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SELF-VITALITY AND DIGITAL ENTREPRENEURSHIP AMONG GRADUATE FEMALE STUDENTS AT AL-AZHAR UNIVERSITY (A PREDICTIVE DIFFERENTIAL STUDY)

ALSHERIF, ALSHEIMAA KOTP1, ABDEL GHAFFAR, OMAIMA KAMAL MOHAMMED 2, BORG, EMAN HAMAD ISMAIL 2, SEADI, DOAA MOHAMMED ALI 2, ELMORSHDY, ASMAA HASSAN ABD ELMONEM2, SHEHATA, FATMA MOHAMED ABDEL HAMID AHMED 2, ABO EL-MAATY, WALAA EL-SAYED METWALLY 2, ABO-GABAL, HAYAT EDREES MOHAMED 2, ELSHORBAGY,DALIA ABDELMONEM 2, ELSAFTY, MARWA ABDEL – BASSET 1

1 Associate Professor, Department of Educational Home Economics, Faculty of Home Economics, Al-Azhar university, Egypt.

2 Doctorate, Department of Educational Home Economics, Faculty of Home Economics, Al-Azhar University, Egypt.

Abstract

The current research aimed to reveal the level of self-vitality and digital entrepreneurship among graduate female students at Al-Azhar University, analyze the nature of the relationship between them, and determine the predictive role of self-vitality in shaping digital entrepreneurship. Additionally, it sought to identify the differences between MA and PhD female students in both self-vitality and digital entrepreneurship. The research sample consisted of (160) female graduate students from the Faculty of Home Economics at Al-Azhar University. The research tools included the self-vitality scale and the digital entrepreneurship scale. After applying the tools and obtaining data from them, the data were classified, categorized, and appropriate statistical coefficients were used with the program (SPSS, 26) to reach the results. The research followed the descriptive correlational approach. One of the most important findings was that graduate female students at Al-Azhar University possess a high level of self-vitality and a high level of digital entrepreneurship. There is a statistically significant correlational relationship between self-vitality and digital entrepreneurship among the students. Likewise, it is possible to predict the level of digital entrepreneurship from the self-vitality of the students. The results also demonstrated statistically significant differences between graduate female students (MA-PhD) in the self-vitality scale and the digital entrepreneurship scale (dimensions – total score) in favor of PhD students. A set of recommendations was presented through the study, the most important of which were: adopting institutional strategies that support digital entrepreneurship within the university and linking them to the vision of digital transformation and pioneering university education; designing guidance and training programs aimed at developing self-vitality in its various dimensions, considering it a psychological resource that supports academic performance and entrepreneurial behavior; establishing digital business incubators targeting graduate students, especially in educational and applied specialties such as home economics; aligning higher education policies with the requirements of the digital labor market; and supporting digital entrepreneurship as a sustainable career path for graduates.

Keywords: self-vitality, digital entrepreneurship, female graduate students.

INTRODUCTION

In light of the rapid digital transformation, the boundaries of traditional education and patterns of professional participation in societies around the world are being reshaped. The effects of this transformation are no longer limited to technological and economic aspects only but have extended to deeply affect cultural structures, cognitive orientations, and the competencies required for success in academic and professional environments.

In this context, the concept of entrepreneurship has emerged in recent years and gained great importance for its vital role in sustainable development, as well as its role in engaging diverse population groups in economic activity, especially youth (Al-Sirafi et. al., 2020, 127). As a result of the changes and challenges the world has

witnessed in all aspects of life, foremost among them the COVID-19 pandemic that swept the world, attention has turned towards relying on modern technology to confront the crisis.

Thus, digital entrepreneurship has emerged as a vital path that enables individuals to use digital technologies, innovate new business models, and adapt to changing social and economic environments. However, effective participation in digital entrepreneurship activities is not limited to possessing technical skills or access to digital tools. It fundamentally requires a set of internal psychological resources that support self-motivation, resilience, and adaptive behavior in the face of uncertainty and change. Gibb (2012) points out that the entrepreneurial university is not limited to knowledge transfer; it also contributes to creating economic opportunities and promoting a culture of initiative and innovation among learners.

Al-Najjar (2020) emphasizes that entrepreneurship education represents a strategic approach to developing the university education system and transforming the university from a traditional educational institution into an environment that stimulates initiative and innovation. The concept of the entrepreneurial university is one of the contemporary trends in higher education. Haikal's study (2022) indicates that digital entrepreneurship in Egyptian universities requires a supportive educational environment, advanced digital infrastructure, and the development of students' digital competencies, especially in light of global crises such as the COVID-19 pandemic. Many studies have focused on entrepreneurship, such as Haikal's study (2022), which focused on identifying the philosophy and components of digital entrepreneurship, as well as Al-Najjar's study (2020), which focused on studying entrepreneurship education as an approach to developing the educational system, Al-Rumaidi's study (2018), which highlighted the role of universities in developing an entrepreneurial culture among students, Abdel Wahab's study (2018), which aimed to identify transformation paths for entrepreneurial universities, and Gibb, A.'s study (2007), which aimed to define the concept of the entrepreneurial university and its role in the economic and social development.

A systematic review conducted by Anim-Yeboah et. al., (2020) indicated that digital entrepreneurship does not rely solely on technology but also requires human and psychological resources capable of innovation and decision-making in highly changing environments.

Self-vitality is one of these essential psychological resources. It is rooted in positive psychology and reflects an individual's sense of vitality, energy, and psychological well-being (Peterson and Seligman, 2004, 275). Self-vitality includes cognitive awareness, emotional regulation, and self-motivation for purposeful engagement. Numerous studies have linked it to improved performance, enhanced psychological well-being, and the development of creative problem-solving skills in various contexts (Kubzansky & Thurston, 2007, 1394).

Given the importance of self-vitality, it has been the subject of many studies, including Deniz and Satici (2017), which examined the relationship between the Big Five personality traits and self-vitality among university students; Singh and Sharma (2018), which explored the relationship between self-vitality and psychological well-being; Garg and Sarkar (2020), which investigated the necessity and sufficiency of self-vitality among university students; Said (2022), which studied the predictability of life satisfaction based on self-vitality among university students; and Hosni (2023), which aimed to reveal the relationship between future orientation, self-vitality, and entrepreneurship among university students. Many studies have recommended the importance of studying self-vitality among university students, including the study by Al-Sayyid and Al-Safti (2024).

In recent years, there has been a remarkable development in the establishment of graduate programs in most disciplines to keep pace with global developments. Many holders of MA and PhD degrees have graduated. However, these programs have also posed many challenges due to their novelty, prompting many researchers to study some of the issues and problems associated with them as part of the scientific research process (Abdel Hadi, 2005, 13). Graduate female students represent a central intellectual category within these programs, capable of producing knowledge and contributing to social and economic innovation. This category gains special importance in academic institutions with rich cultural traditions, such as Al-Azhar University, where psychological factors intersect with cultural specificities to form distinctive developmental paths.

In light of the above and given the cultural and contextual specificities that characterize the digital age, along with the increasing focus on empowering women in the fields of science and innovation, the need arises to study how internal psychological factors, such as self-vitality, relate to the tendencies toward digital entrepreneurship among graduate female students and their ability to predict these tendencies. Despite the abundance of studies addressing self-vitality, there is a scarcity—within the limits of the researchers' knowledge—of studies linking this psychological resource to digital entrepreneurship among graduate female students. Therefore, the current study seeks to fill this research gap and contribute to a deeper scientific understanding of contemporary psychological and cultural dynamics, and to monitor the transformations of digital participation in the knowledge society. Accordingly, this study aims to reveal the level of self-vitality and the level of digital entrepreneurship among graduate female students at Al-Azhar University, and to analyze the nature of the relationship between them.

Determining the predictive role of self-vitality in shaping digital entrepreneurship tendencies, in addition to revealing the differences between MA and PhD female students in both self-vitality and digital entrepreneurship among the students. Thus, this study contributes to deepening the scientific understanding of the psychological determinants of digital entrepreneurship, in line with contemporary cultural dynamics, educational transformations, and digital participation in the knowledge society.

The research problem is summarized in answering the following questions:

- What is the level of self-vitality among graduate female students at Al-Azhar University?

- What is the level of digital entrepreneurship among graduate female students at Al-Azhar University?

- Is there a correlational relationship between self-vitality and digital entrepreneurship among graduate female students at Al-Azhar University?

- Does self-vitality contribute to predicting the level of digital entrepreneurship among graduate female students at Al-Azhar University?

- Are there statistically significant differences between the average scores of graduate female students (MA/PhD) in self-vitality and its dimensions at the Faculty of Home Economics, Al-Azhar University?

- Are there statistically significant differences between the average scores of graduate female students (MA/PhD) on the digital entrepreneurship scale (dimensions – total score) at the Faculty of Home Economics, Al-Azhar University?

Research Objectives:

The current research aims to achieve the following:

1- Determine the level of digital entrepreneurship among graduate female students at Al-Azhar University through its various dimensions (awareness of digital opportunities, innovation using technology, digital skills and competencies, readiness to take digital risks, and the supportive environment for entrepreneurship).

