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**THE EFFECT OF PERCEIVED RESEARCH
CAPACITY ON RESEARCH CULTURE: A CASE
STUDY OF RESEARCH CENTERS IN IRAQ**

Zahraa Jaafar Sahib SAHIB

Master's Thesis

Supervisor

Asst. Prof. Dr. Özgül ÖZKOÇ

İstanbul, 2025

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I hereby declare that all information/data presented in this thesis has been obtained in full accordance with academic rules and ethical conduct. I also declare that all unoriginal materials and conclusions have been cited in the text, and that all references mentioned in the Reference List have been cited in the text, and vice versa, as required by the aforementioned rules and conduct.

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DEDICATION

I would like to dedicate this thesis to my respected supervisor, Asst. Prof. Dr. ÖZGÜL ÖZKOÇ for her support, advice, and direction during research, and for making a significant contribution by providing valuable ideas and guidance to this work. Also, I want to place on record my hearty thanks to all members of the Altınbaş University. Heartfelt thanks to my family and special friends for being very supportive in every way. Their support is the force that enabled me to keep trying when pursuing all sorts of goals.



ABSTRACT

THE EFFECT OF PERCEIVED RESEARCHRCH CAPACITY ON RESEARCH CULTURE: A CASE STUDY OF RESEARCH CENTERS IN IRAQ

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The research explores the connection between Perceived Research Capacity (PRC) and Research Culture (RC) in Iraqi institutions of higher learning and research. In the understanding of the importance of research in national development, this study examines how the views of the researchers about their personal, group, and organizational skills affect the situation in the whole research.

A cross-sectional survey design, employing quantitative methods, was used to collect data from 100 researchers working in two selected research organizations in Iraq. Three dimensions of perceived research capacity, including organizational, team, and individual, and their relationship with research culture indicators, namely, collaboration, innovation, ethics, and institutional support were measured using a structured questionnaire. Data were evaluated by descriptive statistics, Pearson correlation and multiple regression analysis using SPSS.

Findings indicated that perceived research capacity and research culture were significantly positively correlated which shows that those researchers who feel they have more capacity in their respective institutions also have found themselves in a supportive and productive research culture. The interrelationship between the three dimensions produced organization capacity as the most potent predictor of research culture, then team capacity and individual competence. These results highlight institutional changes, infrastructure investment, and the formulation of enabling policies that support researchers' perceived capacities are needed.

The paper concludes that a sustainable and ethical research culture can be promoted by strengthening the perceived research capacity even in resource-limited and post-conflict environments such as Iraq. The results offer practical information to policymakers, academic leaders, and development partners who would wish to enhance research ecosystems in developing settings.

Keywords: Research Culture, Research Capabilities, Organizational Capabilities, Iraqi Center, Individual Capacity, Team Capacity.



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ABBREVIATIONS

PRC : Perceived Research Capacity

RC : Research Capacity



LIST OF SYMBOLS

α : Internal Reliability Coefficient Consistency

p : Significance Level

r : Cronbach's Alpha

SD : Standard Deviation



1. INTRODUCTION

Research culture and skills are becoming a source of institutional success and national development in the knowledge economy, where global competition is the order of the day. (Cooke, 2005) has come up with the capacity of individuals and teams to carry out research that is of a high quality with adequate tools, facilities, expertise, and an enabling environment as research capacity. Contrary to this, Alperin et al stated that research culture is a compilation of beliefs, practices, actions, and attitudes that define the prioritization, practice, and perception of research in an organization (Alperin et al, 2019). The experience of the interaction of these two dimensions is particularly critical in developing countries, as in most cases, research institutes in the developing countries experience diverse issues that include: low funding, poor infrastructure, brain drain and instability of the institution.

The higher education and research sector of the country is highly affected by decades of political instability, economic sanctions, conflict, and continuous reconstruction (UNESCO, 2021). The context in which Iraqi research institutions perform their research is that of poor funding, security issues, and opposing political interests. Despite the serious obstacle to consider, the academic leaders and legislators now realize that the future of the nation, economic diversification, and the social advancement of the citizenry are based on the cultivation of a robust research culture and the expansion of research capability (World Bank, 2019).

Recent attempts by the Iraqi government and donors to reconstruct research facilities and institutional capacities have contributed to the holistic approach to consider the factors that affect the context of research. To ensure that capacity-building investments can produce the greatest effect possible, institutional leaders and policymakers need a greater insight into how researchers perceive their abilities and how such perceptions affect the overall research culture.

Although the importance of research capacity and research culture in institutional performance is being increasingly acknowledged, little empirical evidence exists regarding how these factors are related to one another, especially under difficult conditions such as in Iraq. Although the international literature has independently highlighted the importance of building research capacity and the nature and characteristics of constructive research

cultures, there are few studies that have systematically examined the impact of perceived research capacity on research culture in developing country settings.

The lack of factual substantiation creates a host of real-world problems. First, institutional leaders may spend limited resources on the wrong areas of research capacity if they fail to understand the areas of research capacity that impact research culture the most. Secondly, capacity problems, which are the most important, can't be fixed if reform efforts are not founded on the realities of the current situation. Third, if a researcher's perceived ability is perceived as inconsistent with society's cultural norms, the researcher may feel frustrated, and their motivation may also decrease.

This problem is more serious for Iraqi research institutions. In the absence of adequate empirical information to support their assertions, policymakers and institutional leaders are forced to make tough decisions about resource distribution and strategic priorities. Should resources be spent on infrastructure upgrades, building a team, or personnel training? How do researchers' views on the available capacity affect their willingness to take part in research? Which capacity factors are most highly correlated with positive research culture indicators? In the case of Iraq, these questions remain poorly answered.

This paper fills these gaps by carrying out an in-depth analysis of the relationship between research culture and perceived research capacity in Iraqi research institutions. The ultimate goal of the investigation is to generate empirical data that would be relevant to this situation, thus providing information that will be useful in enhancing the research ecosystems in Iraq and possibly other developing countries facing the same type of issues.

2. GENERAL INFORMATION

This chapter offers a methodical analysis of current research capacity, research culture, and how the two interact with one another. The study is organized in the following manner, being organized according to the key concept areas that are critical in the current study. It starts with a theoretical study of frameworks that contribute to understanding research capacity, like models that distinguish individual, team, and organizational levels. Secondly, it examines the research culture itself and its aspects, measurement procedures, and its effects on research results. Third, it touches on empirical findings on capacity-culture relationships. Fourth, it is written about the particularities of the research in Iraq and the Middle East. Lastly, it determines the deficiency of knowledge in the current body of knowledge that the research aims to address.

The study is a synthesis of the results of studies carried out in a similar situation, including other Middle East countries, the post-conflict environment, and developing countries in general, due to the lack of research on Iraq.

2.1 RESEARCH CAPACITY

Research capacity has taken center stage in the higher education and research policy discussion over the last three decades; however, it has a slightly different definition with respect to disciplines and contexts (Pager et al., 2012). Perceived research capacity (PRC) is subjective ratings and perceptions of researchers about the presence and adequacy of the research resources, support, and enabling conditions at organizational, team, and individual levels. Initial research traditionally paid much attention to competencies and skills of a single researcher, and this was a human capital approach that viewed research capacity as an inherent individual characteristic (Nchinda, 2002).

Modern research appreciates the fact that research capacity is a multidimensional concept that involves individual, team, and organizational aspects. (Mills, 2022)

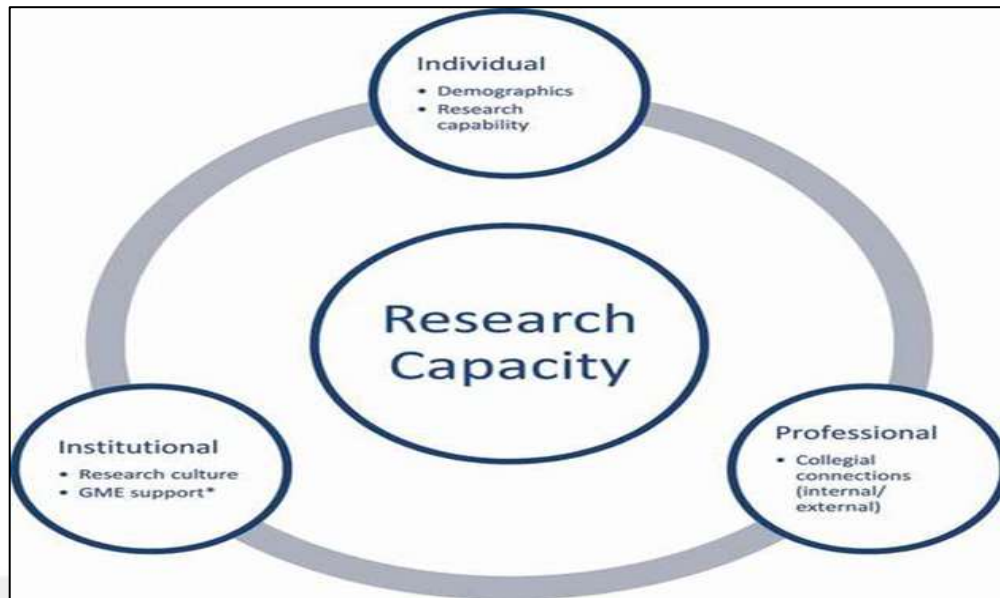


Figure 2.1: Three Dimensions for Research Capacity.

