

Entrepreneurial awareness and its Role in addressing External Environmental Challenges: A Survey of the Perspectives of Administrative Leaders at Northern Technical University and its Constituent Entities in Nineveh Province

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Abstract

This study sought to determine the correlations and influences between entrepreneurial awareness, serving as the independent variable, characterized by its constituent dimensions encompassing survey and research, collaboration and communication, as well as evaluation and judgment. In tandem, it investigated the dependent variable, addressing external environmental challenges, and its component dimensions, including keeping pace with technical challenges, addressing social challenges, confronting competitive challenges, alleviating customer (beneficiary) challenges, and conforming to legal regulations.

The descriptive-analytical method was used in processing the data collected from a sample of 85 leaders in Northern Technical University and its constituent entities in Nineveh Governorate through a questionnaire, which was a key tool for data collection.

The study employed statistical methodologies, utilizing the SPSS Version 25 statistical software, for the analysis of the collected data. It yielded various findings, notably discerning substantial positive correlations and influences between entrepreneurial awareness and the addressing of external environmental challenges, both holistically and in a segmented manner within the organizations under investigation.

Moreover, the study set forth several recommendations underscoring the significance of giving due consideration to entrepreneurial awareness. It stressed the necessity of cultivating its constituent facets, enlivening them, and executing them effectively to ensure the adept management of external environmental challenges.

Keywords: *Entrepreneurial Awareness, Addressing External Environmental Challenges, Northern Technical University.*

Introduction

1.1 Problem Statement:

The majority, if not all, organizations operate within an external environment characterized by its dynamic, intricate, and highly competitive nature. This environment gives rise to various challenges with diverse and multifaceted effects, including technical, social, legal, competitive, and customer-oriented challenges. It has become essential for organizations striving for success and excellence to confront these challenges and work on managing them while adopting a modern intellectual approach. In a time where traditional methods fall short in addressing and adapting to these challenges,

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entrepreneurial awareness emerges as a managerial approach that is expected to have a greater capacity to handle external environmental challenges and contribute to their addressing.

To investigate the extent to which entrepreneurial awareness, encompassing components such as survey and research, collaboration and communication, and evaluation and judgment, can contribute to addressing external environmental challenges, the study chose Northern Technical University and its associated entities in Nineveh Governorate as the focal point of the examination. This choice was made to address a research problem framed by a primary question: Does entrepreneurial awareness, with its dimensions, effectively contribute to the addressing of the external environment for the organizations under study? To refine the research problem further, it can be precisely expressed by raising the following research questions:

- Is there a significant relationship between entrepreneurial awareness and addressing external environmental challenges in terms of their dimensions at both the holistic and partial levels in the organizations under investigation?
- Does entrepreneurial awareness have a significant impact in terms of its dimensions on addressing external environmental challenges at both the holistic and partial levels in the organizations under investigation?

1.2 The significance of the study

This can be stated as follows:

The study derives its importance from the significance of two variables and their dimensions (entrepreneurial awareness and addressing external environmental challenges). Entrepreneurial awareness can be considered a factor that organizations rely on in adapting to their external environment.

The importance of the study is highlighted by the scarcity of research that has explored the relationship between these variables, especially in addressing external environmental challenges, both at the local and, to a lesser extent, on a global level.

This study represents a modest contribution at both the academic and practical levels, guiding future research and the need for the organizations under investigation to embrace positive intellectual stimulation among their administrative leaders, represented by entrepreneurial awareness, and adopt it as a means to address the challenges they face in their external environment.