2- Clarify the relationship between the positive psychological traits of female students, their emotional vitality, their self-motivation, and their level of practicing digital entrepreneurship.

3- Explore the ability of self-vitality to predict the level of digital entrepreneurship among graduate female students at Al-Azhar University.

4- Identify the differences between graduate female students (MA/PhD) in self-vitality and digital entrepreneurship at the Faculty of Home Economics, Al-Azhar University.

Research Importance:

1- The research contributes to expanding theoretical knowledge about digital entrepreneurship and linking it to students' psychological and cognitive skills. Likewise, it adds to the existing body of research on the role of digitization in higher education and entrepreneurship.

2- The research provides practical indicators for developers of educational and training programs in universities to enhance digital innovation capabilities and benefit from technological opportunities.

3- Understanding the level of digital entrepreneurship among female students and encouraging entrepreneurship among youth, and supporting it with a knowledge economy, in line with digital development plans such as Egypt Vision 2030.

4- The research helps decision-makers in universities and technology incubators design supportive environments for digital entrepreneurship by providing appropriate digital tools and training platforms.

Research Hypotheses:

- Graduate female students at Al-Azhar University do not possess a high level of self-vitality.

- Graduate female students at Al-Azhar University do not possess a high level of digital entrepreneurship.

- There is a statistically significant correlational relationship between self-vitality and digital entrepreneurship among graduate female students at Al-Azhar University.

- The level of digital entrepreneurship can be predicted from self-vitality among graduate female students at Al-Azhar University.

- There are no statistically significant differences at a significance level ≤ 0.05 between the mean scores of graduate students (MA/PhD) in the Self-Vitality Scale (dimensions – total score) at the Faculty of Home Economics, Al-Azhar University.

- There are no statistically significant differences at a significance level ≤ 0.05 between the mean scores of graduate students (MA/PhD) in the Digital Entrepreneurship Scale (dimensions – total score) at the Faculty of Home Economics, Al-Azhar University.

Research Pattern:

- First: Scientific Terms and Operational Concepts of the Research:

- **The Concept of Self-Vitality:** Self-vitality is considered one of the central concepts in positive psychology, as it refers to the subjective feeling of energy, vitality, and inner enthusiasm that enables an individual to interact positively with various life demands. Ryan & Frederick (1997) provided a foundational definition of self-vitality as a subjective experience of energy and alertness reflecting the level of psychological well-being and positive mental health. Salim (2016) confirms that self-vitality represents a positive emotional state manifested in enthusiasm, a sense of competence, and the ability to achieve, reflecting the individual's sense of efficiency and effectiveness.

It is operationally defined as: the score obtained by a graduate student at Al-Azhar University on the Self-Vitality Scale, which reflects the level of positive psychological energy, mental activity, emotional balance, physical ability, social interaction, as well as the spiritual meaning possessed, as embodied in the six dimensions of the scale (mental, physical, emotional, academic, social, and spiritual vitality).

Dimensions of Self-Vitality:

1. Mental Vitality: It refers to the level of mental alertness, cognitive flexibility, the ability to think calmly, and problem-solving skills. The study by Martela & Ryan (2020) indicated that mental vitality is directly related to innovation and effective decision-making, especially in complex environments that require high cognitive processing. Recent studies have also shown that mental vitality is one of the strongest psychological variables explaining entrepreneurial behavior and digital entrepreneurial intention (Newman et. al., 2021).

It is operationally defined as: the student's possession of mental fitness that enables her to think calmly, flexibly, and quietly, along with mental alertness, sensitivity to gaps and problems, and a cognitive orientation focused on solving those problems.

2. Physical Vitality: It reflects the level of physical energy and overall health. Recent psychological studies have confirmed that physical health is positively correlated with academic and professional performance, as well as the ability to sustain cognitive work for long periods (Sonnentag et. al., 2022).

It is operationally defined as the physical health and vitality that the student possesses, which enhances physiological functioning, accelerates recovery from physical disorders, and boosts physical performance.

3. Emotional Vitality: It refers to the ability to regulate emotions and maintain stable positive feelings. The study by Al-Masri (2020) confirmed that adopting positive psychological attitudes toward life makes a person cheerful, enthusiastic, satisfied, and feels peaceful and calm despite life's hardships and difficult circumstances. Likewise, it is associated with happiness, feelings of joy and delight, and life satisfaction.

It is operationally defined as the student's feeling of energy, positive well-being, and effective emotional regulation.

4. Academic Vitality: It is defined as a state of enthusiasm and motivation for learning and engaging in research activities (Gill, Singhal, Schutze, & Turner, 2021, 3).

Operationally, it is defined as those feelings that drive the student to continuous learning, intellectual growth, research, and creativity in her field of specialization.

5. Social Vitality: It reflects an individual's ability to build positive relationships and effectively interact with others. The study by Helliwell et. al., (2020) confirmed that social support enhances the feeling of vitality and psychological well-being and is considered a fundamental element in entrepreneurial environments.

Operationally, it is defined as: the student's ability to interact with others in the social environment in a socially acceptable manner, which benefits both herself and others.

6. Spiritual Vitality: It refers to an individual's sense of meaning and purpose in life. The study by Van Cappellen, et. al., (2021) indicated that this dimension contributes to enhancing psychological resilience and making ethical decisions, especially in cultural and religious contexts. The dimension of spiritual vitality gains

special importance in the current study due to the nature of the university environment (Al-Azhar University), where the sense of meaning and purpose intertwines with the value and ethical system, which may make spiritual vitality a strong motivation for resilience in the face of digital entrepreneurship challenges.

Operationally, it is defined as: the ability to pose questions related to life and the world we live in, which increases the student's self-awareness and enhances her flexibility.

- Digital Entrepreneurship: The concept of digital entrepreneurship has emerged as a modern extension of traditional entrepreneurship, relying on the use of digital technologies and electronic platforms to create projects and develop business models. Recent studies indicate that digital entrepreneurship is characterized by flexibility, rapid adaptation to changes, low market entry costs, and the ability to access global markets without geographical restrictions. (Kraus et. al., 2020; Elia et. al., 2020)

It is operationally defined as the ability of a graduate student to identify digital opportunities, harness technology to develop new ideas and projects, possess the necessary digital skills and competencies, be prepared to take risks associated with digital projects, and benefit from a supportive entrepreneurial environment. This is measured through the student's awareness of digital opportunities, innovation using technology, digital skills and competencies, readiness to take digital risks, and ability to benefit from a supportive entrepreneurial environment.

Dimensions of Digital Entrepreneurship:

1- Awareness of digital opportunities, operationally defined as the ability of a graduate student to identify available digital opportunities in the digital market and understand the potential to exploit modern technology in developing ideas and projects. This is measured by their appreciation of the existence of digital opportunities, ability to identify problems that can be transformed into digital solutions, and awareness of the potential to achieve profit or added value from digital projects.

2- Innovation using technology is procedurally defined as the ability of the graduate student to develop new ideas or improve existing services and products using digital tools and technologies through her ability to design innovative solutions, use digital applications and modern technologies to create a positive change in the work environment, and generate unconventional ideas that are digitally applicable.

3- Digital skills and competencies are procedurally defined as the level of the student's ability to use digital technology efficiently and effectively in managing projects and business, measured by proficiency in using digital programs and applications, analyzing digital data, dealing with digital marketing platforms, and mastering communication and remote work tools.

4- Readiness to take digital risks is procedurally defined as the extent of the graduate student's readiness to bear the risks associated with launching digital projects, measured by her ability to make investment decisions in an environment with uncertain outcomes, accept the possibility of digital failure, and plan to deal with challenges and risks related to digital technology.

5- Supportive environment for entrepreneurship is procedurally defined as the extent of availability of resources, support, and facilities to help the graduate student launch successful digital projects through the availability of training programs, institutional support, professional networks, funding facilities, and an educational environment that stimulates digital innovation.

Second: The Theoretical Framework:

Contemporary literature indicates that the concept of self-vitality has witnessed a remarkable development. It is no longer viewed as a transient emotional state, but rather as a multidimensional psychological structure characterized by relative stability and linked to self-motivation, psychological well-being, and the ability to achieve sustainable accomplishments (Ryan & Deci, 2002). Likewise, self-vitality is considered an important indicator of positive mental health, due to its close association with self-motivation, psychological resilience, and the ability to adapt to the stresses of life and study (Martela et. al., 2021).

Self-vitality in Light of Self-Determination Theory (SDT):

The current study interprets the variable of Self-vitality based on the Self-Determination Theory developed by Deci & Ryan, which is one of the most comprehensive theoretical frameworks for explaining human motivation and psychological well-being. This theory is based on a fundamental hypothesis that satisfying the three basic psychological needs (autonomy, competence, and relatedness) leads to the enhancement of psychological energy, vitality, and positive engagement in various activities (Ryan & Deci, 2020). Studies indicate that individuals whose needs are met exhibit higher levels of self-vitality, manifested in increased self-motivation, initiative, autonomy, a tendency toward innovation, and responsibility-taking (Ryan & Deci, 2017). This explanatory

framework is suitable for the current study because it explains individual differences in positive psychological resources among graduate female students and links them to complex behaviors requiring high self-motivation, such as digital entrepreneurship. To clarify the theoretical basis of the dimensions of Self-vitality in this study and highlight their conceptual relationship with the basic psychological needs within the framework of Self-Determination Theory, Table (1) below was prepared to illustrate how each dimension of Self-vitality is related to the three psychological needs (autonomy, competence, and relatedness). This table is based on an analysis of contemporary psychological and educational literature. This presentation supports the theoretical interpretation of the study's results. Likewise, it provides a conceptual framework that helps understand the role of self-vitality as a psychological resource that supports digital entrepreneurial behavior.