2.1.1 Capacity on Organizational Level

Organizational Research Capacity refers to the policies, supportive networks, infrastructure, and resources that support research. It is comprised of senior management commitment, administrative, research policies, financial mechanisms, and physical infrastructure. The ability of organizations to support research activities through organizational processes, organizational structure, organizational resources, and organizational policies is known as organizational research capacity (Brew et al., 2016). These include:

- a. Physical infrastructure, including libraries, laboratories, and information technology systems.
- b. Finance systems, such as access of external grants and core institutional funding.
- c. Personnel, which includes the number and quality of research and support personnel.
- d. Governance policies, such as leadership dedication to research, regulation, and conventional practice.

Research is made possible through organizational capabilities. Besides material resources, successful research organizations also offer ethical management, quality control processes, strategic plan and recognition schemes that support and steer research activities (Hanney et al., 2013).

Developing organizational capacity would be of special concern in the environment of resources scarcity and third-world conditions. According to Boshoff and Mouton (2021), the African research facilities often must face poor infrastructure, lack of access to global knowledge platforms, out-flight of well-trained scientists as well as conflicting institutional agendas that can result in a situation whereby research objectives are compromised.

2.1.2 Capacity on Team Level

Team research capacity is the capability of research teams or groups to act together and share information, counsel each other, and access resources. It involves problem-solving skills, peer support, knowledge exchange, as well as collaboration. The competence in research on the team level has increased as the collaborative and interdisciplinary research has increased (Bammer, 2008). The relationship between the individual competencies and organizational conditions is represented in meso-level structures like research teams. Effective research teams harness complementary expertise, combine resources and knowledge, offer mentoring and support, and generate synergies with cooperation that is greater than the total sum of individual capacity (Hall et al., 2018).

Team science refers to the research approaches that combine people with various disciplines together to solve complicated issues (Bennett and Gadlin, 2012). Team capability includes not only task-related aspects, i.e., the presence of complementary skills, well-defined roles and good coordination mechanisms, but also socio-emotional ones, which are reflected in psychological safety, trust, and shared values.

2.1.3 Capacity on Individual Level

Individual research capacities refer to individual aptitudes, expertise, abilities, motivation, and self-efficacy that help the researcher to develop high-quality research. Individual research capacity is personal knowledge, skills, abilities, and attributes that help researchers to act (Luckson et al., 2019). This includes:

- a. Ability in technical research (data analysis, writing, methodological techniques).
- b. Wide knowledge in the related areas.
- c. Personal qualities: self-confidence, persistence and intrinsic motivation.
- d. Expert skills in networking, writing grants, and administration of projects.

This social cognitive theory proposed by Bandura (1997) and specifically the concept of self-efficacy can be used to explain the capacity of individual research in a very useful framework. Research self-efficacy refers to the belief that researchers have on their capability to perform research functions in time and produce meaningful outcomes. The self-efficacy of researchers to conduct research is directly related to the level of research self-efficacy, which is positively associated with research productivity, ability to endure disappointments, and the desire to undertake ambitious projects (Forester et al., 2004).

Regardless, the models in place now admit the fact that research capacity functions simultaneously on organizational, team, and individual levels with complicated interactions between these levels (Pager et al., 2012). Organizational capability gives individuals and teams the necessary resources and tools to discharge their duties. Team capacity mediates organizational resources and individual performance. It is therefore the integration of individual competencies that result in team and organizational competence.

2.2 RESEARCH CULTURE

The culture of research (RC) of an organization would be described as the shared values, customs, beliefs, practices, and attitudes that inform the perception, judgment, and implementation of research (Alperin et al., 2019). The importance of research culture to the determination of research quality, integrity, and productivity is a phenomenon that has received growing academic interest. Although the concept of organizational culture has been studied thoroughly in management literature, the phenomenon of research culture is quite young (Cronin, 2021).

The environment of research is determined by various and multifunctional elements. (Alperin et al. 2019) list several essential features:

- a. Collaboration and Openness: How much the researchers develop cooperation, not competition, relationships, exchange data, knowledge, and resources.
- b. Integrity and Ethics: Compliance with ethical principles of research, truthfulness, and transparency.
- c. Recognition and Support: It is the provision of support and recognition of the efforts of the researchers.

- d. Innovation and Risk-Taking: Receptive to new ideas, methods, and interdisciplinary work along with the readiness to take risks and recognize failure as a natural outcome of the research process.

(Welcome Trust, 2020) framework also focuses on other features, including work-life balance, career development opportunities, psychological safety and wellbeing, and diversity and inclusion. These categories recognize that the research culture has both the task-oriented aspects and the social-emotional aspect of research.

In evaluating research culture, methodological problems are experienced due to the fact that it covers both observable behaviors and attitudes and beliefs (Schein, 2010). The popular appraisal technique consists of:

- a. Surveys that obtain the opinion of the scholars about certain cultural features.
- b. Qualitative techniques (focus groups, interviews) that discuss cultural norms in detail.
- c. The researchers observe the practice and interaction of ethnographers.
- d. Review of documents as a measure of institutional policy and communications.

Quantitative survey methods make it easy to collect data systematically among the large population and allow statistical analyses. Social desirability can however bias surveys and it can only capture superficial expressions of culture. Combined quantitative and qualitative data is thus a common recommendation when it comes to wholesome cultural evaluation (Creswell and Plano Clark, 2017).

There is a growing amount of empirical evidence that suggests that research culture has a significant impact on research results. In organizations that have a positive culture, researchers have also cited that job satisfaction is higher, research output is increased, and turnover intentions are low (Van Noorden, 2015). An effective research culture is linked with:

- a. Higher research quality.
- b. Improved innovation and creativity.
- c. Better research integrity and morality.
- d. Increased communication and cooperation.
- e. Retention and wellbeing of the researcher is better (Vitae, 2020)

On the other hand, the lack or poisonous research conditions may lead to adverse outcomes. According to Baker (2016), intense competition can cause unethical behaviors, less sharing

of information, and psychological problems. In societies where publishing quantity is more important than quality, the researchers can be motivated to work fast or in a negligent way.

2.3 CAPACITY AND CULTURE RELATIONSHIP

Even though research culture and research capacity have been separately studied, there has been little research that directly examines the relationship between the two. Theoretically, culture and capacity reinforce each other, whereby research capacity, i.e., the personnel and resources, are required to implement cultural practices, and research culture impacts the use of capacity, i. e. acquisition of skills, maintenance of infrastructure, and sharing or hoarding of resources.

2.3.1 Previous Studies Related to the Research Topic

Table 2.1: Previous Studies.

Authors Study Title	year	Study Type	Key Findings	Impact of Study on Current Study
Research practice, satisfaction, motivation and challenges of academics at universities in Kurdistan Region of Iraq	2024	Quantitative Survey	Most academics perceived research as a part of their work and did not have any support for it (62.8% cited lack of funding); almost half of them had never been trained in writing research proposals.	Conducted in Iraq; deals with research culture and motivational factors like research centres.
Current status and perceived challenges of collaborative research in a leading pharmacy college in Iraq: a qualitative study	2025	Qualitative (Interviews)	Challenges in workload, limited resources, and administrative barriers to collaboration.	Focuses on collaborative research as an important component of research culture and institutional capacity.

Table 2.1: Previous Studies “Table Continued”.