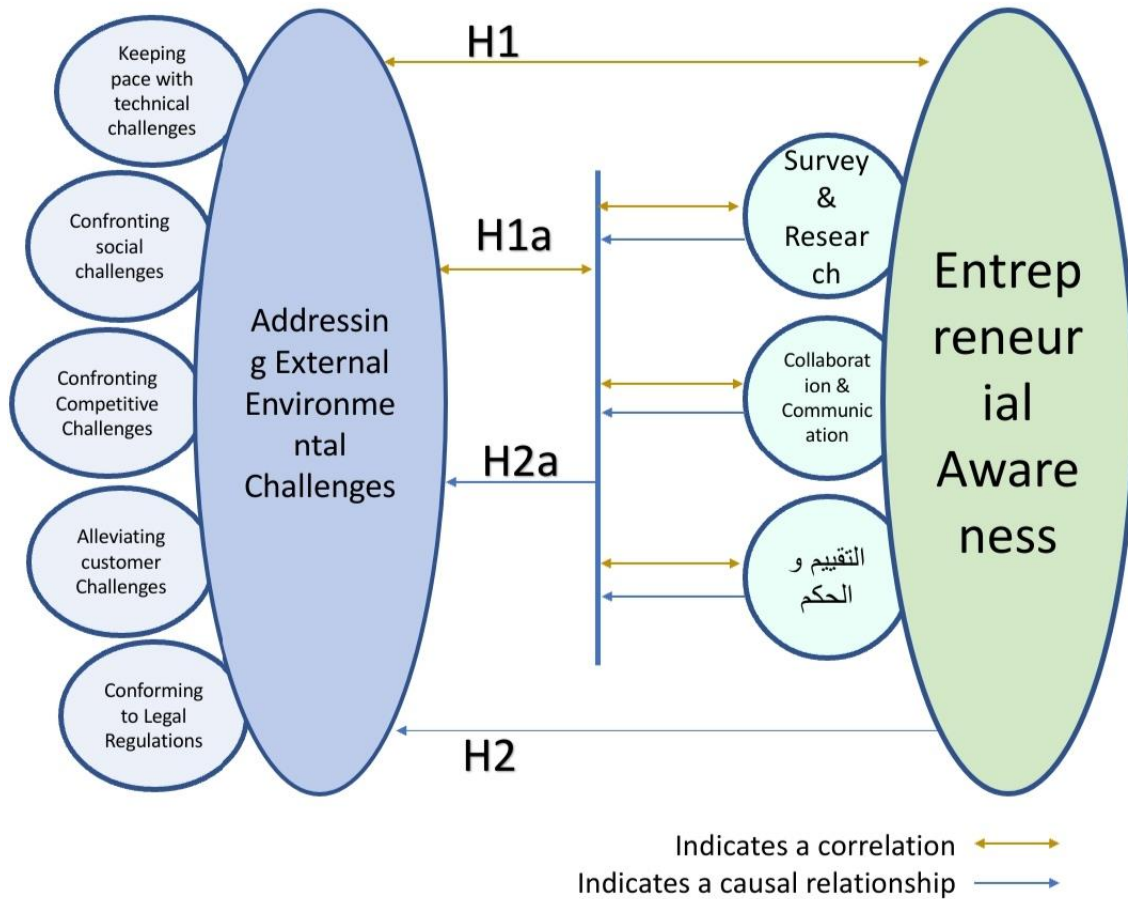
1.3 Objectives of the study

The study's objectives aim to achieve several goals, including:

- 1) Providing a theoretical framework for the study's variables (entrepreneurial awareness and addressing external environmental challenges).
- 2) Creating a conceptual diagram illustrating the nature of the assumed correlations and hypothesised influence between the study's variables (entrepreneurial awareness and external environmental challenges) and their dimensions at both the holistic and partial levels.
- 3) Identifying the role that dimensions of entrepreneurial awareness can play in addressing external environmental challenges for the organizations under investigation within the context of testing the relationships of connection and influence between them at both the holistic and partial levels.
- 4) Drawing a set of conclusions related to the study's variables (entrepreneurial awareness and addressing external environmental challenges), as well as providing suggestions for both the specific and general organizations under investigation.

1.4 The hypothetical research model

This is presented in Figure 1, revealing the nature of the assumed relationships and virtual impact between entrepreneurial awareness and its dimensions and the addressing of external environmental challenges.