Table (1) The Relationship Between the Dimensions of Self-vitality and the Three Psychological Needs (Autonomy, Competence, and Relatedness)

dimensions of self-vitality	Related Psychological Needs	Theoretical Explanation
Mental vitality	Competence	Competence reflects the feeling of being able to think effectively, solve problems, and master cognitive tasks, which aligns with an individual's sense of mental competence.
Physical vitality	Competence	Competence is associated with an individual's sense of physical ability and the energy required for performance, enhancing their feeling of competence and control over physical demands.
Emotional vitality	Autonomy	Autonomy reflects the ability to regulate emotions with self-will and the feeling of internal control over emotional responses.
Academic vitality	Competence + Autonomy	It reflects the student's ability to self-manage their academic project and make independent research decisions, generating internal energy that drives them to take initiative in digital environments.
Social vitality	Relatedness	Relatedness reflects the feeling of positive connection with others, social support, and integration into the university environment.
Spiritual vitality	The meaning resulting from satisfying the psychological needs	The meaning resulting from satisfying the psychological needs is associated with an individual's sense of meaning and purpose in life, which is a cumulative result of satisfying basic psychological needs according to SDT.

In light of the above presentation about self-vitality as a positive psychological resource reflecting levels of energy, self-motivation, and feelings of competence and effectiveness, it becomes clear that this variable not only enhances psychological well-being but also plays a pivotal role in guiding complex behaviors that require self-initiative, responsibility, and the ability to adapt to changing environments. Digital entrepreneurship is a prominent example of this behavior, given its inherent cognitive and technological challenges and the pressures of decision-making in dynamic and uncertain contexts. Contemporary studies indicate that engaging in digital entrepreneurship behavior requires a high level of self-motivation, the ability to innovate, and a willingness to take risks—traits closely associated with individuals' levels of self-vitality.

Hence, the choice of graduate female students as a study group stems from the nature of the academic and research pressures they face, which significantly drain their psychological resources. Therefore, possessing self-vitality in its various dimensions (psychological, academic, and social) is an essential condition for transforming their research ideas into digital entrepreneurial projects that transcend the boundaries of classrooms to the virtual labor market. Accordingly, it becomes logical to assume the existence of a predictive relationship and influence between self-vitality and digital entrepreneurship among graduate female students. Self-vitality represents a supportive psychological foundation that enables students to benefit from their digital skills, employ their creative abilities, and interact positively with the entrepreneurial opportunities available in the digital environment. This theoretical framework provides a solid scientific basis for interpreting the results of this study and paves the way for analyzing the relationship between its two main variables within an integrated explanatory model that combines psychological, behavioral, and technological dimensions.

- Entrepreneurship and Digital Entrepreneurship

The Concept of Entrepreneurship: Entrepreneurship

Entrepreneurship is a contemporary concept that has received significant attention in economic and educational literature due to its pivotal role in achieving economic and social development, enhancing innovation, and

creating job opportunities. An entrepreneur is viewed as an individual capable of identifying opportunities, bearing calculated risks, and transforming creative ideas into projects with economic and social value (Abdel Hamid, 2020). The concept of entrepreneurship goes beyond merely establishing projects; it includes a mindset and behavior based on initiative, autonomy, and responsibility.

Entrepreneurship is defined as a dynamic process that involves discovering economic opportunities and investing in them through the creation of new projects or improving existing ones, contributing to economic growth, harnessing human energies, and reducing unemployment (Al-Sirfi et. al., 2020). This definition emphasizes that entrepreneurship is not limited to merely establishing projects but also includes innovation, renewal, and the ability to adapt to environmental and economic changes. In international literature, entrepreneurship is also defined as the process of creating new value by integrating resources innovatively in an unstable environment, demonstrating readiness to bear risks and make decisions (Acs, Estrin, Mickiewicz & Szerb, 2018; Chen et. al., 2021). This definition highlights the cognitive and behavioral dimensions of entrepreneurship and reinforces the idea that it is an integrated system of traits, skills, and attitudes that can be developed.

Digital Entrepreneurship: Concept and Characteristics

Systematic reviews confirm that digital entrepreneurship does not rely solely on technological resources but requires the availability of human and psychological resources capable of innovation, decision-making, and working in environments characterized by uncertainty and continuous change (Nambisan, 2017).

Recent studies indicate that the contemporary digital environment provides enormous potential for innovation and entrepreneurship. Modern digital technologies, such as collective intelligence, digital platforms, and cloud computing, are reshaping the entrepreneurship process, enabling entrepreneurs to discover new opportunities and use resources in innovative ways. In this context, a study conducted by Elia, Margherita & Passiante (2020) showed that the digital entrepreneurship ecosystem enhances individuals' ability to identify digital opportunities and leverage technology to develop innovative products and services. Likewise, it contributes to forming a cognitive and social network that supports entrepreneurial decision-making and digital risk management. Therefore, this framework can be used to explain how to cultivate innovation and awareness of digital opportunities among graduate students, thereby promoting digital entrepreneurship within a supportive academic environment. This is achieved by providing data, facilitating communication with local and global markets, and supporting innovation in delivering products and services.

This role aligns with the goals of Egypt Vision 2030, which emphasizes digital transformation as a fundamental approach to enhancing entrepreneurship and supporting the knowledge economy. This makes this interpretive framework suitable for the current study in analyzing the level of awareness of digital opportunities among graduate students and its relationship to the development of entrepreneurship.

Digital Entrepreneurship in Higher Education

Higher education has become one of the most important environments supporting the development of entrepreneurial orientations, especially in light of the accelerating digital transformation. Graduate students are considered among the groups qualified to practice digital entrepreneurship due to their knowledge, research experience, and ability to apply academic knowledge in innovative and practical projects.

In this context, a study conducted by Sahut, Iandoli & Teulon (2021) indicated that the emergence of digital entrepreneurship has enabled individuals to discover new opportunities through interaction with technology, benefiting from collective intelligence and digital platforms, thereby empowering them to identify and analyze promising opportunities and make decisions based on digital data.

Psychological Factors Supporting Digital Entrepreneurship

Contemporary studies indicate that digital entrepreneurship is a complex behavior requiring a high level of self-motivation, psychological energy, initiative, and responsibility. In this regard, studies highlight the importance of positive psychological variables, such as self-vitality, in supporting entrepreneurial behavior, as they contribute to enhancing perseverance, psychological resilience, and readiness to accept new experiences (Ryan & Deci, 2020).

Digitization contributes to the development of digital entrepreneurship skills by providing modern tools and technologies that enhance individuals' ability to make data-driven decisions, improve business strategies, and expand their activities in digital markets.

Some studies have shown that supportive environments, including motivating leadership styles such as transformational leadership, contribute to the development of entrepreneurial tendencies by meeting individuals' basic psychological needs and encouraging innovation and initiative (Abdullah, 2022). This enhances the orientation towards digital entrepreneurship as a practical application of motivation and self-vitality.

The Importance of Entrepreneurship

Studies indicate that the modern digital business environment provides tremendous opportunities for innovation, identifying market needs, and using resources in innovative ways. In this context, a study conducted by (Zhao & Collier, 2016), presented at the Mediterranean Academy of Business Conference, showed that digital entrepreneurship enables individuals to discover new opportunities through interaction with technology and digital platforms, which enhances their ability to develop innovative solutions and transform ideas into viable projects. This research highlights the importance of awareness of digital opportunities for entrepreneurs, as the ability to identify and exploit technological opportunities is a fundamental element in the digital entrepreneurship process.

The importance of entrepreneurship is evident in its contribution to:

• Creating new job opportunities and reducing unemployment rates.

• Enhancing innovation and creativity in products and services.

• Improving resource efficiency and increasing productivity.

• Strengthening the competitiveness of institutions and communities.

• Achieving sustainable development and raising living standards.

Numerous studies have confirmed that entrepreneurial projects are a vital element in supporting the national economy, increasing GDP, and diversifying income sources, especially in developing countries (Al-Sirfi et. al., 2020; Ghndour & Taïbi, 2022). The importance of entrepreneurship also emerges in its educational dimension. As it contributes to the development of essential life and professional skills among learners, such as independence, responsibility, and initiative.

Entrepreneur: Concept and Characteristics

The entrepreneur is considered the central element in the entrepreneurial process and is defined as the person capable of anticipating opportunities, analyzing the surrounding environment, bearing risks, making sound decisions, and leading the project towards achieving its goals. Entrepreneurs are characterized by a set of personal and cognitive traits, such as self-confidence, motivation for achievement, ability to innovate, flexibility, and perseverance.

