbierowska & Zbierowski, (2021)**, revealed that the lower proactive personality among study subjects but the stronger level of improvisation.

Regarding comparing proactive personality, entrepreneurial intention, and individual improvisation levels among internship nursing students according to the type of the hospital in which they are trained, the current results highlighted that there was an insignificant difference in proactive personality, entrepreneurial intention, and individual improvisation levels according to the type of hospitals at which studied internship nursing students had their practical training.

From the researchers' points of view, it was a surprising result, as it was expected that internship students training in private hospitals would remain at a higher level, especially since they are exposed to different working conditions and work environments that qualify them to discover more opportunities and ambitions that may be the reason for their involvement in entrepreneurial work and increase their level of improvisation. However, these results could be attributed to the differences in internship students' numbers in private and governmental hospitals. Overall, the internship students in both governmental and private hospitals studied the same courses and studied in the same educational culture. Similarly, **Lestari et al., (2022)** found that students' proactive personality were not significantly associated with their practical environment. Also, **Jovičić-Vuković et al., (2019)** indicated that the students' entrepreneurial intentions don't differ depending on their place of training.

On the contrary, the result of **Zhu et al., (2021)** demonstrated that nursing students' proactive personality was significantly associated with place of training. In addition, **Rahman et al., (2016)** revealed that there was a significant difference in students' entrepreneurial intention in public and private universities. Also, students in public universities were more inclined to participate in entrepreneurial intention activities as opposed to those in private universities.

Conclusion:

In the current study, nearly half of studied internship nursing students had a high level of proactive personality while more than half and more than two-thirds of them had a moderate level of entrepreneurial intention and individual improvisation, respectively. Also, a highly positive significant correlation was observed between proactive personality and both entrepreneurial intention and individual improvisation among internship nursing students (p-value <0.0001).

Moreover; the results collectively indicated that individual improvisation has a mediating role in the relationship between proactive personality and entrepreneurial intention among internship nursing students.

Recommendations:

1. Pay attention to the proactive personality traits among nursing students by academic nursing institutions to develop strategies for recruiting those with such traits and engaging them in experiential learning projects that necessitate hands-on fieldwork and operational research.
2. Develop the concept of entrepreneurship by academic nursing institutions through:
 - Providing courses that discuss the dynamics of entrepreneurship in order to assist students in incorporating innovative practices into their future enterprises.
 - Provide postgraduate programs for nursing students to accomplish business administration and dual master's degree programs in nursing to gain valuable insight into accounting and managerial practices.
 - Fostering entrepreneurial culture through co-curricular such as participation in seminars, social clubs, event management, student academic, and community development activities.
3. Adopt a global health competency framework by academic nursing institutions a to provide new graduates and students with the ability to address global health issues at the local and global level therefore t increasing initiative ability and improvisation in students.
4. Consider improvisation techniques as basic nursing skills that need to be practiced in undergraduate courses.

Declaration of Conflicting Interests:

The authors of this paper have not disclosed any potential conflicts of interest related to the research, writing, or publication of this work.

References

- **Abid, G., Arya, B., Arshad, A., Ahmed, S., & Farooqi, S. (2021):** Positive personality traits and self-leadership in sustainable organizations: Mediating influence of thriving and moderating role of proactive personality. *Sustainable Production and Consumption*, 25, 299-311.
- **Ali, H., Abd Allah, S., & Al-hosany, W. (2020):** Entrepreneurship Orientation Program and Its Effect on the Entrepreneurial Intention of Future Nurses. *Assiut Scientific Nursing Journal*, 8(20.00), 228-237.
- **Al-Mamary, Y., & Alshallaqi, M. (2022):** Impact of autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness on students' intention to start a new venture. *Journal of Innovation & Knowledge*, 7(4), 100239.
- **Anwar, I., Saleem, I., Islam, K., Thoudam, P., & Khan, R. (2020):** Entrepreneurial intention among female university students: examining the moderating role of entrepreneurial education. *Journal for International Business and Entrepreneurship Development*, 12(4), 217-234.
- **Arnaert, A., Mills, J., Bruno, F. S., & Ponzoni, N. (2018):** The educational gaps of nurses in entrepreneurial roles: An integrative review. *Journal of Professional Nursing*, 34(6), 494-501.
- **Astrini, N., Rakhmawati, T., Sumaedi, S., Bakti, I., Yarmen, M., & Damayanti, S. (2020):** Innovativeness, proactiveness, and risk-taking: corporate entrepreneurship of Indonesian SMEs. In *IOP Conference Series: Materials Science and Engineering* (Vol. 722, No. 1, p. 012037). IOP Publishing.
- **Backes, D., Müller, L., Mello, G., Marchiori, M., Büscher, A., & Erdmann, A. (2022):** Entrepreneurial Nursing interventions for the social emancipation of women in recycling. *Revista da Escola de Enfermagem da USP*, 56.
- **Balachandra, L. (2019):** The improvisational entrepreneur: improvisation training in entrepreneurship education. *J. Small Bus. Manag.* 57, 60–77. doi: 10.1111/jsbm.12486
- **Bozbayındır, F., & Alev, S. (2018):** The analysis of the relationship between self-efficacy, proactive personality, and openness to change perceptions teachers. *İnönü University Journal of the Faculty of Education*, 19(2), 293–311. <https://doi.org/10.17679/inuefd.346666>.
- **Ciocianu, D. (2019):** The effect of transformational leadership on individual improvisation moderated through autonomy, empowerment, and proactiveness (Master's thesis).
- **Fernandes, A., & Ferreira, J. (2022):** Entrepreneurial ecosystems and networks: a literature review and research agenda. *Review of Managerial Science*, 16(1), 189-247.
- **Godsey, J., Houghton, D., & Hayes, T. (2020):** Registered nurse perceptions of factors contributing to the inconsistent brand image of the nursing profession. *Nursing Outlook*, 68(6), 808-821.
- **Gojny-Zbierowska, M., & Zbierowski, P. (2021):** Improvisation as responsible innovation in organizations. *Sustainability*, 13(4), 1597.
- **Gojny-Zbierowska, M., & Zbierowski, P. (2021):** Improvisation as responsible innovation in organizations. *Sustainability*, 13(4), 1597.