1.5 Hypotheses of the Study

Primary Hypothesis 1: There exists a statistically significant relationship between entrepreneurial awareness and the comprehensive addressing of external environmental challenges, as indicated by their respective dimensions within the researched organizations. This leads to the following sub-hypothesis: A statistically significant relationship exists between each individual dimension of entrepreneurial awareness, encompassing survey and research, collaboration and communication, evaluation, and judgment, and the effective addressing of external environmental challenges within the studied organizations.

Primary Hypothesis 2: There is a statistically significant influence of entrepreneurial awareness, when considering its dimensions collectively, on effectively addressing external environmental challenges within the researched organizations. This leads to the following sub-hypothesis: Each individual dimension of entrepreneurial awareness, namely survey and research, collaboration and communication, evaluation, and judgment, has a statistically significant influence on effectively addressing external environmental challenges within the researched organizations.

1.6 Data Collection and Analysis Method:

Data collection relied on a purpose-designed questionnaire, which was subsequently evaluated by a panel of expert reviewers to ensure its alignment with the study's subject matter and content. The questionnaire comprised two sections: the first section focused on the entrepreneurial awareness variable, while the second section addressed the variable of addressing external environmental challenges. A five-point Likert scale was employed (Strongly Agree, Agree, Somewhat Agree, Disagree, Strongly Disagree), with corresponding weights of (1, 2, 3, 4, 5) for each option. To test the study's hypotheses, the statistical analysis program SPSS (Version 25) was utilized, employing statistical methods such as Pearson correlation, simple linear regression, and multiple regression.

2. The Theoretical Framework

2.1 Entrepreneurial Awareness:

1. The Concept and Significance of Entrepreneurial Awareness: The concept of entrepreneurial awareness has garnered significant attention from researchers and scholars due to its focus on environmental opportunities for organizations and its role as a key success factor, particularly in the face of rapid changes (Yu, 2011, p. 159). Yu defines it as a vital strategic plan for organizations, as it is neither repeatable nor licensable. Tang et al. (2012, p. 79) consider it as encompassing active situations relying on various cognitive abilities and processes, such as knowledge, previous experience, pattern recognition, information processing skills, and social interaction. Samo (2016, p. 127) highlights its capability to bring about a significant breakthrough in understanding how to generate new and innovative ideas for comprehending the process of opportunity identification. Meanwhile, Roundy et al. (2018, p. 6) describe it in terms of decision-makers' ability to diagnose and anticipate business-related events, both current and future. Urban & Wood (2020, p. 493) affirms it as a distinct set of cognitive processing skills expressed in the acceptance of available opportunities, which others may have overlooked.

2.2 The importance of entrepreneurial awareness

This lies in the following aspects:

- 1) It provides entrepreneurs with the ongoing opportunity to select and gain more knowledge about their environment, leveraging profitable opportunities within it (Bhatt et al., 2020, p. 720).
- 2) It sharpens economic efficiency, brings innovation to labor and production markets, creates new job opportunities, and supports the workforce (Ataei et al., 2020, p. 1).
- 3) It aids in diagnosing practices affecting organizational structure, maintenance, and strategic changes through new framing and guidance of procedures (Paiva et al., 2018, p. 15).
- 4) It plays a crucial role in the creation, performance, growth, distinctiveness, and sustainability of new organizations, as well as in enhancing their strategic agility (Sharma, 2018, p. 5).

2.3 Dimensions of Entrepreneurial Awareness:

The classification of dimensions representing entrepreneurial awareness has varied based on models presented by researchers and scholars. Therefore, the researchers relied on the models that are most widely accepted for expressing the dimensions of entrepreneurial awareness, which include (survey and research, collaboration and communication, evaluation, and judgment).

A. **Survey and Research:** Survey and research are fundamental cornerstones of entrepreneurial awareness, as Kaish and Gilad (1991, p. 45) emphasize the empirical evidence pointing to entrepreneurial awareness as the practice of regular and intensive environmental survey to identify and obtain business opportunities. Tang et al. (2012, p. 79) highlight the necessity for entrepreneurs to be persistent and non-traditional in their approach to seeking new opportunities and working on capitalizing on those opportunities to create innovative products with unconventional ideas. This dimension of entrepreneurial awareness involves the utilization of accumulated information, knowledge, and experience to seize opportunities ahead of competitors. Kadile and Biraglia (2020, p. 6) suggest that the scope of survey and research refers to the activity that distinguishes entrepreneurs who gather information to expand their knowledge.