The willingness to take digital risks is a fundamental trait of digital entrepreneurs, and this willingness is influenced by the availability of institutional support. In this context, Arqoub's (2023) study showed that the presence of university business incubators contributes to reducing the expected risks of digital projects, encouraging students to take initiative and experiment in a safer and more supportive environment.

Digital Entrepreneurship As A Contemporary Extension of Entrepreneurship

Amid the rapid digital transformation, digital entrepreneurship has emerged as a modern trend that relies on employing digital technologies to establish or develop projects. Digital entrepreneurship represents a natural extension of traditional entrepreneurship, benefiting from modern technologies to reduce costs, expand markets, and enhance innovation.

Al-Barashdiya's (2021) study confirmed that digital entrepreneurship has become an urgent necessity in the face of global crises, such as the COVID-19 pandemic, due to its role in enhancing business resilience and continuity, and in innovating new digital business models. Recent studies have also indicated that digital entrepreneurship requires a set of competencies, most notably awareness of digital opportunities, technical skills, innovation, and the ability to bear digital risks (Ghndour & Taïbi, 2022).

It is clear from the above that entrepreneurship, in its traditional and digital forms, represents an integrated system that combines economic, educational, psychological, and cultural dimensions.

Self-vitality and Digital Entrepreneurship

Contemporary studies in positive psychology and entrepreneurship indicate that entrepreneurial behavior, especially in the digital context, does not rely solely on technical skills or technological knowledge, but is significantly influenced by the positive psychological resources possessed by the individual. Self-vitality is considered a fundamental element of these resources, as it reflects internal psychological energy, self-motivation, and the ability to persevere and face challenges.

From the perspective of self-determination theory, self-vitality is linked to the fulfillment of basic psychological needs (autonomy, competence, and relatedness), which are necessary for adopting complex and risky behaviors, such as digital entrepreneurship (Ryan & Deci, 2020).

Engaging in digital entrepreneurial activity requires a high level of autonomy in decision-making, a sense of competence in dealing with digital technologies, and a feeling of social and institutional support. The literature on digital entrepreneurship indicates that discovering digital opportunities, innovating using technology, and taking risks in volatile digital environments are cognitively and emotionally demanding activities that cannot be effectively accomplished without positive psychological energy that supports perseverance and initiative (Nambisan, 2017; Kraus et. al., 2019).

Therefore, self-vitality is an important explanatory factor for the variation in levels of orientation towards digital entrepreneurship.

Recent studies confirm that individuals with high self-vitality exhibit higher levels of creativity, initiative, and positive participation in leadership activities. In addition to the ability to deal with ambiguity and uncertainty, which are essential traits for entrepreneurs in the digital age (Li et. al., 2022).

In the university context, graduate female students represent a unique group due to the academic and research pressures they face, alongside the professional development requirements in a changing digital environment. Studies indicate that a high level of self-vitality in this group contributes to enhancing their entrepreneurial tendencies, increasing their readiness to seize digital opportunities, and transforming academic knowledge into innovative digital projects.

Based on the above, self-vitality is not merely a state of psychological well-being but serves as an "Energy Engine" that fuels cognitive and behavioral aspects. While technology provides the necessary tools for digital entrepreneurship, self-vitality provides the essential "psychological fuel" to seize digital opportunities, accept innovation risks, and persevere in the face of technical challenges, making it a critically predictive factor in graduate students' orientation towards the digital business world.

- **Research Procedures:**

The following is a description of the research methodology, sample, research tools, and appropriate statistical methods to test the hypotheses:

- **Research Methodology:**

The descriptive correlational approach was used, as it is suitable for the nature of the current research, which addressed the relationship between self-vitality and digital entrepreneurship among graduate female students at Al-Azhar University.

- **Research Limitations: These include:**

- **Human Boundaries:**

- **Research Population:** Included graduate female students at the Faculty of Home Economics, Al-Azhar University, from which a random sample was derived.

- **Standardization Sample:** Selected from among graduate students at the Faculty of Home Economics – Al-Azhar University, to calculate the psychometric properties of the research tools, with their number reaching (25) students.

- **Main Sample:** The main research sample included (160) graduate students at the Faculty of Home Economics – Al-Azhar University, distributed as follows: (130) MA students, (30) PhD students.

- **Time limits:** The field study took place from 18/9/2024 to 9/10/2024.

- **Spatial limits:** The research tools represented by (the Self-Vitality Scale and the Digital Entrepreneurship Scale) were applied electronically to a sample of graduate students at the Faculty of Home Economics – Al-Azhar University using the Google Form application through the link: **https://url-shortener.me/6HM3**

- **Research Variables:**

Independent variable: represented by self-vitality - **Dependent variable**: digital entrepreneurship among graduate students at Al-Azhar University.

- **Research Tools: The Study Tools Consisted of:**

1- Self-Vitality Scale (prepared by the researchers)

2- Digital Entrepreneurship Scale (prepared by the researchers)

A- Self-Vitality Scale (prepared by the researchers):

Purpose of the scale: Aimed at determining the level of self-vitality among graduate students at Al-Azhar University. After reviewing the theoretical basis, studies, and literature related to self-vitality skills such as the study of: (Ryan & Frederick, 1997); Salim (2016); Al-Masri (2020); Katouf and Mohamed (2020); Hafesh and Jaafar (2022); Abbas and Al-Sayed (2021); Arafa (2021); Eid (2021); Khashaba and Al-Badawi (2022); Al-Kridis (2022); Abd Alrahman et. al., (2022); Moawad (2023) reached the dimensions of the scale: (Mental Vitality - Physical Vitality - Emotional Vitality - Academic Vitality - Social Vitality - Spiritual Vitality).

Preparation of the scale in its initial form: It consisted of (43) statements distributed over (6) dimensions (mental vitality, physical vitality, emotional vitality, academic vitality, social vitality, spiritual vitality). The conditions that must be met in preparing the scale were taken into account, such as: covering all dimensions with the statements - being clear in meaning and avoiding ambiguity - not being compound carrying more than one meaning - phrasing some statements in the positive direction and others in the negative direction - not using double negation in phrasing the statement - excluding statements that are expected to be agreed upon or rejected by everyone - including some negative statements with reversed direction to ensure the credibility of the answer.

- **Formulation of the Scale Instructions:**

The scale instructions were formulated to include: the purpose of the scale, alerting the students to read the statement carefully, emphasizing that there is no right or wrong answer, and emphasizing that there are not two answers for one statement.

- **Psychometric Properties of the Self-vitality Scale:** This refers to verifying the validity and reliability of the scale and was done as follows:

First, the Validity of the Scale: It was established using the following methods:

- **Face Validity:** by presenting it to a group of judges in the field of psychology to express their opinions on the clarity of its instructions and the suitability of the dimensions for measuring self-vitality, and their suitability to the level of the students - the suitability of each statement to the dimension to which it belongs - the adequacy of the statements related to measuring each dimension - the suitability of the statements in terms of linguistic formulation and scientific accuracy - Their opinion on the five-point Likert scale (Always – Often – Sometimes – Rarely – Never), with any suggestions for deletion, modification, or addition. The scale, after being presented to the judges and deleting (3) inappropriate items for the dimensions, as well as making the recommended adjustments, consists of (40) items.

Secondly, Internal Consistency: This was done by calculating Pearson correlation coefficients between each dimension of the scale and its total score. The following Table (2) shows the results:

Table (2) Pearson Correlation Coefficients between the Dimensions of the Self-vitality Scale and the Total Scale Score

Axes	Correlation	Axes	Correlation
Mental Vitality	**0.83****	**Academic Vitality**	**0.82****
Physical Vitality	**0.53****	**Social Vitality**	**0.46***
Emotional Vitality	**0.84****	**Spiritual Vitality**	**0.68****

*Significance at level(0.05) **Significance at level(0.01)

Pearson correlation coefficients were also calculated between the score of each item and the total scale score, ranging from (0.46 to 0.84), all of which are statistically acceptable values.

Thirdly, Reliability of the Self-vitality Scale: This was verified by calculating Cronbach's alpha coefficient. The following Table (3) shows these results:

Table (3) Cronbach's Alpha Reliability Coefficients for the Self-vitality Scale (n=25)

Axes	Cronbach's Alpha Coefficient	Axes	Cronbach's Alpha Coefficient
Mental Vitality	**0.73****	**Academic Vitality**	**0.72****
Physical Vitality	**0.76****	**Social Vitality**	**0.82****
Emotional Vitality	**0.82****	**Spiritual Vitality**	**0.77****

Total Self Vitality	**0.82****

It is clear from the previous table that the reliability coefficients for the dimensions and the total score ranged between (0.72-0.82), all of which are statistically acceptable, confirming the suitability of the scale for application.

- The scale's reliability was also calculated using **the split-half method**: the correlation coefficient between the two halves of the scale was calculated, and the following table shows these results:

Table (4) Reliability of the Self-vitality Scale using the Split-half Method

Axes	Number of Phrases	Spearman-Brown Correlation Coefficient	Guttman Correlation Coefficient
Self-Vitality Scale	**40**	**0.88**	**0.84**

It is clear from the previous table that the scale enjoys a suitable degree of reliability appropriate for application to the main sample.