- **Guo, R., Yin, H., & Lv, X. (2022):** Improvisation and university students' entrepreneurial intention in China: the roles of entrepreneurial self-efficacy and entrepreneurial policy support. *Frontiers in Psychology*, 13, 930682.
- **Harendza, S. (2020):** Improvisation—a new strategy in medical education? *GMS journal for medical education*, 37(4).
- **Hu, R., Wang, L., Zhang, W., & Bin, P. (2018):** Creativity, proactive personality, and entrepreneurial intention: the role of entrepreneurial alertness. *Frontiers in Psychology*, 9, 951.
- **Hussain, S., & Imran Malik, M. (2018):** Towards nurturing the entrepreneurial intentions of neglected female business students of Pakistan through proactive personality, self-efficacy, and university support factors. *Asia Pacific Journal of Innovation and Entrepreneurship*, 12(3), 363-378.
- **Ippoliti, R., Falavigna, G., Montani, F., & Rizzi, S. (2018):** The private healthcare market and the sustainability of an innovative community nurses program based on social entrepreneurship-CoSENSo project. *BMC Health Services Research*, 18(1), 1-8.
- **Jovičić-Vuković, A., Jošanov-Vrgović, I., Jovin, S., & Papić-Blagojević, N. (2020):** Socio-demographic characteristics and students' entrepreneurial intentions. *Stanovništvo*, 58(2), 57-75.
- **Kumar, R., & Shukla, S. (2022):** Creativity, proactive personality and entrepreneurial intentions: examining the mediating role of entrepreneurial self-efficacy. *Global Business Review*, 23(1), 101-118.
- **Labrague, L., McEnroe-Petitte, D., De Los Santos, J., & Edet, O. (2018):** Examining stress perceptions and coping strategies among Saudi nursing students: A systematic review. *Nurse Education Today*, 65, 192-200.
- **Lestari, E., Rizkalla, N., & Purnamaningsih, P. (2022):** The effect of perceived university support, entrepreneurial self-efficacy, and proactive personality in promoting student entrepreneurial intention in Indonesia. *Journal of Management and Business Education*, 5(2), 169-197.
- **Luo, Y., Huang, J., & Gao, S. (2022):** Relationship between proactive personality and entrepreneurial intentions in college students: Mediation effects of social capital and human capital. *Frontiers in Psychology*, 13, 861447.
- **Magni, M., Palmi, P., & Salvemini, S. (2018):** Under pressure! Team innovative climate and individual attitudes in shaping individual improvisation. *Eur. Manag. J.* 36, 474-484. doi: 10.1016/j.emj.2017.07.009
- **Malucelli, G., Barbosa, M. & de Carvalho, M. (2021):** Facing the challenge of improvisation in project management: a critical review. *Int. J. Manag. Proj. Bus.* 14, 369-389. doi: 10.1108/IJMPB-02-2019-0038.
- **Mannucci, P., Orazi, D., & de Valck, K. (2021):** Developing improvisation skills: The influence of individual orientations. *Administrative Science Quarterly*, 66(3), 612-658.
- **McCormick, B., Guay, R., Colbert, A., & Stewart, G. (2019):** Proactive personality and proactive behavior: perspectives on person-situation interactions. *Journal of Occupational and Organizational Psychology*, 92(1), 30-51. <https://doi.org/10.1111/Joop.12234>.
- **Mirandaa, F., Meraa, A., & Rubio, S., (2018):** An analysis of the determinants of entrepreneurial intention. *European Research on Management and Business Economics* vol.23, pp. 113-122. Available at: <http://creativecommons.org/licenses/by-ncnd/4.0/>
- **Mohamed, M., Elshaer, I., Azazz, A., & Younis, N. (2023):** Born not made: The impact of six entrepreneurial personality dimensions on entrepreneurial intention: Evidence from healthcare higher education students. *Sustainability*, 15(3), 2266.
- **Nawaz, T., Khattak, B. K., & Rehman, K. (2019):** Entrepreneurial self-efficacy as a mediator in the relationship of proactive personality and entrepreneurial intention. Evidence from varsities graduates. *Dilemas Contemporáneos: Educación, Política y Valore*, 6(Special).
- **Naz, S., Li, C., Zaman, U., & Rafiq, M. (2020):** Linking proactive personality and entrepreneurial intentions: A serial mediation model involving broader and specific self-efficacy. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 166.
- **Ndofirepi, T. (2020):** Relationship between entrepreneurship education and entrepreneurial goal intentions: psychological traits as mediators. *Journal of innovation and entrepreneurship*, 9(1), 2.
- **Orman, S., (2009):** Factors Affecting Entrepreneurial Intentions: An Application for University Students and University Graduate Employees, (Unpublished Master Dissertation).
- **Perrmann-Graham, J., Liu, J., Cangioni, C., & Spataro, S. (2022):** Fostering psychological safety: Using improvisation as a team building tool in management education. *The International Journal of Management Education*, 20(2), 100617.
- **Rahman, R., Othman, N., Pihie, Z., & Wahid, H. (2016):** Entrepreneurial intention and social entrepreneurship among students in Malaysian higher education. *International Journal of*