B. **Collaboration and communication:** This dimension focuses on the processes that take place with the information gathered through survey and research, processing it within the context of review, participation, and exchange, whether within or outside the organization. Both Urban (2019, p. 200) and Campos (2017, p. 357) agree that this dimension pertains to collecting information and knowledge about various characteristics and utilizing them to establish new alternative approaches. In the same vein, Adomako et al. (2018, p. 6) suggest that collaboration and communication involve how individuals cognitively respond to hints of new information and process it, encompassing links of communication capable of assembling various parts of information and the desire to establish such information as a stable alternative.

C. **Evaluation and Judgment:** This dimension allows project owners to assess the content of new information, filter out irrelevant or unnecessary information. From Puhakka's perspective (2011, p. 105), this dimension is characterized by its connection to intuition. The establishment of entrepreneurial intuition is deeply rooted in entrepreneurial awareness. It is logical that intuition is significantly related to entrepreneurial awareness, since the evaluative capacity of establishing awareness captures the ability of entrepreneurs to identify information that leads to potential business opportunities. Chaoyun (2019, pp. 150-151) emphasizes that judgment helps entrepreneurs assess their readiness to accept or bear risks and the uncertainties arising from investing in specific opportunities. According to Kadile and Biraglia (2020, p. 6), through the evaluation and judgment dimension, entrepreneurs assess whether the newly collected information and information related to existing data align with their unique knowledge, and they evaluate the content of the new information as business opportunities.

2.4 Addressing External Environmental Challenges:

Organizations face multiple challenges that directly or indirectly impact their internal activities, requiring entrepreneurial leaders to address and adapt to them to ensure addressing them. It is worth noting that scholars and researchers have dealt with the concept of challenges using various terms, including factors, variables, challenges, influences, threats, obstacles, and environmental pressures.

Before delving into the dimensions expressing the containment of external environmental challenges, the researchers addressed the understanding of the external environment. Kuznetsova & Rahimova (2017, p. 31) defined it as an integrated and dynamic property containing a set of factors beyond the organization's control, imposing restrictions on the organization's activities. The success and sustainability of an organization depend on effective interaction and adaptation to the environment. Grasping and distinguishing opportunities are vital for entrepreneurial awareness. However, monitoring these opportunities presents challenges, making it necessary to discover their source, capture them, and work on their utilization.

Based on this, the researchers adopted a set of challenges that leaders in the workplace use to contain external environmental challenges. These challenges include methods such as keeping pace with technical challenges, addressing social challenges, confronting

competitive challenges, alleviating customer (beneficiary) challenges, and conforming to legal regulations. The following provides clarification for each of them:

1) Keeping pace with technical challenges: According to Jones (2013, p. 121), it is essential for technology users to have a certain level of awareness, connected with ethical considerations. Embedding values and standards among users is crucial for understanding the outcomes resulting from technology. Leaders need to prepare and be ready to deal with this challenge and utilize technology while ensuring it does not replace or compete with human leadership. Contemporary organizations operate in a more competitive and complex environment than before due to global openness, technological and knowledge development, and digital and networked expansion. All of this presents various challenges, including technological challenges, encompassing technical skills, equipment, and technological tools that impact how available resources are transformed into useful products and services.

2) Confronting Social Challenges: This dimension, as noted by Mhone (2003, p. 3), recognizes that complex challenges, including increasing social problems and heightened economic pressure on the lower-income class, necessitate more attention from the government. Achieving social justice is critical to preventing the collapse of many political systems.

3) Confronting Competitive Challenges: Daft (2001) states that the competitive environment involves elements closely related to the organization and its goals. The concept of the competitive environment aligns with the competitive field in the industry, containing various organizations competing against each other. It comprises several variables, elements, forces, and potential threats that affect and are influenced by each other. Kireeva (2018, p. 2) refers to competition as being one of the threats and risks organizations must manage or reduce, and it is essential to identify the factors that can lead to an organization's success and development. Moon et al, (2018, p. 3) asserts that creating added value for organizations is related to customer inclusion.