- **Calculation of the Time for the Self-vitality Scale:** The average time taken by all students to answer the items was calculated and estimated (30 minutes).
- **The Final Version of the Self-vitality Scale:** After verifying the validity and reliability of the scale and making the necessary adjustments, the scale reached its final form and is ready for application. It consists of (40) items categorized under (6) dimensions, as shown in the following table:

Table (5) The Final Version of the Life Skills Effectiveness Scale

Axes	Number of Phrases	Phrase Numbers in Each Dimension
Mental Vitality	**8**	**1-2-13-14-25-26*-35-36**
Physical Vitality	**5**	**3-4-15-16-27**
Emotional Vitality	**7**	**5-6-17-18- 28-29-37**
Academic Vitality	**9**	**7-8-19-20-30- 31-38- 39- 40**
Social Vitality	**6**	**9-10-21-22-32- 33**
Spiritual Vitality	**5**	**11-12-23-24-34**
Total Self Vitality	**40**	

* An underline beneath the item number indicates that the direction of the item is negative.

- **Establishing the Scoring System for the Scale and Estimating Scores:** The responses (Always - Often - Sometimes - Rarely - Never) receive scores of (5 - 4 - 3 - 2 - 1) respectively for positive items, and the scores are reversed for negative items (1 - 2 - 3 - 4 - 5). The total score on this scale ranged between (68-172) points.

Second: Digital Entrepreneurship Scale (Prepared by the researchers):

- **Defining the Objective of the Scale:** The aim was to determine the level of digital entrepreneurship among postgraduate female students at Al-Azhar University. After reviewing the theoretical foundation, studies, and relevant literature including the study by Hamza and Rateeba (2022) and the study by Abd Allah (2024) Abdel Razzaq Abdullah, M. S (2023), the dimensions of the scale were identified as (Awareness of Digital Opportunities - Innovation Using Technology - Digital Skills and Competencies - Readiness to Take Digital Risks - Supportive Environment for Entrepreneurship).

- **Preparing the Scale in Its Initial Form:** The initial form consisted of (32) items distributed across (5) dimensions (Awareness of Digital Opportunities - Innovation Using Technology - Digital Skills and Competencies - Readiness to Take Digital Risks - Supportive Environment for Entrepreneurship). Conditions required for preparing the scale were observed, such as: covering all dimensions with the items, - Do not use double negation in phrasing the statement - exclude statements that are expected to be universally agreed upon or rejected by everyone.

- **Scale Instructions Formulation:** The instructions were formulated to include: the purpose of the scale, alerting the students to read the statement carefully, emphasizing that there is no right or wrong answer, and emphasizing that there are no two answers for one statement.

- **Psychometric properties of the Digital Entrepreneurship Scale:**

First: Scale Validity: Achieved Through:

- **Face Validity:** by presenting it to a group of judges in the field of psychology to provide their opinions on the clarity of its instructions, as well as their opinion on the five-point response continuum (Strongly Agree – Agree – Neutral – Disagree – Strongly Disagree). The statement "I participate with my friends in digital entrepreneurship initiatives" was deleted from the fifth dimension, "Supportive Environment for Entrepreneurship," after 85% of the judges agreed on the necessity of deleting it due to its lack of belonging to the dimension. Also, the statement "I take risks when implementing a digital entrepreneurial project" was deleted from the fifth dimension, "Willingness to Take Digital Risks," due to repetition of meaning with another statement in the same dimension. Some modifications were made to the phrasing of some statements. After deleting the two statements and making the recommended modifications, the scale consisted of (30) statements.

Second: Internal Consistency: achieved by calculating Pearson correlation coefficients between each dimension of the scale and its total score. The following Table (6) shows the results:

Table (6) Pearson Correlation Coefficients between the Dimensions of the Digital Entrepreneurship Scale and the Total Scale Score (n=25).

Dimensions of the Digital Entrepreneurship Scale	Correlation	Dimensions of the Digital Entrepreneurship Scale	Correlation
Awareness of digital opportunities	0,72**	Preparing for digital risks	0,56**
Innovating using technology	0,79**	Enabling environment for entrepreneurship	0,75**
Digital Skills and Competencies	0,85**		

**Significance at level (0.01)

Pearson correlation coefficients were also calculated between the score of each statement and the total scale score, with correlation coefficients ranging from (0.56 to 0.85), all statistically acceptable values.

- **Stability of the Digital Entrepreneurship Scale:** This was done by calculating Cronbach's alpha coefficient, and the following Table (7) shows these results:

Table (7) Cronbach's Alpha Stability Coefficients for the Digital Entrepreneurship Scale

Scale Dimensions	Cronbach's Alpha Coefficient	Scale Dimensions	Cronbach's Alpha Coefficient
Awareness of digital opportunities	0,75**	Preparing for digital risks	0,84**
Innovating using technology	0,86**	Enabling environment for entrepreneurship	0,83**
Digital Skills and Competencies	0,85**	Total Score	0,83**

It is clear from the previous table that the stability coefficients for the dimensions and the total score ranged between (0.75-0.86), all of which are statistically acceptable, confirming the suitability of the scale for application.

- **The Stability of the Scale was Calculated Using the Split-half Method:** the correlation coefficient between the two halves of the scale was calculated, and the following table shows these results:

Table (8) Spearman-Brown and Guttman Correlation Coefficient for the Self-Vitality Scale

Axis	Number of Phrases	Spearman-Brown Correlation Coefficient	Guttman Correlation Coefficient
Digital Entrepreneurship	30	0.89	0.87

Scale			

It is clear from the previous table that the scale enjoys a suitable degree of stability appropriate for application to the main sample.

- **Calculation of the Time for the Digital Entrepreneurship Scale:** The average time taken by all students to answer the items was calculated and estimated at (30 minutes).
- **The Final Form of the Digital Entrepreneurship Scale:** After confirming the validity and reliability of the scale, making the necessary adjustments, and deleting two items from the scale, the scale in its final form became ready for application, consisting of (30) items under (5) dimensions, as shown in the following table:

Table (9) The Final Form of the Digital Entrepreneurship Scale

Dimensions	Phrase Numbers in Each Dimension	Total Phrases	
Awareness of digital opportunities	2-3-4-22-23-24	6	
Innovating using technology	1-5-6-7-8- 25	6	
Digital Skills and Competencies	9-10-11-12- 26-27	6	
Preparing for digital risks	13-15-16-17-28	5	
Enabling environment for entrepreneurship	18-19-20-21- 29- 30	7	
Total	30 Phrases		

- Establishing the Scoring System and Estimating Scores: A scoring system was established such that the responses (Strongly Agree – Agree – Neutral – Disagree – Strongly Disagree) were scored (5-4-3-2-1) respectively, and the total score on this scale ranged between (30-150) points.

Research Results and Their Interpretation:

The statistical processing program (SPSS, 26) was used to analyze, extract, and interpret the research results according to the previous research questions and hypotheses, and the results were as follows:

Results of the First Hypothesis: To verify the validity of the first hypothesis, which stated that "**Graduate female students at the Faculty of Home Economics, Al-Azhar University, do not possess a high level of self-vitality,"** the means, standard deviations, and relative weights of the overall self-vitality scale and each dimension of the scale separately were calculated, as shown in the following Table (10):

Table (10): Level of Self-Vitality among Graduate Female Students

Axes	Number of Phrases	Total Score	Mean	Std. Deviation	Relative Weight	Ranking
Mental Vitality	8	36	30.78	3.69	85.50%	5
Physical Vitality	5	21	16.24	2.18	77.33 %	6
Emotional Vitality	7	31	27.02	3.01	% 87.16	4
Academic Vitality	9	37	32.95	2.55	89.05%	2
Social Vitality	6	26	22.97	2.22	88.34%	3
Spiritual Vitality	5	21	18.91	1.88	90.04%	1
Total	40	172	148.88	11.14	% 86.56	

It is clear from Table (10) that the mean score of Total Self-Vitality was 148.88 with a standard deviation of 11.14 and a relative weight of 86.56%, indicating that the level of self-vitality among graduate female students at Al-Azhar University is high. It was noted that the Spiritual Vitality dimension ranked first with a mean of 18.91, a standard deviation of 1.88, and a relative weight of 90.04%, followed by Academic Vitality in second place with a mean of 32.95, a standard deviation of 2.55, and a relative weight of 89.05%. Social Vitality came in third with a mean of 22.97, a standard deviation of 2.22, and a relative weight of 88.34%, followed by Emotional

Vitality in fourth place with a mean of 27.02, a standard deviation of 3.01, and a relative weight of 87.16%. Mental Vitality was fifth with a mean of 30.78, a standard deviation of 3.69, and a relative weight of 85.50%, and finally, Physical Vitality ranked sixth with a mean of 16.24, a standard deviation of 2.18, and a relative weight of 77.33%. Therefore, **the hypothesis was rejected, meaning that graduate female students at the Faculty of Home Economics, Al-Azhar University, possess a high level of self-vitality**. This result can be interpreted in light of the self-determination theory, which emphasizes that fulfilling basic psychological needs (autonomy, competence, and relatedness) leads to enhancing the feeling of psychological energy and self-vitality (Ryan & Deci, 2020). It is likely that the university environment at the graduate level, with its provision of academic independence, opportunities for scientific research, and the formation of a scientific identity, has contributed to raising the level of self-vitality among female students.