Evaluation of the research capacity and culture of allied health professionals in a large regional public health service	2019	Quantitative Survey	Reported moderate levels of research capacity and culture; levels of support provided by the organisation were higher than levels of support by the team and/or individual.	Shares similar constructs: research capacity, research culture; Strong conceptual references.
Research capacity building frameworks for allied health professionals - a systematic review	2018	Systematic Review	Developed a framework identifying leadership, collaboration and evaluation as pillars of a strong research culture.	Provides a theoretical base for the connection of perceived research capacity to research culture development.
Building Research Capacity in Higher Education: Exploring Confidence as a Mediator of Contextual Support and Research Interest	2025	Quantitative	Showed that research confidence mediates the relationship between contextual support and research engagement.	Directly relates to perceived research capacity; psychological and environmental effects on research culture.

Resource-Based Theory of strategic management (Barney, 1991) provides a concept of analyzing the capacity culture nexus. It assumes that organizational resources and capabilities, such as culture, are a source of competitive advantage; culture supports the activities of culture and therefore the accuracy of resource utilization is driven by culture.

Another lens that is relevant to this study is the institutional theory that focuses on the influence of external institutional environments on organizational cultures, practices, and structures (Scott, 2014). References T institutional pressures can lead to the adoption of certain capacity-building programs and cultural practices, but they can also lead to symbolic adoption without change, i.e. decoupling (DiMaggio and Powell, 1983).

The theory of social capital explains the team and network aspects of capacity and culture (Coleman, 1988). Research capacity entails networks that encourage cooperation and exchange of knowledge, interpersonal relationships, and trust as well as material resources. Research culture is made up of norms and practices that either consolidate or dilute social capital.

There is a paucity of empirical data on the relationships between capacity and culture. However, several relevant findings are obtained:

Brew et al. (2016) identified a relationship between organizational research infrastructure and support with a closer research culture in Australian institutions, which proposed that organizational capacity does support cultural behaviors.

Franzen et al. (2017) studied the role of research capacity development in low- and middle-income nations and found out that effective programs focused on both tangible elements of capacity and culture, such as the development of trust, promotion of collaborative norms, and enabling environments.

Pham et al. (2020) found that there existed a positive relationship between perceived resources and support and higher research participation and output in Vietnamese institutions; the researchers have indicated that the collaborative cultures and collegial relationships helped to make the connection between individual outcomes and organizational support.

2.3.2 The Previous Study Gaps

Despite the increasing awareness about the importance of culture and capacity, some gaps remain:

- a. Most empirical data is developed in centralized settings, especially Western Europe, North America, and Australia, and there are little data on the developing countries, in particular, the Middle East and post-conflict contexts.
- b. Studies of the relationship between capacity and culture are not common.
- c. Multilevel interactions of culture and capacity are often not considered.
- d. Directionality between culture and capacity there is ambiguity in directionality in that cross-sectional designs are incapable of determining a causal order.

- e. Minimal research has explored the possibilities of moderating factors to strengthen or dilute capacity-culture interactions.

To counter such gaps, this study uses quantitative research design, which allows testing of hypotheses and aims at explaining the correlation between the research culture in Iraq and the research capacity at multi-levels.

Although there are independent studies on both capacity and culture, there is a lack of research in the literature that critically looks at the relationship between the two. Culture and capacity should reinforce each other theoretically: research capacity provides the staff and means required to implement certain cultural practices, whereas the research culture affects the distribution of resources, Skill learning, maintenance of infrastructure, and whether to share or hoard resources.

A useful theory on the capacity-culture nexus is the Resource-Based Theory of strategic management (Barney, 1991). It assumes competitive advantage to be based on organizational resources and capabilities, and culture is one of the keys subsumes. Cultural action is facilitated by resources, but resource utilization depends on the cultural circumstances.

Institutional theory is another source of insight, which focuses on the impact of external institutional forces on organizational cultures, practices, and structures (Scott, 2014). Institutional forces can lead to the adoption of capacity-building efforts and cultural practices, although symbolic compliance can take place in the absence of substantive cultural change, which is known as decoupling (DiMaggio and Powell, 1983).

The social capital theory sheds light on the capacities and cultural network elements (Coleman, 1988). Research capability entails networks, which aid in cooperation and exchange of knowledge, interpersonal links and trust as well as material resources. Research culture is the number of norms and practices that bring about or decay social capital.

There is very little direct empirical evidence related to the correlation between capacity and culture, but several findings are worth mentioning:

Brew et al. (2016) also noted that the more collaborative research cultures were in Australian institutions linked to organizational research infrastructure and support, which support cultural behaviours.

Franzen et al. (2017) analyzed the concept of capacity-development in the low-and-middle-income countries and determined that the successful programs showed both the tangible aspects of capacity-building and the cultural factors, such as the development of trust, encouragement of collaborative norms, and conducive environments.

Pham et al. (2020) established a positive association between the perceived resources and perceived support among the researchers and the research engagement and research output in Vietnamese institutions. This research revealed that the relationship between personal performance and organizational support was mediated by collaborative cultures and collegial relationships.

Regardless of the increased recognition of the role of culture and capacity, there are several gaps:

- a. Most studies are based in developed areas and specifically Western Europe, North America, and Australia and there is a lack of evidence in developing situations, especially the Middle East and post-conflict environments.
- b. Not many studies have made a concentrated analysis of how capacity and culture are mutually enforced.
- c. The aspects of culture and capacity are not always multilevel and are neglected in analyses.
- d. It is unclear whether capacity-culture relationships are directional, as cross-sectional designs can be restricted from determining causal precedence.
- e. The research is limited to factors that may moderate the interaction between capacity and culture, either intensifying or diluting them.

To overcome these gaps, the current study will pursue a quantitative approach that will allow testing the hypothesis to investigate the relationships between the research culture and the multi-level research capability in Iraq.

2.4 MIDDLE EAST AND IRAQI RESEARCH

For a clear understanding of the research results, it is essential to be aware of the specific research environment in Iraq and the Middle East as a whole. Historical, political, economic, and cultural factors influence the development of research capacity and culture in institutions in Iraq.

The intellectual tradition of Iraq is long: ancient Mesopotamian nations made their contribution in the fields of mathematics, astronomy, law, and literature (Sassoon, 2012). The universities of modern Iraq were established in the early-to-mid 20th Century, and they were the center of Arab intellectual life.

In the 1970s, the government expenditure and the income of hydrocarbons helped Iraqi higher education and research to flourish (Al-Tikriti, 2019). Later wars, including the Gulf War (1991), Iran-Iraq War (1980-1988), sanctions (1990-2003), the 2003 invasion, the emergence of ISIS (2014-2017) and political instability have made things worse.

The Iraqi research institutes are facing a set of problems that are interrelated:

- a. Infrastructure shortage: run-down or dysfunctional facilities, poor utility infrastructures, under-equipped laboratories, and restricted library services (Al-Zubaidi and Al-Khafaji, 2020).
- b. Problems with human resources: since 2003, it has been experiencing a problem of brain drain, lack of professional development opportunities, and excessive teaching workloads that hinder research (Younis et al., 2021).
- c. Funding constraints: the Ministry of Higher Education and Scientific Research Iraq (2018) indicates that the private sector is underinvested, the government does not fund research and has challenges in obtaining foreign grants.
- d. Security and political issues: unstable political environments, a high number of changes in the leadership, and governance problems, including political interference and corruption (Transparency International, 2020).

- a. Irrespective of these challenges, there are some strengths of Iraqi research institutions:

The best examples of perseverance and dedication by researchers (Jawad et al., 2020).

- a. High intellectual identity and cultural education.
- b. There are a lot of possibilities to do research in development, archeology, cultural studies, and conflict studies.
- c. Governmental pledge to capacity building in research in the recent past.
- d. Widening regional associations.
- e. A more educated and motivated population, which provides the potential of an established research work force.

Finally, Perceived research capacity consists of three elements which are interconnected with each other:

- a. Organizational capacity: policies, infrastructure, resources and support systems.
- b. Team capacity: group collaboration is possible with the help of resources, expertise, mutual support and interrelationships.
- c. Personal ability: motivation, self-efficacy, knowledge, and personal talents.

Research culture is a construction that has ingredients which are:

- a. Teamwork and sharing knowledge.
- b. Openness to new ideas and concepts.
- c. Ethics and character.
- d. Support of institutional research.
- e. Awards and recognition.
- f. Mental health and safety.

The framework has shown that research culture has a positive relationship with each of the three levels of perceived research capacity, which is also positively related to a combination of the three levels.