4) Alleviating customer Challenges: Kotler (2010, p. 5) emphasizes that organizations aiming for success in today's competitive markets should focus on the customer in their activities and operations. They should prioritize the marketing concept, which starts and ends with satisfying customer desires and needs. Customer satisfaction is defined as the customer's sense of pleasure or disappointment resulting from comparing the product's performance relative to the customer's expectations. Creating added value for organizations is related to customer containment.

5) Conforming to Legal Regulations: This refers to legal rules, which differ from social rules and are enforced by the legal system on behalf of the government. These rules aim to allow individuals to conduct their activities legally and registered to protect them from the fear of others. Deviating from these rules leads to restrictions and exposes unauthorized behavior to concerns. (Craig & Campbell 2005) emphasize that these regulations empower individuals to act within the boundaries of the law and provide protection for their properties. Violating these regulations leads to restrictions, making unauthorized behavior subject to legal concerns.

3. The Field Framework

This section encompasses an examination of the nature of relationships and impact between the main and subsidiary variables of the virtual study. It seeks to ascertain their validity as follows:

1. Analysis of the nature of the correlation between the study variables: This analysis aims to test the correlations between the study variables, represented by "entrepreneurial awareness and coping with external environmental challenges," utilizing the Pearson Correlation method. The analysis is detailed as follows:

a. Analyzing the correlation between the dimensions of entrepreneurial awareness (combined) and the dimensions of coping with external environmental challenges (combined): This analysis seeks to test the first primary hypothesis, which posits a significant correlation between the dimensions of entrepreneurial awareness (combined) and coping with external environmental challenges (combined) in studied organizations. As per the data presented in Table 1, a statistically significant correlation between the dimensions of entrepreneurial awareness (combined) and those of coping with external environmental challenges (combined) is evident, with a correlation coefficient of 0.79 at a significance level of 0.01. These results indicate the significance and strength of the relationship between the study variables, suggesting that the dimensions of entrepreneurial awareness have the ability to interpret the dimensions of coping with external environmental challenges. This confirms the acceptance of the first primary hypothesis, which posits a significant correlation between entrepreneurial awareness and coping with external environmental challenges at the overall level and in terms of their dimensions in the studied organizations.

b. Analyzing the correlation between the dimensions of entrepreneurial awareness (individual) and coping with external environmental challenges (combined): This analysis assesses the subsidiary hypothesis derived from the first primary hypothesis, indicating a statistically significant relationship between the dimensions of entrepreneurial awareness (individual) and coping with external environmental challenges (combined) in studied organizations. As demonstrated by the data in Table 1, there are statistically significant relationships between the dimensions of entrepreneurial awareness (individual) and those of coping with external environmental challenges (combined), as follows:

1. A statistically significant correlation has been established the dimension of “survey and research” as one of the dimensions of entrepreneurial awareness and coping with external environmental challenges in studied organizations, with a correlation coefficient of 0.676 at a significance level of 0.01.

2. A significant statistical relationship is evident between the dimension of “collaboration and communication” as one of the dimensions of entrepreneurial awareness and coping with external environmental challenges in the studied organizations, with a correlation coefficient of 0.780 at a significance level of 0.01.

3. A significant statistical relationship is evident between the dimension of “evaluation and judgment” and coping with external environmental challenges, with a correlation coefficient of 0.721 at a significance level of 0.01.

These results from the aforementioned correlation analysis indicate the capability of individual dimensions of entrepreneurial awareness in interpreting coping with external environmental challenges and predicting them. This further confirms the acceptance of the subsidiary hypothesis derived from the first primary hypothesis, which postulates a statistically significant correlation between individual dimensions of entrepreneurial awareness and coping with external environmental challenges in the studied organizations.