Likewise, the advancement in spiritual vitality can be explained by the cultural and religious specificity of Al-Azhar University, which places great importance on spiritual and ethical values. This enhances the sense of meaning and psychological well-being and is considered an important source of positive psychological energy, according to recent studies linking the meaning of life and self-vitality (Martela et. al., 2021).

This result is consistent with the study by Deniz & Satici (2017), which found that university students enjoy high levels of self-vitality. The study also indicated that advancement in education is associated with an increased sense of competence and autonomy, which positively affects mental health. This finding aligns with the study by Singh & Sharma (2018), which showed a high level of self-vitality among higher education students and confirmed that a supportive university environment and opportunities for academic growth contribute to enhancing mental health and positive well-being.

Likewise, this result agrees with the study by Singh & Sharma (2018), which confirmed a positive relationship between self-vitality and mental health, and the study by Garg & Sarkar (2020), which indicated high levels of self-vitality among university students. In the Arab context, the results of this study correspond with those of Said (2022), which pointed to high levels of self-vitality among university students and showed its positive correlation with life satisfaction and academic engagement. These results are also confirmed by the study of Hosni (2023), which revealed high levels of self-vitality among university students. It confirmed its role in enhancing positive future orientations and entrepreneurial behavior. These results support recent studies within the framework of self-determination theory. Ryan & Deci (2020) showed that meeting basic psychological needs in advanced educational environments contributes to enhancing self-vitality as a direct indicator of positive mental health. However, the results of the current study differ from some studies that indicated low levels of self-vitality among university students. Garg & Sarka (2020) showed that some university students suffer from moderate to low levels of self-vitality, especially in educational environments characterized by high academic pressure and weak psychological support, as well as institutional environments.

Kubzansky & Thurston (2007) also indicated that continuous exposure to psychological stress may lead to decreased levels of psychological energy and self-vitality in individuals, especially in environments lacking sources of emotional and social support.

Results of the Second Hypothesis: To verify the validity of the second hypothesis, which stated that **"Graduate female students at the Faculty of Home Economics, Al-Azhar University, do not possess a high level of digital entrepreneurship,"** the means, standard deviations, and relative weights of the self-vitality scale and its dimensions were calculated separately, as shown in the following Table (11):

Table (11): Level of Digital Entrepreneurship among Graduate Female Students

Axes	Number of Phrases	Total Score	Mean	Std. Deviation	Relative Weight	Ranking
Awareness of digital opportunities	**6**	**30**	**20.93**	**1.98**	**69.77%**	**5**
Innovating using technology	**6**	**30**	**22.80**	**2.56**	**76%**	**1**
Digital Skills and Competencies	**6**	**30**	**21.20**	**2.91**	**70.67%**	**3**
Preparing for digital risks	**5**	**25**	**17.64**	**2.17**	**70.56%**	**4**
Enabling environment for entrepreneurship	**7**	**35**	**25.61**	**2.78**	**73.17%**	**2**
Total	**30**	**150**	**108.18**	**9.28**	**72.12%**	

It is evident from Table (11) that the average scores of digital entrepreneurship reached 108.18 with a standard deviation of 9.28 and a relative weight of 72.12%, indicating that the level of digital entrepreneurship among

graduate female students at Al-Azhar University is high. It was observed that the dimension "innovation using technology" ranked first with an average of 22.80, a standard deviation of 2.56, and a relative weight of 76%. This was followed in second place by the supportive environment for entrepreneurship with an average of 25.61, a standard deviation of 2.78, and a relative weight of 73.17%. In third place came digital skills and competencies with an average of 21.20, a standard deviation of 2.91, and a relative weight of 70.67%. Fourth was the readiness to bear digital risks, with an average of 17.64, a standard deviation of 2.17, and a relative weight of 70.56%. Finally, in fifth place was awareness of digital opportunities with an average of 20.93, a standard deviation of 1.98, and a relative weight of 69.77%. Accordingly, the hypothesis was rejected, meaning that graduate female students at the Faculty of Home Economics, Al-Azhar University, do not possess a high level of digital entrepreneurship. This result can be explained in light of the rapid digital transformation in higher education institutions and the increased reliance on digital technologies in scientific research and academic communication, which contributes to raising students' awareness of the importance of technology in creating new entrepreneurial opportunities. The literature on digital entrepreneurship indicates that continuous exposure to digital technology enhances innovative thinking and encourages the adoption of new digital business models (Nambisan, 2017; Kraus et. al., 2019). This high level may also reflect the students' awareness of the importance of digital entrepreneurship as an alternative or complementary career path to traditional ones, especially in light of economic challenges and the changing labor market. This result is consistent with the findings of several Arab and foreign studies that confirmed the growing digital entrepreneurial tendencies among university students amid the rapid digital transformation. Nambisan (2017) pointed out that educational environments relying on digital technologies contribute to the development of entrepreneurial innovation and enhance individuals' ability to explore and utilize digital opportunities in creating new entrepreneurial projects. Kraus et. al., (2019) also concluded that digital transformation in higher education leads to an increase in digital entrepreneurial readiness by developing digital skills, encouraging innovative thinking, and facilitating access to technological resources.

This result aligns with the findings of Anim-Yeboah et. al., (2020) in their systematic review of digital entrepreneurship, where they confirmed that university students who are intensively exposed to digital technology exhibit higher levels of awareness of digital opportunities, innovation using technology, and readiness to take digital risks.

This finding is consistent with Al-Najjar's (2020) study, which confirmed that entrepreneurship education in universities contributes to developing entrepreneurial orientations among students and raises their awareness of the importance of digital projects as a promising career path. The results of this study also agree with Haikal's (2022) study, which showed that Egyptian universities increasingly contribute to strengthening the foundations of digital entrepreneurship among their students, especially in light of the COVID-19 pandemic, through the use of digital platforms, supporting innovation, and preparing educational environments that encourage entrepreneurial initiative. Furthermore, Pham et. al., (2024) demonstrated that a supportive educational environment enhances digital entrepreneurial intentions. However, the results of this study differ from some studies that indicated a low or medium level of digital entrepreneurship among university students. Gibb's (2012) study clarified that the absence of clear institutional policies and the weak integration of entrepreneurship into university curricula may lead to a decline in students' entrepreneurial tendencies, despite the availability of technology. Other studies indicated that weak practical training, limited applied experience, and low confidence in digital entrepreneurial capabilities may hinder this. A decrease in the adoption of digital entrepreneurial behavior is observed among some student groups, especially in traditional educational environments (Kraus et. al., 2019).

Results of the Third Hypothesis: To verify the validity of the third hypothesis, which stated that **"There is a statistically significant relationship at a significance level ≤ 0.05 between self-vitality (total score – and dimensions) and digital entrepreneurship (total score and dimensions) among female graduate students at the Faculty of Home Economics, Al-Azhar University,"** the Pearson correlation coefficient was calculated between the students' scores on the self-vitality scale and the digital entrepreneurship scale. The results are shown in the following Table (12):

Table (12) The Relationship between Self-vitality and Digital Entrepreneurship among Female Graduate Students

Dimensions	Awareness of digital opportunities	Innovating using technology	Digital Skills and Competencies	Preparing for digital risks	Enabling environment for entrepreneurship	Total Score
Mental Vitality	**0.49****	**0.63****	**0.64****	**0.59****	**0.73****	**0.76****
Physical Vitality	**0.45****	**0.30****	**0.42****	**0.54****	**0.51****	**0.53****

Emotional Vitality	**0.45****	**0.56****	**0.56****	**0.50****	**0.65****	**0.68****
Academic Vitality	**0.49****	**0.52****	**0.53****	**0.53****	**0.65****	**0.67****
Social Vitality	**0.52****	**0.51****	**0.57****	**0.59****	**0.48****	**0.65****
Spiritual Vitality	**0.55****	**0.28****	**0.45****	**0.60****	**0.49****	**0.56****
Total	**0.54****	**0.59****	**0.63****	**0.63****	**0.70****	**0.77****

*Significance at level (0.05) **Significance at level (0.01)

It is clear from Table (12) above that all correlation coefficients between self-vitality (total score – and dimensions) and digital entrepreneurship (total score and dimensions) were positive and statistically significant among female graduate students at the Faculty of Home Economics, Al-Azhar University. Therefore, the hypothesis was accepted, meaning that there is a statistically significant relationship at a significance level ≤ 0.05 between self-vitality (total score – and dimensions) and digital entrepreneurship (total score and dimensions) among female graduate students at the Faculty of Home Economics, Al-Azhar University. The existence of this relationship can be explained in light of what the literature indicates that Self-vitality represents a psychological resource that supports entrepreneurial behavior, as it provides the necessary psychological energy for initiative, exploration, and risk-taking, which are essential components in digital entrepreneurship (Li et. al., 2022). Moreover, the feeling of vitality enhances positive engagement in continuous self-learning, which is a prerequisite for acquiring digital skills. This result supports the assumptions of self-determination theory, which suggests that individuals with high self-motivation and psychological vitality are more prepared to engage in complex and innovative activities, such as digital entrepreneurial activities (Ryan & Deci, 2020).