In the Summary The literature review explains theoretical and empirical basis that are applicable in explaining the interrelations between research culture and perceived research capacity. The salient themes upon which the investigation is based are:

- a. Growing awareness that research capacity is a multi-dimensional phenomenon that impacts individual, team and organizational levels and which needs specific support but cannot do without each other.
- b. Culture with its formal institutional policies and informal social norms has significantly influenced the quality, productivity, and integrity of research.
- c. There still exists an unvarying void in the explicit investigation of the relationship between capacity and culture, particularly in non-Western contexts, although they have been analyzed separately.
- d. Despite unique difficulties in the developing countries, brain drain, political unpredictability, and lack of resources, such strong aspects as the local relevance and the resilience of the researcher remain.

It has been noted that Iraqi research institutions have a unique set of problems due to long-term conflict, but recent years represent recent evidence of revived interest in capacity building.

This gap is critical and is filled with the present work:

- a. Empirical studies of capacity-culture associations make little or no use in quantitative methodologies that allow a rigorous statistical analysis.
- b. A dearth of information in Iraq and other Middle East situations.
- c. Not many multilevel methods simultaneously measure an individual, team and organizational capacity.
- d. A paucity of studies has examined the effects of perceptions on capacity culture relationships.
- e. Paucity of real-life information on the nature of capacity characteristics that have the most significant influence on research culture under resource-compromised conditions.

To cover these gaps, the study completes a systematic empirical investigation of the relationships between research culture and perceived research capacity involving research facilities in Iraq using designs that can easily test a hypothesis statistically but consider contextual issues that are specific to the research context of Iraq

3. METHODOLOGY

3.1 THE PURPOSE OF RESEARCH

The primary purpose of this research is to examine and understand the relationship between research capacity and research culture as perceived by scholars, academics, and research support staff working in Iraqi research centers and higher education institutions. Research capacity refers to the ability of individuals, teams, and organizations to plan, conduct, and manage research effectively, while research culture encompasses the norms, practices, values, and support systems that influence research activities within these institutions. By exploring these two constructs, the study aims to provide a systematic and evidence-based assessment of how perceived capacity influences the environment in which research is conducted, and vice versa.

Specifically, the research seeks to assess how organizational, team, and individual dimensions of research capacity interact with the prevailing research culture. The organizational level includes the availability of resources, policies, and administrative research support, the team level reflects the collective skills, collaboration, and mentoring practices within research groups, and the individual level addresses the skills and competencies of researchers themselves. Understanding these dynamics is particularly important in the context of Iraqi research institutions, which face challenges such as limited funding, infrastructural constraints, and post-conflict operational environments.

The study is designed to provide insights that can inform policy and strategic planning in research institutions by identifying areas where capacity can be strengthened, and culture improved to enhance overall research performance. It also aims to support the development of evidence-based interventions by identifying key factors that facilitate or hinder research activities. In addition, the research intends to offer guidance to institutional leaders and policymakers regarding the allocation of resources, training programs, mentorship strategies, and policy frameworks that can foster a more productive and supportive research environment.

Moreover, this research is grounded in a positivist and post-positivist philosophical stance, which asserts that knowledge about research capacity and culture can be objectively measured through well-structured instruments. It treats the perceptions of researchers as

valid empirical data, recognizing that these perceptions reflect both the reality of institutional conditions and the subjective experience of individuals working within these environments. The ultimate purpose, therefore, is not only to map existing conditions but also to provide actionable recommendations for enhancing research outcomes and creating a culture that encourages innovation, collaboration, and excellence.

In essence, this study aims to bridge the gap between perceived research capacity and research culture, enabling Iraqi institutions to make informed decisions that strengthen their research ecosystem, foster talent development, and promote sustainable research practices across diverse organizational and disciplinary contexts.

3.2 THE IMPORTANCE OF RESEARCH

The importance of this research lies in its potential to provide a comprehensive understanding of the dynamics between research capacity and research culture within Iraqi research institutions, which is crucial for developing effective strategies to strengthen academic and scientific productivity. Research capacity and culture are interrelated constructs that directly influence the quality, efficiency, and impact of research activities, yet in many post-conflict and resource-constrained environments like Iraq, systematic empirical evidence regarding these factors is limited. By filling this gap, the study addresses an important need for evidence-based insights that can guide institutional and national-level decision-making.

Firstly, the research is significant because it enables the identification of strengths and weaknesses at organizational, team, and individual levels. At the organizational level, it assesses the availability of funding, infrastructure, administrative support, and policies that foster research. At the team level, it examines the collaborative environment, mentoring opportunities, and resource distribution among research groups. At the individual level, it evaluates researchers' skills, knowledge, and self-perceived ability to conduct high-quality research. This layered understanding allows institutional leaders to implement targeted interventions that enhance both human and institutional capacity.

Secondly, the study contributes to policy formulation and strategic planning by providing quantitative evidence on the correlation between perceived research capacity and the prevailing research culture. The results can inform training programs, mentorship

frameworks, and resource allocation strategies, ensuring that investments in capacity development align with the actual needs and challenges of researchers. Moreover, the research provides a baseline assessment for future longitudinal or experimental studies, enabling institutions to monitor changes over time and evaluate the effectiveness of interventions.

Thirdly, this research is valuable because it focuses on perceptions of researchers, which are critical determinants of motivation, engagement, and productivity. Understanding how researchers perceive their capacity and the cultural environment allows policymakers to design initiatives that resonate with the actual experiences and needs of the academic workforce. The emphasis on perception also aligns with the study's critical realist philosophy, acknowledging that individuals' subjective experiences shape their interaction with objective institutional conditions.

Finally, the research has broader implications beyond Iraq. By systematically documenting the relationship between research capacity and culture in a post-conflict, resource-constrained setting, the study provides insights applicable to similar research environments worldwide. It can inform international collaborations, funding priorities, and capacity-building programs, contributing to the global discourse on enhancing research quality and fostering supportive research cultures.

In summary, the study is important because it offers evidence-based, actionable insights into the interplay between capacity and culture, supports policy and practice improvements, and provides a framework for ongoing research development in Iraqi research institutions and comparable contexts.

The study provides valuable information for a group of different stakeholder groups:

The results are useful for institutional leaders and research centre directors to make informed resource allocation and strategic planning. Understanding the capacity attributes that have the most significant impact on culture enables prioritization of the actions and description of resource demands.

The general research gives empirical data to confirm that the Iraqi Ministry of Higher Education and scientific research needs to develop national research capacity, and

consequently, planning policy makers in designing funding plans and quality assurance programs.

In the case of specific researchers, the results provided offer an insight into factors that can enhance the satisfaction and productivity of work. Having identified the connection between perceived capacity and culture, the researchers will be able to address the problem of institutional barriers to overcome them and facilitate the resources and support required.

The research also offers contextual evidence that could enable the international development agencies to target and execute capacity development programmes of funders operating in Iraq.

Iraq is a perfect demonstration of an institutional reconstruction following a war. Countries undergoing attempts to strengthen their research systems despite a lack of sufficient funding or political transition/reconstruction after the conflict also have some valuable lessons to learn here. These insights can also benefit other new states besides those in the Middle East and North African states.

The research raises awareness of the ideas and knowledge of people from the Global South. The research capacity literature is dominated by the experiences and perspectives of researchers from high-income countries. By focusing on Iraqi scholars' opinions and experiences, this study adds to the body of knowledge and ensures that the beneficiaries of capacity-building are at the helm of the process.

Iraq is an excellent example of the process of reconstruction and reorganization of institutions, which follows a conflict. This situation will give useful experiences to countries that are currently developing their research systems with small funding, undergoing political changes, or still recovering after a conflict. The other developing countries, like the Middle East and North Africa, can learn a lot.

3.3 TYPE OF RESEARCH

This study is quantitative in nature and employs a cross-sectional survey design, which allows the systematic collection and analysis of numerical data to explore the relationship between research capacity and research culture. Quantitative research is appropriate for this study because it enables the measurement of abstract constructions, such as perceived

research capacity at the organizational, team, and individual levels, as well as the broader research culture, using structured instruments. This approach facilitates statistical analysis, hypothesis testing, and generalizable insights, which are central to the objectives of this study.