Table 1: Results of Correlations Between Individual Dimensions of Entrepreneurial awareness and Coping with External Environmental Challenges (Combined).

Independent variable Dependent variable	Dimensions of entrepreneurial awareness			Overall Index
	Evaluation and judgment	Collaboration and communication	Survey and research	
Addressing the challenges of the external environment	**0.721	**0.780	**0.676	**0.79

Source: Prepared by the researcher based on SPSS program results. ** $p \leq 0.01$ n=85

Secondly: Analysis of the Nature of the Relationship of Influence Between the Study Variables

This section includes testing the nature of the influence relationships between the main study variables, encompassing “entrepreneurial awareness and coping with external environmental challenges,” as well as their respective sub-dimensions. The verification of their validity relies on the simple regression coefficient, as follows:

A. Analysis of the nature of the influence relationship of the combined dimensions of entrepreneurial awareness on coping with external environmental challenges in studied organizations.

The content of this relationship represents the testing of the second primary hypothesis, which asserts the existence of a statistically significant influence of the combined dimensions of entrepreneurial awareness on the combined dimensions of coping with external environmental challenges. As evidenced by Table 2, the significance level is equal to 0.000, which is less than the assumed significance level of the study (0.01). This suggests a significant influence of the dimensions of entrepreneurial awareness on coping with external environmental challenges. These dimensions explain 61% of the total variations in coping with external environmental challenges in the studied organizations, as indicated by the coefficient of determination (R^2). Its significance is supported by the calculated F-value, which is 133.862, exceeding the tabular value of 6.96 at degrees of freedom (1.83) and a significance level of 0.01. The remaining 39% can be attributed to other uncontrollable variables or variables not included in the study design. The regression coefficient Beta (β) is 0.79, and its significance is indicated by the calculated t-value of 11.570, which is greater than the tabular value of 2.37 at a significance level of 0.01. This suggests that a one-unit change in the dimensions of entrepreneurial awareness leads to a 0.79 change in coping with external environmental challenges in the studied organizations.

Based on the foregoing, it can be indicated that organizations under study should adopt coping with external environmental challenges. Their leadership should embrace the dimensions representing entrepreneurial awareness, including “survey and research, collaboration and communication, evaluation and judgment.” The adoption of these dimensions and their proper utilization would enable them to cope with external environmental challenges. Consequently, the acceptance of the second primary study hypothesis, which posits a statistically significant influence of the combined dimensions of entrepreneurial awareness on the combined dimensions of coping with external environmental challenges, is supported.

Table 2: Influence of the Combined Dimensions of Entrepreneurial Awareness on the Combined Dimensions of Coping with External Environmental Challenges.

Independent variable	Dimension of Entrepreneurial awareness				
Analysis data Dependent variable	F	R2	B	B0	T
Addressing the challenges of the external environment (total index)	133.86 2**	0.61	0.79	1.087	11.570**

n=85 **p<0.01 t=2.37 f= 6.96 df= 1.83

Source: Prepared by the researcher based on SPSS results.

B. Analysis of the Influence Relationships of Individual Dimensions of Entrepreneurial Awareness on Coping with External Environmental Challenges in the Studied Organizations.

This analysis leads to the testing of the subsidiary hypothesis derived from the second primary hypothesis, which asserts the existence of a statistically significant correlation for the individual dimensions of entrepreneurial awareness, represented by "survey and research, collaboration and communication, evaluation and judgment," on the dimensions of coping with external environmental challenges (combined) in the studied organizations. The data in Table 3 reveal the following:

1) There exists a statistically significant influence of the dimension of "survey and research" on coping with external environmental challenges in the studied organizations. This dimension explains 45% of the total variations in coping with external environmental challenges, as indicated by the coefficient of determination (R^2). Its significance is supported by the computed F-value, which is 70.011, surpassing the tabular value of 6.96 at degrees of freedom (1.83) and a significance level of 0.01. The remaining 55% of variations can be attributed to other uncontrollable variables or variables not included in the study design. The regression coefficient (Beta, β) suggests that a one-unit change in the "survey and research" dimension leads to a 0.68 change in coping with external environmental challenges in the studied organizations, which is significant, as indicated by the computed t-value of 8.367 compared to the tabular value of 2.37 at a significance level of 0.01.