Economics and Management Engineering, 10(1), 175-181.

- **Richter, S., Santos, E., Kaiser, D., Capellari, C., & Ferreira, G. (2019):** Being an entrepreneur in nursing: challenges to nurses in a strategic leadership position. *Acta paulista de enfermagem*, 32, 46-52.
- **Schlepphorst, S, Koetter, EC, & Werner, A, (2020):** International assignments of employees and entrepreneurial intentions: the mediating role of human capital, social capital, and career prospects. *International Journal of Entrepreneurial Behavior & Research* 26(6): 1259–1279.
- **Seibert, S., Crant, J., & Kraimer, M. (1999):** Proactive personality and career success. *Journal of Applied Psychology*, 84(3), 416.
- **Tomy, S, & Pardede, E (2020):** An entrepreneurial intention model focussing on higher education. *International Journal of Entrepreneurial Behavior & Research* 26(7): 1423–1447.
- **Vera, D., & Crossan, M. (2005):** Improvisation and innovative performance in teams. *Organization Science*, 16(3), 203– 224.
- **Wu, X.H. & Ma, Y.Q. (2019):** The Effect of Proactive Personality on Individual Improvisation: The Moderating Role of Job Autonomy. *Open Journal of Social Sciences*, 7, 178-190. <https://doi.org/10.4236/jss.2019.74015>
- **Yi-Feng Chen, N., Crant, J., Wang, N., Kou, Y., Qin, Y., Yu, J., & Sun, R. (2021):** When there is a will there is a way: The role of proactive personality in combating COVID-19. *Journal of Applied Psychology*, 106(2), 199.
- **Zayed Mohammed, M., Ahmed, A., & Mohamed Nagib Ali, R. (2022):** Entrepreneurial Awareness, Intention among Nurse Interns and its Relation to Their Self-Care Practice at Selected Nursing Faculties “Comparative Study”. *Egyptian Journal of Health Care*, 13(3), 1112-1122.
- **Zhang, D., Wang, X., & Zhang, S. (2023):** Shared Leadership and Improvisation: Dual Perspective of Cognition-Affection. *Behavioral Sciences*, 13(3), 265.
- **Zhang, R., Li, A., & Gong, Y. (2021):** Too much of a good thing: Examining the curvilinear relationship between team-level proactive personality and team performance. *Personnel Psychology*, 74(2), 295-321.
- **Zhu, H., Zhang, H., Tu, A., & Zhang, S. (2021):** The mediating roles of Core self-evaluation and career exploration in the association between proactive personality and job search clarity. *Frontiers in Psychology*, 12, 609050.

This is an open access article under
[Creative Commons by Attribution Non-Commercial \(CC BY-NC 3.0\)](https://creativecommons.org/licenses/by-nc/3.0/)
(<https://creativecommons.org/licenses/by-nc/3.0/>)