The cross-sectional design was selected to provide a snapshot of the current state of research capacity and culture among scholars and research staff in Iraqi research institutions. Data were collected at a single point in time, capturing the prevailing conditions and perceptions without tracking changes over a prolonged period. This method is particularly suitable in the context of Iraq due to practical constraints, including limited time, resources, and access, as well as the logistical and political challenges that may make longitudinal or experimental designs difficult to implement.

The research follows a deductive methodology, which begins with a thorough analysis of existing literature and theoretical frameworks on research capacity and culture. Based on these theoretical foundations, the study develops specific hypotheses regarding the expected relationships among organizational, team, and individual research capacities and research culture. Data were then systematically gathered using structured questionnaires to test these hypotheses. The deductive approach ensures that the research is theory-driven, allowing the findings to be interpreted within a well-established conceptual framework and providing a robust basis for policy recommendations and practical interventions.

This study can also be classified as applied research, as it is designed to generate actionable knowledge that can inform decision-making, policy, and practice within Iraqi research institutions. Unlike purely theoretical studies, the research addresses practical challenges, such as resource allocation, skill development, mentorship, and fostering a supportive research environment, which have direct implications for improving research outcomes.

3.4 RESEARCH METHODOLOGY

3.4.1 Research Questions

The primary aim of this study is to explore the relationship between research capacity and research culture as perceived by scholars and research staff in Iraqi research institutions. Based on this aim, the study is guided by the following research questions:

- a. What is the current level of perceived research capacity among researchers in Iraqi academic and research institutions at the organizational, team, and individual levels?
- b. How do researchers perceive the prevailing research culture within their institutions, including aspects such as collaboration, ethical standards, inclusivity, and support for innovation?
- c. What is the nature of the relationship between perceived research capacity and research culture, and how strongly are organizational, team, and individual capacities associated with the overall research culture?
- d. Which dimension of research capacity (organizational, team, or individual) is the most significant predictor of research culture in Iraqi research institutions?

These questions are designed to systematically address the main hypotheses of the study using quantitative data collected from a representative sample of researchers. By answering these questions, the study aims to generate evidence-based insights that can inform policies, strategies, and interventions to strengthen research capacity and foster a positive research culture within Iraqi institutions.

The research questions align with the study's post-positivist and critical realist philosophical stance, recognizing that while objective measurement of research capacity is possible, individuals' perceptions and experiences provide crucial insights into the functioning of research environments. This approach ensures that the study captures both empirical patterns and the subjective realities of researchers, thereby providing a more nuanced understanding of the capacity-culture relationship.

3.4.2 Scope and Limitations of Research

3.4.2.1 Scope of research

This study focuses on scholars, academics, and research support staff working within Iraqi research centers and higher education institutions. The research examines perceived research capacity at three levels: organizational, team, and individual, alongside the research culture within these institutions. The scope also includes examining how these dimensions interact to influence research outcomes, collaboration, innovation, and the broader research environment.

The study is quantitative and cross-sectional, providing a snapshot of the current state of research capacity and culture rather than tracking changes over time. The research draws from active researchers, defined as those regularly engaged in research activities and publications, ensuring that the data reflects the perspectives of individuals who meaningfully contribute to institutional research outputs.

3.4.2.2 Limitations of research

Despite methodological rigor, several limitations are acknowledged:

- a. **Cross-Sectional Design:** The study captures data at a single point in time, which allows for the identification of correlations but does not permit causal inferences between research capacity and research culture. Although predictive relationships are explored via regression analysis, the directionality of effects cannot be definitively established.
- b. **Non-Probability Sampling:** Due to practical constraints, purposive and convenience sampling were used. While this approach facilitated access to relevant participants, it may limit generalizability to the entire Iraqi research population, as self-selection bias might affect representativeness.
- c. **Self-Reported Data:** Data were collected using questionnaires, making the findings susceptible to social desirability bias, recall bias, and common method variance. Measures such as anonymity and standardized instruments were implemented to mitigate these effects.
- d. **Contextual Specificity:** The study was conducted in the unique socio-political and resource-limited context of Iraq, which may limit the transferability of findings to more stable or resource-rich research environments.

3.4.3 Research Model and Hypotheses

3.4.3.1 Research model

The conceptual framework of this study is grounded in the relationship between perceived research capacity and research culture among Iraqi academics and research staff. The model is structured around three key dimensions of research capacity:

- a. Organizational Research Capacity: resources, policies, administrative support, career development opportunities, and institutional infrastructure to facilitate research.
- b. Team Research Capacity: the collective ability of research teams, including collaboration, mentorship, access to expertise, and team-level resources.
- c. Individual Research Skills and Capacity: the knowledge, competencies, and self-reported abilities of researchers to conduct and disseminate research.

The dependent variable is Research Culture, which encompasses perceptions of institutional climate, collaboration, ethics, inclusivity, innovation, and support for research activities. The independent variables are the three dimensions of research capacity.

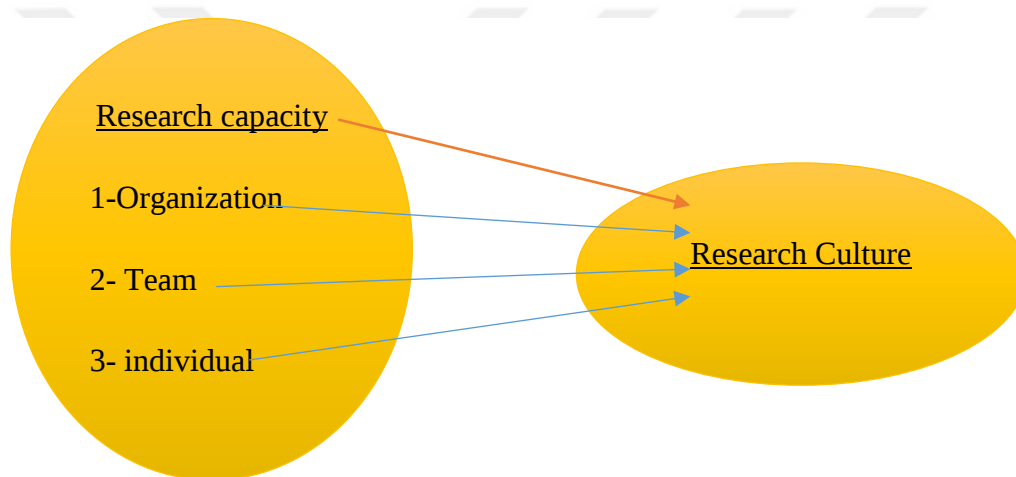


Figure 3.1: Research Model.

3.4.3.2 The research hypothesizes.

H1: Higher organizational research capacity is positively associated with research culture.

H2: Higher team research capacity is positively associated with research culture.

H3: Higher individual research skills and capacity are positively associated with research culture.

H4: Overall perceived research capacity, which combines organizational, team, and individual capacities, significantly predicts research culture in Iraqi research institutions.

This model is consistent with a post-positivist and critical realist approach, acknowledging that while research capacity exists objectively at multiple levels, individual perceptions mediate understanding and experience of the research culture. Statistical analyses, including

correlation and multiple regression, are employed to empirically test these hypotheses and determine the relative contribution of each capacity dimension to the overall research culture.

The model provides a systematic framework for understanding how institutional and individual factors jointly shape research environments, offering practical insights for policymakers and institutional leaders seeking to strengthen research capacity in Iraq.

3.4.4 Research Population and Sample

This research will focus on scholars, academics, and research support staff employed in the two identified research organizations in Iraq as the target population. The selection of these organizations was predetermined by the fact that they are engaged in active research and reflect the institutional research setting in the Iraqi context. The sample will consist of people with diverse career levels, early career researchers, and senior researchers and different fields and research positions across the sampled organizations. Around 250-300 employees work in the two centers (The Iraqi Center for Genetics and Cancer Research) and (The National Center for Hematology Research and Treatment).

Practical limitations, including limited access, time, and resources, made this study employ a non-probability purposive sampling, though with some elements of convenience sampling.

- a. Purposive Sampling: Participants were selected intentionally based on the following criteria:
 - i. Membership in an Iraqi research center or institute.
 - ii. Active engagement in research activities, evidenced by publications, projects, or research responsibilities.
 - iii. At least one year of research experience to ensure sufficient exposure to institutional research culture and capacity.
 - iv. Willingness to participate voluntarily in the survey.
- b. Convenience Sampling: Recruitment leveraged accessible channels, including professional networks, institutional collaborations, social media platforms, and snowball referrals. While convenience sampling may limit generalizability, it was necessary due to the non-availability of formal sampling frames and the challenging research environment (Etikan, Musa, & Alkassim, 2016).