The result of the third hypothesis, which revealed a statistically significant positive correlation between Self-vitality (total score and its dimensions) and digital entrepreneurship (total score and its dimensions) among graduate female students at the Faculty of Home Economics, Al-Azhar University, is consistent with many contemporary psychological, educational, and entrepreneurial studies.

The study by Li et. al. (2022) confirmed that positive psychological resources, especially self-vitality, directly contribute to enhancing entrepreneurial behavior by supporting self-motivation and increasing the desire for initiative and risk-taking, which are fundamental elements in digital entrepreneurship. Additionally, a study conducted by Ryan & Deci (2020), within the framework of self-determination theory, found that individuals with high levels of Self-vitality are more engaged in activities that require significant cognitive effort and continuous innovation, such as entrepreneurial activities based on digital technology.

This result is consistent with the findings of Kraus et. al., (2019), who demonstrated that positive psychological energy and self-motivation are crucial factors in translating digital skills into actual entrepreneurial behavior, especially in university environments.

Furthermore, the study by Martela et. al., (2021) showed that self-vitality is positively associated with meaning in life and purposeful engagement, both of which support initiative, innovation, and the exploitation of digital opportunities. In the educational context. Additionally, a study conducted by Slemp et. al., (2021) found that autonomy support from leaders in the workplace enhances individuals' self-motivation and emotional vitality, leading to increased initiative, innovation, and responsibility.

This contrasts with some studies that did not find a direct or strong correlation between positive psychological variables and digital entrepreneurial behavior. Some studies indicated that institutional and economic factors may play a greater role than psychological factors in shaping entrepreneurial tendencies, especially in environments lacking institutional support or adequate digital infrastructure (Gibb, 2012).

Moreover, some research showed that possessing digital skills alone does not necessarily lead to actual entrepreneurial behavior unless accompanied by sufficient practical training or real opportunities to turn ideas into projects (Nambisan, 2017).

Results of the Fourth Hypothesis: To verify the validity of the fourth hypothesis, which stated that **"The level of digital entrepreneurship can be predicted from self-vitality (total score and dimensions) among graduate female students at Al-Azhar University,"** stepwise multiple regression analysis was used. Tables (13) and (14) show the results:

Table (13) Results of the Variance Analysis for the Digital Entrepreneurship Regression Model on the Self-vitality Variable

Axes	Source of Variance	Sum of Squares	d.f	Mean Square	F	Sig.	R^2	Contrast Ratio
Total	**Regression**	**13981**	**1**	**13981**				

Self Vitality	**Residual**	**9896,23**	**158**	**62,63**	**223,22****	**0.000**	**0.59**	**59 %**
	Total	**23877,24**	**159**					
Mental Vitality	**Regression**	**14255,70**	**2**	**7127,85**	**116,31****	**0.000**	**0.60**	**60 %**
	Residual	**9621,54**	**157**	**61,28**				
	Total	**23877,24**	**159**					

It is evident from Table (13) above that the F-ratio for the variance analysis of self-vitality (total score and only the mental vitality dimension) on digital entrepreneurship was significant at 0.001. The results also showed that the regression model of students' scores in the self-vitality variable is generally a good fit. However, it should not include the dimensions Physical Vitality, Emotional Vitality, Academic Vitality, Social Vitality, and Spiritual Vitality due to their low impact and lack of a strong causal relationship with students' scores in digital entrepreneurship. This means that the most important dimensions influencing students' scores in self-vitality are Total Self Vitality with a relative contribution of 59%, and Mental Vitality with a relative contribution of 60%. The following table (14) shows the results of the stepwise multiple regression analysis:

Table (14) Results of the Stepwise Multiple Regression Analysis to Predict Digital Entrepreneurship Skills based on Self-vitality

Axes	B	Std. Error	Beta	T	Sig.
Constant	**49.05**	**5,83**		**8,41**	**0.000**
Total Self Vitality	**0,26**	**0,11**	**0,41**	**2,29**	**0.023**
Mental Vitality	**0,86**	**0,41**	**0,37**	**2.11**	**0.036**

It is clear from the previous table that the dimensions of self-vitality that can predict digital entrepreneurship were (total score - mental vitality), and the regression equation can be formulated as follows:

Digital Entrepreneurship = 49.05 + 0.26 × (Total Score of Self-vitality) + 0.86 × (Mental Vitality). It is observed that the higher the scores of both (Total Score of Self-vitality - Mental Vitality), the higher the scores of digital entrepreneurship among graduate female students at the Faculty of Home Economics, Al-Azhar University.

This result can be explained by the fact that mental vitality is the dimension most associated with higher cognitive processes, such as flexible thinking, problem-solving, and opportunity foresight, which are essential processes for discovering digital opportunities and developing entrepreneurial ideas. Studies indicate that the cognitive dimension of vitality is directly related to innovation and creative behavior (Vansteenkiste et. al., 2020).

As for the lack of contribution of some other dimensions (physical, emotional, social, and spiritual) in predicting digital entrepreneurship, this can be explained by their indirect effect or their role as general support factors for mental health, whereas digital entrepreneurial behavior requires more specialized cognitive and mental resources.

The lack of direct contribution of the physical, emotional, social, and spiritual dimensions of vitality in predicting digital entrepreneurship can be explained by several scientific considerations, the most prominent of which are:

1. The nature of digital entrepreneurship, which relies more on cognitive processes such as analytical thinking, innovation, and continuous self-learning, processes that are directly linked to mental vitality.

2. The indirect role of other dimensions: Although these dimensions may contribute to overall mental health and emotional stability, they are not considered direct indicators of digital entrepreneurial behavior.

3. Sample Specificity: Graduate students enjoy an acceptable level of emotional and social stability, which reduces variation in these dimensions and weakens their predictive ability.

4. The digital transformation in higher education, which has made mental efficiency and cognitive flexibility more important than physical or emotional aspects in accomplishing digital entrepreneurship tasks.

These results agree with many contemporary studies that confirmed the predictive role of psychological and cognitive resources in shaping digital entrepreneurial behavior. For example, the study by Vansteenkiste et. al., (2020) showed that mental flexibility is closely linked to higher cognitive processes, such as flexible thinking, sustained focus, and the ability to solve complex problems—skills essential for innovation and opportunity discovery, especially in digital contexts. As Ryan & Deci (2020) pointed out, self-vitality, as a result of satisfying basic psychological needs, enhances the ability to engage deeply in tasks requiring significant cognitive effort, such as entrepreneurial activities.

In the field of digital entrepreneurship, Kraus et. al., (2019) found that positive cognitive and psychological factors are among the strongest indicators of digital entrepreneurial behavior, compared to general physical or emotional factors.

Li et. al., (2022) also demonstrated that mental energy and cognitive motivation are essential elements for transforming digital knowledge into innovative entrepreneurial initiatives.

This result aligns with the findings of Anim-Yeboah et. al., (2020), who confirmed that the cognitive dimensions of vitality and mental readiness are fundamental for adopting digital entrepreneurship in university environments. However, the results of this study differ from some studies that indicated other dimensions - such as emotional or social vitality - contribute to predicting entrepreneurial behavior. Some studies have shown that social and emotional support may play a predictive role in traditional entrepreneurship, especially in environments that rely on direct teamwork (Gibb, 2012).

Other research pointed out that spiritual vitality may contribute to enhancing psychological resilience and long-term sustainability in entrepreneurial projects, without directly affecting the stage of digital opportunity discovery (Martela et. al., 2021).

Results of the Fifth Hypothesis: To verify the validity of the fifth hypothesis, which stated that "**There are no statistically significant differences at a significance level ≤ 0.05 between the mean scores of graduate female students (MA/PhD) in the self-vitality scale (dimensions – total score) at the Faculty of Home Economics, Al-Azhar University,"** the independent samples t-test was used. The results are shown in Table (15) below:

Table (15) Differences between the Mean Scores of Graduate Female Students (MA/PhD) in the self-vitality scale

Self-Vitality	Group	N	Mean	Std. Deviation	T	df	Sig.
Mental Vitality	PhD	30	29.97	3.97	2.42*	158	0.017
	MA	130	27.45	5.37			
Physical Vitality	PhD	30	20.20	2.12	6.14**	158	0.000
	MA	130	17.23	2.44			
Emotional Vitality	PhD	30	25.83	3.04	2.24*	158	0.026
	MA	130	24.04	4.13			
Academic Vitality	PhD	30	30.47	3.68	3.34**	158	0.001
	MA	130	26.91	5.55			
Social Vitality	PhD	30	23.13	1.92	2.09*	158	0.038
	MA	130	22.14	2.43			
Spiritual Vitality	PhD	30	20.20	1.13	3.78**	158	0.000
	MA	130	18.73	2.05			
Total	PhD	30	149.80	10.85	5.80**	158	0.000
	MA	130	136.50	18.45			

*Significance at level (0.05) **Significance at level (0.01)

It is clear from Table (15) that: the t-value for the differences between the mean scores of graduate female students (MA/PhD) in the self-vitality scale (dimensions – total score) is statistically significant, reaching (5.80) for the total score at a significance level less than (0.01), and for the six dimensions respectively (2.42 - 6.14 - 2.24 - 3.34 - 2.09 - 3.78), all of which are statistically significant values. This indicates a statistically significant difference between the scores of graduate female students (MA/PhD) in the self-vitality scale (dimensions – total score), with the difference favoring the PhD students. The arithmetic mean for them on the overall scale reached (149.80), which is higher than the arithmetic mean for MA students, which was (136.50). Thus, we reject the null hypothesis, meaning there are statistically significant differences at a significance level ≤ 0.05 between the mean scores of graduate students (MA/PhD) on the self-vitality scale (dimensions – total score) in favor of the PhD students at the Faculty of Home Economics, Al-Azhar University.