These results explain the significant influence of the "survey and research" dimension on coping with external environmental challenges. Organizations under study have the capability to cope with external environmental challenges by adopting entrepreneurial practices that emphasize survey and research. This suggests that coping with external environmental challenges is contingent upon the organization's leaders embracing survey and research practices. This involves securing information by observing events in the external environment and conducting environmental analysis to identify strengths and weaknesses, monitor opportunities, and employing techniques to support their objectives, all while interacting with relevant stakeholders in their operational environment. This process aims to foster intellectual exchange between employees and the external environment.

2) The discernible presence of a statistically significant influence pertaining to collaboration and communication in dealing with the external environmental challenges faced by the organizations under examination is evident. The coefficient of determination (R^2) indicates that approximately half (50%) of the overall variances observed in how these organizations address external environmental challenges can be attributed to the dimension of collaboration and communication. This is substantiated by the notably

significant value of (F), calculated at 83.406, which surpasses the critical threshold of 6.96 at a significance level of 0.01, while considering degrees of freedom (1, 83). The remaining 50% of these variances is ascribed to other factors beyond control or not accounted for in the study's design.

Furthermore, the regression coefficient (Beta) suggests that a change of one unit in the dimension of collaboration and communication corresponds to an alteration of 0.71 in the manner these organizations address external environmental challenges. This change is statistically significant, as signified by the (t) value of 9.133, which exceeds the critical value of 2.37 at a significance level of 0.01.

These findings underscore the dependency of how organizations under scrutiny address external environmental challenges on the active cultivation of collaboration and communication. This dependency revolves around the capacity of their leadership to facilitate collaboration and communication by leveraging their communication resources to secure cohesiveness among their workforce. It also entails the adoption of a diplomatic approach to facilitate communication among their employees, which includes face-to-face meetings to delineate areas of support. Furthermore, it involves harnessing their capabilities to bridge any gaps among employees within their environment and actively working towards reinforcing values and standards that promote instances of cooperation among the relevant stakeholders within the organization.

3) The results indicate a statistically significant impact of the evaluation and judgment aspect on how the researched organizations address external environmental challenges. This is demonstrated by the coefficient of determination (R^2), which reveals that this aspect contributes to roughly 51% of the variations in how these organizations handle external environmental challenges. Additionally, the significance of this influence is reinforced by the calculated value of (F), standing at 89.981, surpassing the tabulated value of 6.96 with degrees of freedom (1, 83) and a significance level of 0.01. The remaining 49% of these variations can be attributed to uncontrollable variables or unaccounted aspects within the study's framework.

Moreover, the regression coefficient (Beta) suggests that a one-unit change in the evaluation and judgment aspect leads to a change of 0.72 in how the studied organizations manage external environmental challenges. This change is statistically significant, as evidenced by the (t) value of 9.486, exceeding the tabulated value of 2.37 at a significance level of 0.01.

These findings underscore a significant effect of the evaluation and judgment dimension in dealing with external environmental challenges. In essence, the ability of these organizations to address such challenges relies on their leadership's capacity to assess and pass judgment by utilizing information from their surroundings. These assessments are done collaboratively with employees to ensure informed judgments regarding service quality, comparison of available options using objective criteria, diagnosing efforts aimed at adapting to the external environment, and addressing evaluation results for the benefit of service recipients. This process also involves identifying strengths and weaknesses.

Given the established relationships between the primary and subsidiary study variables, affirming a statistically significant impact between the dimensions of entrepreneurial awareness (individually) and addressing external environmental challenges (collectively) in the researched organizations, we can accept the subsidiary hypothesis stemming from the second primary hypothesis.

Table 3: Impact of Individual Entrepreneurial Awareness Dimensions on Collective Handling of External Environmental Challenges.