The target sample size was determined using multiple statistical guidelines:

- a. Green (1991): For three independent variables, minimum $N = 50 + 8(3) = 74$.
- b. Tabachnick & Fidell (2013): $N \geq 104 + 3 = 107$.
- c. Cohen (1992): For a medium effect size, approximately 85 participants are needed.

Considering these factors, a sample of 100 participants was obtained, satisfying statistical requirements for multiple regression analysis and ensuring sufficient power to detect medium-to-large effect sizes.

3.4.5 Data Gathering Tool and Method

3.4.5.1 Survey platform

The primary tool for data collection was a self-administered online survey created using Google Forms. This platform was chosen due to its accessibility, ease of use, and multilingual capabilities (Arabic and English). Key advantages included:

- a. No cost to participants or researchers.
- b. Device flexibility, allowing completion on computers, tablets, or smartphones.
- c. Data integrity features, such as limiting multiple submissions from the same device while preserving anonymity.
- d. Automatic compilation of responses, facilitating efficient transfer to Microsoft Excel and subsequently IBM SPSS Statistics Version 28 for analysis.

3.4.5.2 Data collection procedure

Data was gathered over a ten-day period (October 19–28, 2025), ensuring a timely snapshot of participants' perceptions of research capacity and culture. The following steps were employed:

- i. Participant Invitation:
 - a. A survey link (<https://forms.gle/w7Yd4NxUTpcwVhcQ6>) was shared through multiple channels, including institutional contacts, professional networks, social media, and snowball referrals.

- b. Invitations included a description of the research purpose, eligibility criteria, estimated time for completion (15–20 minutes), voluntary participation, and privacy assurances.
- ii. Informed Consent:
 - a. The first page of the survey contained a detailed informed consent statement, outlining the purpose of the research, duration, voluntary participation, anonymity, right to withdraw, and contact details for inquiries.
 - b. Participants had to affirmatively check a box to confirm understanding and consent before accessing the questionnaire.
- iii. Data Collection:
 - a. Participants completed the survey independently, responding to structured questions related to personal and work information, organizational and team research capacity, individual research skills, and research culture.
 - b. Mandatory responses were enforced to prevent missing data for key variables, and responses were automatically encrypted and stored securely on Google Forms.
- iv. Response Rate:

The survey received 145 clicks, and 100 participants completed the survey, resulting in a completion rate of approximately 70%, which is considered high for online surveys (Nulty, 2008).

3.4.5.3 Data security and confidentiality

- a. No personal identifiers (names, emails, IP addresses) were collected.
- b. Data was stored on a password-protected computer accessible only to the principal investigator.
- c. Collected data will be retained securely for five years, after which it will be permanently erased to maintain privacy and compliance with ethical standards.

This method allowed for efficient, standardized, and ethically sound data collection, ensuring high-quality responses suitable for subsequent statistical analysis. The approach

aligns with the study's quantitative, post-positivist design, enabling the collection of robust empirical data on perceptions of research capacity and culture in Iraqi research institutions.

3.4.6 Questionnaire/s Used in Research

3.4.6.1 Preparing the survey process

The primary data collection tool of this study was a self-paced, structured online questionnaire. The questionnaire was designed in a systematic way for validity, reliability, and cultural relevance to Iraqi research.

- a. These PRC items are based on Raschke's research capacity assessment tool (2017), the outcome of a government-funded research capacity building program for the North Coast Local Health District. This instrument has been widely used to assess organizational, team, and individual research potential and it has strong psychometric properties. Future studies, such as Frakking et al. (2018), that used the same measurement method have affirmed its usefulness.
- b. The Research Culture items are from Section 4 of the Culture, Employment and Development in Academic Research Survey (CEDARS) by Vitae (2025). Specifically, this section will discuss institutional research climate, collaboration, inclusion, ethical practices, and support for research in academia.
- c. To accommodate bilingual participants, the questionnaire was translated into Arabic and back into English to ensure conceptual equivalence.
- d. A pilot study was conducted with 15 Iraqi researchers who were not included in the main sample to assess clarity, cultural appropriateness, and estimated completion time (15–20 minutes).
- e. Feedback led to minor modifications in wording, response options, and survey flow.

3.4.6.2 Structure and content

The final questionnaire included six main parts:

- a. Personal and Work Information: Gender, age group, education level, research experience, institutional affiliation, research role, current research involvement, and research provisions.

- b. Organizational Research Capacity (19 items): Assessed perceptions of institutional support, resources, planning, funding, policies, and infrastructure.
- c. Team Research Capacity (19 items): Focused on immediate team-level resources, planning, mentoring, collaboration, and multi-disciplinary support.
- d. Individual Research Skills and Capacity (14 items): Evaluated self-reported ability in literature review, data collection and analysis, ethical compliance, report writing, and mentoring.
- e. Research Culture (12 items): Measured job satisfaction, inclusion, work-life balance, equity, security, openness to innovation, collaboration, voice, and ethics.

3.4.6.3 Response scales

- a. Likert scales (1–5) were used for organizational, team, and culture items: 1 = Strongly Disagree, 5 = Strongly Agree.
- b. Skill self-assessment items also used a 1–5 scale: 1 = No Ability, 5 = Excellent Ability.

3.4.6.4 Validity and reliability

- a. Content validity was ensured through literature review, expert assessment, and pilot testing.
- b. Construct validity was supported by inter-scale correlations and alignment with theoretical frameworks.
- c. Reliability was excellent: Cronbach's α values were 0.947 (organizational), 0.952 (team), 0.934 (individual), 0.918 (culture), and 0.963 overall, surpassing the standard threshold of 0.70 (Nunnally & Bernstein, 1994).

The strong psychometric properties of the questionnaire confirmed its appropriateness for use in the planned correlation and regression analyses, as high reliability and validity minimize measurement error and enhance the accuracy of statistical inference.

3.4.7 Data Analysis Method

The collected data were analyzed using quantitative statistical techniques to address the research questions and test the formulated hypotheses. The data analysis process was carried out in several systematic steps to ensure accuracy, reliability, and validity.

3.4.7.1 Data preparation and screening

- a. Responses were downloaded from Google Forms and imported into IBM SPSS Statistics Version 28.
- b. Data cleaning included checking for completeness, ensuring valid response ranges, and coding categorical variables.
- c. Missing data was minimal due to mandatory responses; non-applicable items were treated accordingly.
- d. Outliers were examined using boxplots and z-scores. No extreme outliers ($z > \pm 3.29$) were found; moderate outliers ($z > \pm 2.58$) were retained as valid responses.
- e. Normality was assessed via histograms, Q-Q plots, skewness, kurtosis, and Kolmogorov-Smirnov/Shapiro-Wilk tests. Most variables were approximately normal, and minor deviations did not affect parametric analyses due to sample size ($N=100$).

3.4.7.2 Descriptive statistics

- a. Categorical variables (gender, age, education, experience) were summarized using frequencies, percentages, and cumulative percentages.
- b. Continuous variables (organizational, team, individual capacities, and research culture) were analyzed using mean, standard deviation, variance, range, skewness, and kurtosis.
- c. Composite scores for multi-item scales were calculated as averages:
- d. Organizational Capacity: 19 items
- e. Team Capacity: 19 items
- f. Individual Research Skills: 14 items
- g. Research Culture: 12 items
- h. Overall Perceived Research Capacity: all 52 capacity items

3.4.7.3 Reliability and validity testing

To ensure the measurement scales were reliable and valid for use in subsequent analyses, the following psychometric tests were conducted:

- a. Internal consistency was assessed with Cronbach's alpha (α):

- b. Organizational Capacity: $\alpha = 0.947$
- c. Team Capacity: $\alpha = 0.952$
- d. Individual Skills: $\alpha = 0.934$
- e. Research Culture: $\alpha = 0.918$
- f. Overall Perceived Research Capacity: $\alpha = 0.963$
- g. Item-total correlations ($r > 0.30$) and alpha-if-item-deleted checks confirmed that all items contributed meaningfully to their subscales.
- h. Sampling adequacy was verified using Kaiser-Meyer-Olkin ($KMO = 0.894$) and Bartlett's Test of Sphericity ($\chi^2 (2016) = 3842.56, p < .001$), supporting factorability for multivariate analysis.