This result can be explained by the fact that PhD students possess deeper academic experiences, a higher level of cognitive maturity, and greater research independence, all of which contribute to enhancing their self-vitality and developing their digital entrepreneurial tendencies.

Likewise, studies indicate that academic advancement is associated with a greater sense of competence and self-efficacy, both of which are essential factors in determining self-vitality and entrepreneurial behavior (Ryan & Deci, 2020).

The superiority of PhD students in all dimensions of self-vitality indicates that this superiority is neither partial nor incidental but reflects a comprehensive psychological framework characterized by the following:

- Increased mental vitality resulting from research competence.
- Increased academic vitality resulting from a clear scientific identity.
- Increased spiritual and social vitality resulting from psychological maturity and commitment to values.
- Enhanced emotional vitality thanks to the experience gained in facing academic challenges.

These results are consistent with many previous studies that confirmed the existence of differences in self-vitality or positive psychological variables based on academic level. For example, the study by Garg & Sarkar (2020) found that advanced graduate students (PhD level) showed higher levels of self-vitality compared to their peers at lower levels. They attributed this to a greater sense of competence and cognitive mastery. The study by Singh & Sharma (2018) also showed that academic progress is associated with higher indicators of psychological well-being and self-vitality, as a result of accumulated academic experience and the ability to cope with research pressures.

In the Arab context, the study by Said (2022) indicated statistically significant differences in self-vitality based on academic level, with results favoring advanced graduate students. This confirms that academic maturity contributes to enhancing psychological energy and a sense of efficacy. This result aligns with what Ryan & Deci (2020) stated, that educational environments that promote autonomy and competence lead to higher levels of self-vitality, a phenomenon more evident among PhD students. The results of this study differ from some studies that found no significant differences in self-vitality based on academic level. Those previous studies attributed that to the similarity of educational environments or the closeness of academic experiences among the studied groups. For example, some studies indicated that high research pressures during the PhD phase may sometimes lead to a decrease in self-vitality, especially in competitive and unsupportive academic environments (Sonnentag et. al., 2022).

However, this difference can be explained by differences in cultural and institutional contexts. Al-Azhar University, for example, is characterized by a supportive educational environment with a strong ethical and spiritual dimension, which may contribute to alleviating psychological pressures and enhancing self-vitality among PhD students.

Results of the Sixth Hypothesis: To verify the validity of the sixth hypothesis, which stated that "**There are no statistically significant differences at a significance level ≤ 0.05 between the mean scores of graduate students (MA/PhD) on the Digital Entrepreneurship Scale (dimensions – total score) at the Faculty of Home Economics, Al-Azhar University,"** the independent samples t-test was used. The results are shown in the following Table (16):

Table (16) Differences between the Mean Scores of Graduate Students (MA/PhD) on the Digital Entrepreneurship Scale

Digital Entrepreneurship	Group	N	Mean	Std. Deviation	T	df	Sig.
Awareness of digital opportunities	PhD	30	22.20	1.88	2.52*	158	0.013
	MA	130	21.05	2.32			
Innovating using technology	PhD	30	23.50	1.89	3.61**	158	0.000
	MA	130	21.64	2.67			
Digital Skills and Competencies	PhD	30	22.77	1.59	2.64**	158	0.009
	MA	130	21.41	2.71			
Preparing for digital risks	PhD	30	21.50	1.14	5.03**	158	0.000
	MA	130	19.18	2.47			
Enabling environment for entrepreneurship	PhD	30	25.57	2.50	2.23*	158	0.027
	MA	130	23.89	3.92			
Total Score	PhD	30	115.53	5.57	3.89**	158	0.000
	MA	130	107.17	11.46			

*Significance at level (0.05) **Significance at level (0.01)

It is clear from Table (16) that: the t-value for the differences between the mean scores of graduate students (MA/PhD) on the Digital Entrepreneurship Scale (dimensions – total score) is statistically significant, as it reached (3.89) for the total score at a significance level less than (0.01). For the five dimensions, the values were respectively (2.52 - 3.61 - 2.64 - 5.03 - 2.23), all of which are statistically significant values. This indicates the existence of a statistically significant difference between the scores of graduate students (MA/PhD) on the Digital Entrepreneurship Scale (dimensions – total score), with the difference favoring PhD students. The arithmetic mean for them on the overall scale was (115.53), which is higher than the arithmetic mean for MA students, which was (107.17). Therefore, **we reject the hypothesis, meaning that there are statistically significant differences at a significance level ≤ 0.05 between the mean scores of graduate students (MA/PhD) on the Digital Entrepreneurship Scale (dimensions – total score) in favor of PhD students at the Faculty of Home Economics, Al-Azhar University**.

This result can be explained by the academic advancement and the associated accumulation of cognitive, research, and digital experiences among PhD students compared to MA students. The PhD stage requires deeper engagement in scientific research and intensive use of digital technologies in data collection, analysis, scientific publication, and academic communication, all of which contribute to enhancing digital competencies and innovative thinking.

Moreover, PhD students often enjoy a higher degree of academic independence, decision-making ability, and acceptance of calculated risks, which are essential traits for digital entrepreneurial behavior. This aligns with studies indicating that digital entrepreneurship requires an advanced level of cognitive maturity, awareness of digital opportunities, and the ability to employ technology to innovate creative solutions (Nambisan, 2017).

These findings are consistent with many previous studies that confirmed significant differences in digital entrepreneurship or the intention for digital entrepreneurship based on academic level. For example, the study by Kraus et. al., (2019) indicated that individuals with higher educational levels exhibit higher levels of digital innovation, the ability to explore opportunities, and readiness to adopt new digital business models. Additionally, a systematic review conducted by Nambisan (2017) pointed out that accumulated knowledge and academic experience contribute to enhancing digital entrepreneurial competencies, especially in university environments that rely on scientific research and self-learning.

In the educational context, a study conducted by Haikal (2022) showed that graduate students are qualified to practice digital entrepreneurship due to their advanced analytical and research skills and their ability to apply academic knowledge in digital projects.

The results of this study differ from some studies that found no significant differences in digital entrepreneurship based on academic level. Those studies attributed this to the similarity in the level of exposure to digital technology between MA and PhD students, especially in educational environments that uniformly rely on digital platforms. Some studies indicate that personal factors and motivations may play a greater role than academic level in shaping digital entrepreneurship tendencies (Elia et. al., 2020). However, this difference can be explained by variations in institutional and cultural contexts, as some universities may provide equal digital opportunities for all graduate students without discrimination.

The superiority of female PhD students in all aspects of digital entrepreneurship (awareness of digital opportunities, innovation using technology, digital skills and competencies, readiness to take digital risks, and supportive environment) indicates that this superiority reflects a comprehensive model of digital entrepreneurship, not just one aspect.

This can be attributed to: intensive use of technology in scientific research - continuous interaction with digital databases and academic platforms - participation in local and international digital research networks – and raising awareness of the importance of digital entrepreneurship as a future career path.

Research Recommendations

In light of the results yielded by the current research, the researchers propose the following recommendations:

1. Recommendations for the University Level

• Adopting institutional strategies that support digital entrepreneurship within the university, linking them to the vision of digital transformation and pioneering university education.

• Establishing digital business incubators targeting graduate students, especially in educational and applied specializations such as home economics.

2. Recommendations for the Curriculum Level

• Integrating courses or study units on digital entrepreneurship and technological innovation into graduate programs.

• Focusing on developing intellectual vitality through active learning strategies, such as project-based learning, problem-solving, and flipped learning.

3. Recommendations for Guidance and Psychological Support

• Designing guidance and training programs aimed at developing self-vitality in its various dimensions, considering it a psychological resource that supports academic performance and entrepreneurial behavior.

• Supporting initiatives that enhance self-motivation and academic independence among graduate students.

4. Recommendations for Faculty Members

• Encouraging students to adopt digital entrepreneurial thinking when conducting research and applied projects.

• Using modern digital tools (educational platforms, artificial intelligence, interactive applications) in the educational process.

5. Recommendations for Educational Policy Makers

• Align higher education policies with the requirements of the digital labor market and support digital entrepreneurship as a sustainable career path for graduates.

• Support partnerships between universities, technical institutions, and the entrepreneurship sector.

Proposals

• Study the effectiveness of self-development training programs in enhancing digital entrepreneurship.

• Study the relationship between digital entrepreneurship and other psychological variables, such as: psychological resilience - intellectual security – and achievement motivation.

• Conduct comparative studies between different universities or across multiple academic disciplines.

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