Dependent variable		Addressing the challenges of the external environment				
Analysis data		T	F	R2	B	B0
Independent variable						
Dimensions of entrepreneurial awareness	Survey and research	8.367	70.011	0.45	0.68	1.547
	Collaboration and communication	9.133	83.406	0.50	0.71	1.721
	Evaluation and judgment	9.486	89.981	0.51	0.72	1.633

n=85 **p<0.01 t=2.37 f= 6.96 df = 1.83

Source: Compiled by the researcher based on the outcomes derived from SPSS.

4. Conclusions and Recommendations

4.1 Conclusions:

The study offers a series of conclusions based on the amalgamation of theoretical and empirical facets. These conclusions are as follows:

1. There exists a prevailing consensus regarding the categorization of dimensions characterizing entrepreneurial awareness, encompassing survey and research, collaboration and communication, and evaluation and judgment. These dimensions represent widely accepted constructs and have consistently garnered attention from scholars investigating entrepreneurial awareness. Consequently, these dimensions were judiciously employed within the scope of the current study.

2. Entrepreneurial awareness demonstrates a constructive correlation with its constituent dimensions when considered collectively in the context of addressing external environmental challenges. This relationship underscores the prescient capability of these dimensions in forecasting the addressing of external environmental challenges. As a result, the ensuing conclusions are drawn:

A. A proportional relationship is observable between the survey and research dimension and the capacity to address external environmental challenges within the organizations under scrutiny. This implies that the acumen of organizational leaders in conducting surveys and research, thereby discerning changes often overlooked by others, and subsequently responding to them in an apt manner, significantly contributes to the effective addressing of these challenges.

B. A congruent correlation can be discerned between the ability of leaders in researched organizations to foster collaboration and effective communication, and their utilization of these capacities in the context of addressing external environmental challenges. The facilitation of emotional cohesion and alignment among employees plays a pivotal role in augmenting the addressing of these challenges within the organizations under examination.

C. The dimension of evaluation and judgment is intricately associated with the addressing of external environmental challenges within researched organizations. This is rooted in the pivotal role of leaders in adeptly assimilating information derived from their environment and subsequently rendering informed judgments.

3. The addressing of external environmental challenges is intricately interwoven with the dimensions encapsulating entrepreneurial awareness. This emphasizes that the efficacy of addressing external environmental challenges draws its sustenance from the presence of dimensions that encapsulate entrepreneurial awareness.

4. The addressing of external environmental challenges is significantly influenced by the dimensions that encapsulate entrepreneurial awareness within the researched organizations, leading to the following conclusions:

The addressing of external environmental challenges in the researched organizations hinges on the extent of possessing the dimension of survey and research, coupled with the changes occurring in the external environment. The more these organizations' leaders possess indicators representing this dimension, the more effectively they can contain external environmental challenges.

The effectiveness of addressing external environmental challenges depends on the capability of the leaders of researched organizations to harness collaboration and communication. The strategic utilization of this dimension, facilitated by these leaders, contributes significantly to enhancing the addressing of external environmental challenges.

The effectiveness of evaluation and judgment, being one of the critical dimensions of entrepreneurial awareness in addressing external environmental challenges for the researched organizations, plays a pivotal role in diagnosing efforts aimed at adapting to the external environment. It also leverages evaluation results for the benefit of service recipients, identifies strengths and weaknesses, and thereby contributes to addressing external environmental challenges effectively.

4.2 Recommendations:

The study offers a series of recommendations based on the conclusions reached, as follows:

1. Emphasising the importance of entrepreneurial awareness and working towards acquiring and applying its constituent dimensions to ensure the effective addressing of external environmental challenges.
2. Enhancing the awareness of leaders in researched organizations and augmenting their capacity to understand and employ the variables of entrepreneurial awareness in addressing external environmental challenges through their participation in seminars and dedicated discussions in this field.
3. Advocating for the increased capability of researched organizations in devising solutions for issues that may arise during the process of addressing external environmental challenges. This can be achieved through various measures, including those related to aligning with contemporary technologies, addressing social challenges, and confronting competitive challenges, coupled with the ability to mitigate customer challenges and adapt to legal regulations.

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