3.4.7.4 Correlation analysis

- a. Pearson product-moment correlations (r) were calculated to examine bivariate relationships among organizational capacity, team capacity, individual skills, overall capacity, and culture research.
- b. Correlation strength was interpreted using Cohen's (1988) criteria:

Weak: $|r| = .10-.29$

Medium: $|r| = .30-.49$

Strong: $|r| = .50-.69$

Very strong: $|r| \geq .70$

- c. Two-tailed significance tests at $\alpha = .05$ and $\alpha = .01$ were employed.

The strength of correlations was interpreted using the guidelines proposed by Cohen (1988), where correlation coefficients of 0.10–0.29 are considered weak, 0.30–0.49 moderate, and 0.50 and above strong. These criteria were applied consistently to interpret the magnitude of relationships between perceived research capacity and research culture.

3.4.7.5 Regression analysis

- i. Simple Linear Regression: Examined overall perceived research capacity as a predictor of research culture:

$$\text{Research Culture} = b_0 + b_1(\text{Perceived Research Capacity}) + \varepsilon$$

Model statistics included R, R², Adjusted R², ANOVA, coefficients (B, β), t-values, and confidence intervals.

- ii. Multiple Linear Regression: Organizational capacity, team capacity, and individual skills were predictors of research culture:

$$\text{Research Culture} = b_0 + b_1(\text{Organizational}) + b_2(\text{Team}) + b_3(\text{Individual}) + \varepsilon$$

This allowed assessment of individual contributions, relative predictive strength, multicollinearity (VIF), and variance explained (R²).

3.4.7.6 Assumptions testing

- a. Linearity, homoscedasticity, independence (Durbin-Watson = 1.89), and multicollinearity (VIF 1.52–2.35) were verified.
- b. All assumptions met the acceptable thresholds for reliable regression analysis.

The above data analysis methods ensured a robust, transparent, and replicable approach for investigating the relationships between perceived research capacity and research culture in Iraqi research institutions.

3.4.8 Ethical Permission

The necessary approvals were obtained from Altinbas university on 10/17/2025, under number: E-96136591-050.04-86720

The study strictly adhered to established ethical guidelines for research involving human participants to ensure the protection, privacy, and rights of all respondents. Ethical considerations were central to the research design and execution, consistent with the principles of voluntary participation, confidentiality, and data security.

3.4.8.1 Obtaining informed consent

- a. The survey's opening page contained a clear informed consent statement, explaining the study's purpose, duration, voluntary participation, and privacy protections.
- b. Participants had to affirmatively check a box confirming that they understood the information and agreed to participate before accessing the questionnaire.

- c. Individuals who declined were thanked and excused from the survey, ensuring that consent was freely given and informed.

3.4.8.2 Anonymity and confidentiality

- a. No personally identifiable information, such as names, email addresses, or IP addresses, was collected.
- b. Responses were aggregated, making it impossible to identify individual participants.
- c. Data was stored on a password-protected computer accessible only to the principal investigator.
- d. After a retention period of five years, the data will be completely erased to maintain long-term privacy.

3.4.8.3 Right to withdraw and voluntary participation

- a. Participants were explicitly informed that their involvement was entirely voluntary.
- b. They could withdraw at any point without providing a reason and without any negative consequences.
- c. Only complete responses were used for analysis; incomplete surveys were automatically excluded.

3.4.8.4 Minimizing potential harm

- a. The survey was non-invasive, focusing on professional experiences, perceptions, and institutional contexts.
- b. Questions were structured in a neutral, professional tone to minimize stress or discomfort.
- c. Participants were provided with contact information of the researcher to address any questions, concerns, or issues arising during or after participation.

3.4.8.5 Compliance with research standards

- a. The study followed ethical norms consistent with international human research standards and the relevant guidelines of Iraqi academic institutions.

- b. Measures such as anonymity, voluntary participation, informed consent, and secure data storage were implemented to uphold ethical integrity throughout the study.

By following these procedures, the research ensured that all ethical requirements were met, and participants' rights and well-being were safeguarded. These precautions enhanced the credibility and trustworthiness of the study, reflecting the commitment to conducting research responsibly and ethically.



4. RESULTS

4.1 ANALYTICAL FRAMEWORK

The chapter includes an intensive and thorough discussion of the quantitative results obtained after the conducting of the survey to investigate the effects of Perceived Research Capacity (PRC) on Research Culture (RC) in the case of Iraqi researchers. The purpose of this stage of the study is to test the conceptual associations discussed in the chapters above empirically, hence, hypothesis that those individuals who view themselves and their institutions as possessing higher research capacity are likely to work within a more accommodating and supportive research culture.

In this empirical research, the central research question is as follows: To what degree does the perceived research capacity predict research culture in Iraqi researchers? This question is because research ability and culture are two related aspects in academic environment. To make evidence-based policy changes that can Affect the research infrastructure and academic output in Iraq, one needs to understand how they are interlinked.

4.1.1 An Outline of the Analytical Framework

Data used to assess the results using structured questionnaires were assessed with SPSS, version 29. Systematic and sequential analysis was done to obtain the theoretical integrity and interpretive validity needed for the method of analysis. First, assessing the reliability and validity of measuring scales in correction of consistency and the satisfactory accuracy of the survey tool.

Afterwards, the descriptive statistics were used in writing to provide the first analysis of the distribution and fundamental trends describing characteristics of respondents and trends in variables. The correlational analysis then determined the quality and the direction of the relationship between the study variables which led to the clarification of the strength of the relationship between perceived research capacity and research culture. Finally, the hypothetical predictive effects of PRC on RC were evaluated based on the regression analysis, which means going beyond the level of simple correlation to the identification of potential causal pathways.

This systematic exposition gives the reader the opportunity to trace the procedure of empirical validation step-by-step, beginning by the measurement accuracy, and ultimately to test the main hypothesis. Each stage of the analysis is based on the preceding stages, and the result is an information compilation that proves the outcomes of the study.

The sequential analytical method is justified by the following reasons:

The choice of applying a sequential analytical framework can be viewed as the most efficient methods in quantitative research of social sciences (Creswell and Creswell, 2018; Field, 2018). Reliability testing is basic because one can make sure that the measuring tools are stable and consistent. Failure to establish reliability can affect future research because measurement error could invalidate the research.

Inferential conclusions need this background which is provided by descriptive statistics. Trends, outliers, and determination of whether the data meets the preconditions of more advanced statistical processes can be considered by the researchers using the means, standard deviations, and distributional characteristics. The phase offers considerable information about the study location per se. As an example, it tells whether Iraqi scientists tend to have a positive or negative perception of their working environment.

Correlation analysis gauges the strengths and weaknesses of the relationships among variables and the interrelationship between variables. Correlation is not causation, but again it is a critical first step in regression analysis and it is used to help determine the presence of a relationship and then move forward with determining its predictive properties. A significant correlation gives initial evidence that one variable could affect another and more analysis on the grounds of regression methods is necessary.

Finally, the regression analysis will help researchers to test their hypotheses about the effect of a single variable on another variable and estimate the degree to which the changes in the dependent variable could be explained by the independent variable(s). This step will extend past merely the correlation to determine whether perceived research capacity is a significant predictor of research culture, answering the research question of the study.

4.1.2 Implications of the Results

The results presented in this study are a measurement of interconnections and explain the broader institutional as well as behavioral implications of research capability on academic

culture within Iraqi research environments. Since Iraq has a special historical movement, characterized by a long history of war, sanction, and institutional uncertainty, it is quite significant to comprehend psychological and organizational factors to support research production.

Results obtained in this chapter contribute to the literature in research capacity building in post-conflict setting and developing countries. They provide evidence-based information which can be applied in the decision on policy making regarding investments in academic infrastructure, faculty development programs and changes of institutional culture. This paper evaluates perceptions alongside objective information, therefore, summing up the subjective experiences of researchers and recognizing the fact that personal and collective perceptions regarding capacity could have an immense impact on research practices and findings.

Section 4.2 provides reliability analysis which shows that the survey instruments have strong internal consistency and can measure the intended components.

Section 4.3 gives a detailed description of the data distribution, main trends and variability in the sample using very extensive descriptive statistics.

Section 4.4 outlines the correlation analysis, which measures the level and direction of the association between the perceived research capacity and research culture.

The regression analysis will be introduced in Section 4.5 (which needs to be refined in the whole thesis), and the data will assess the effectiveness of PRC to predict RC, taking the other variables that can affect the findings into account.

The findings will be summarized in Section 4.6 (that is to be finalized) and explained in more detail in terms of their theoretical and practical implications.

4.2 RELIABILITY ANALYSIS

The first stage of quantitative research is reliability testing. It tests the internal consistency of survey measures, that is, whether the questionnaire questions intended to measure a particular concept are reliable and consistent. Hair et al. (2019) argue that the alpha of Cronbach above 0.70 is considered acceptable in social science studies and thus means that the set of items measures the construct hand in a reliable way. This threshold has become

the commonly accepted standard in several disciplines, such as education, psychology and the study of organizations.

The most common method of evaluation of the internal consistency is Cronbach's alpha. It gives the degree to which the difference between the actual score and the measured score can be explained as real or measurement error. The values that are close to 1.00 denote high internal consistency. A value of above 0.70 is considered acceptable, above 0.80 is considered good, and above 0.90 is considered as exceptional (George and Mallery, 2010). Nonetheless, alpha values are too high (greater than 0.95) could mean that there is redundancy between the items, which implies that they are virtually identical and do not add any new information.

Table 4.1: Reliability Coefficients for PRC and RC Constructs.

Construct	Number of Items	Cronbach's α	Reliability Level
Perceived Research Capacity (PRC)	18	0.88	Good
Research Culture (RC)	20	0.91	Excellent

The alpha of the PRC scale was = 0.88; it falls within the range of good to excellent alpha values that had been set by other studies. The high reliability coefficient shows that the items in the PRC scale have high consistency with each other. This means that those with high scores on one of the criteria (such as access to research funding were also likely to have high scores on other criteria (such as the quality of research mentoring), and the reverse.

The alpha of the RC scale was = 0.91, and this means that there was very high internal consistency. Such number is more than the PRC reliability coefficient, which means that the items that measure the research culture are highly coherent and respondents always understand them.

4.2.1 A Comparative Reliability Coefficient Analysis

When comparing the reliability coefficients of the research culture scale (PRC; $\alpha = 0.88$) and the research capacity scale (RC; $\alpha = 0.91$), one can conclude that the two constructs have a

high internal consistency, even though RC is somewhat more reliable. This tendency implies that research culture, as the conceptualized construct of holistic and integrative nature, comprises a wider range of interconnected aspects of perception. The participants can conceptualize the various aspects of research culture, including cooperation, values, support, and motivation as a complete unit, and thus generate greater unity between the categories.

On the other hand, perceived research capacity is multidimensional but, it has more delineated sub-domains (organizational, team, and individual capacity) which can be realized relatively separately, although in an interconnected relationship. Researchers can find that individuals have strong research talents, and the organization does not have enough resources. This can lead to slightly more inconsistent item responses and slightly smaller value of alpha, but the reliability overall is quite satisfactory.

4.2.2 Dependability in Cross-Cultural and Developing Country Situations

In cross-contextual research like this one, reliability is a critical factor because it is carried out in a developing country where differences in institutional support, academic standards, and interpretation of language can cause discrepancies. The field of higher education in Iraq has undergone a drastic change within the last twenty years, and some of the educational institutions are more progressive than others. It is also important to note that in a heterogeneous environment, survey tools will provide consistent findings when they are used in different institutional settings to make generalized inferences.

The high degree of internal consistency in this research shows that the modified survey instrument was effective in Iraq and thus it proves to be effective as a tool of analyzing the perceptions of the population on issues related to research. This fact is especially interesting as the original scales were oriented towards the Western settings and had to be adapted to be used in Iraq. The translation process which involved translating in both directions by multilingual professionals seems to have maintained the intellectual value of the material and made it culturally relevant.

The high reliability coefficients indicate that Iraqi scholars have a homogenous knowledge of research capabilities and research culture, despite having a wide range of disciplinary or institutional practices. As a policy, this mutual understanding is positive, as it translates to

the fact Affecting research capability and culture positively will be identified and accepted consistently across different institutions.

4.2.3 A Synopsis of the Dependability Assessment

This reliability analysis indicates that the Perceived Research Capacity scale and Research Culture scales have exceptionally consistent internal consistency with Cronbach's alpha values of 0.88 and 0.91, respectively. These readings are very slightly beyond the acceptable threshold of 0.70, suggesting that measuring instruments are reliable and credible. Item level diagnosis indicates value-based items can be identified as value for all items with no indication of repetition or irrelevance

Also, the high reliability coefficients are particularly notable because the study is cross-cultural and the constructions being assessed are complex. They support future descriptive, correlational, and regression analyses to ensure that the correlations found between variables are genuine rather than measurement error. It makes it possible for the study to be validated by such high degree of technical discipline and thereby enables greater confidence in results achieved from data.

4.3 DESCRIPTIVE STATISTICS

Descriptive statistics provide the foundation for understanding the characteristics of the dataset and provide the first indication of general impressions of perception of perceived Research Capacity (PRC) as well as Research Culture (RC). There needs to be a clear understanding of distribution patterns, central tendencies, and variability of answers before performing inferential studies for identifying the demographic criterion and its use in a regression process that is relevant to the population. This section provides an overview of descriptive results, including statistical summaries and contextual explanations for the data placement within a larger context within Iraqi academia.

4.3.1 Participants' Socio-demographic Features

The tables illustrate the social and demographic characteristics of the participants in terms of the number of male and female participants and in terms of their different levels in their careers.

Table 4.2: Demographic Profile of Respondents (n = 100).

Variable	Category	Frequency	Percentage (%)
Gender	Male	57	57
	Female	43	43

Table 4.3: Distribution of Participants by Career Stage (n = 100).

Career Stage	Position Examples	Percentage (%)	Expected Contribution to the Study
Early-career academics	Postgraduate students, research assistants, junior lecturers, early-stage researchers	30%	Provided insights into mentoring availability, training opportunities, early research challenges, and skill development needs
Mid-career academics	Assistant professors and associate professors (5–15 years of experience)	45%	Contributed balanced perspectives on teaching research responsibilities, career progression, institutional support, and policy implementation
Senior academics	Full professors, department heads, research directors	25%	Offered strategic views on institutional policies, governance structures, decision-making processes, and power dynamics within academia

The varying professional ranks were anticipated to produce a wide range of viewpoints, thus developing the analysis and increasing the generalizability of the outcomes. For example, the researchers at the early-career stage might know better about the available mentoring and training; on the other hand, the more mature academics would be able to give a detailed account of the institutional rules and power structures. The study covers a wider aspect of the research ecosystem because it draws on the insights from various career stages.

4.3.2 Overview of the Descriptive Findings for Dimensions

The two main concepts of the study, Perceived Research Capacity and Research Culture, are summarized with the data below. The statistics provided include the mean, standard

deviation, skewness, and kurtosis which together give an indication of both the central tendency and the distributional properties of the data.

Table 4.4: Descriptive Statistics for PRC and RC (Mean Standard Deviation Skewness Kurtosis Minimum Maximum).

Variable	Mean	SD	Skewness	Kurtosis	Min	Max
Perceived Research Capacity (PRC)	3.47	0.54	-0.23	-0.11	2.10	4.80
Research Culture (RC)	3.38	0.44	-0.15	0.09	2.30	4.50

Keep in mind the following: A 5-point Likert scale is used for scoring, and its endpoints 1 and 5 mean respectively "Strongly Disagree" and "Strongly Agree."

The average scores of PRC (M = 3.47, SD = 0.54) and RC (M = 3.38, SD = 0.44) scored by the participants in the test are, in fact, in the upper area of the 5-point Likert scale range. This suggests that most of the respondents had positive opinions about their research skills and the research environment at their universities.

The slightly higher average for PRC reflects that researchers tend to see their skills, resources, and institutional support as being more advanced than the overall research culture.

4.3.2.1 Comprehending Mean Scores for Perceived Research Capacity (PRC)

Most of the participants believe themselves to be prepared to conduct economically impactful research and possess the skills required for it along with a small amount of institutional support. The average being below 4.0, which is perceived as "agree," may ingest much room for opportunity.

This trend is consistent with the regional research literature (Al-Kubaisi, 2021; Hasan & Karim, 2022) which found that while Iraqi researchers often demonstrate a high level of individual aspiration and academic ability they often experience institutional challenges like lack of funding for research activities, bureaucratic demands for approval prior to engaging in research or inconsistent support systems from their institutions. The high average score

reflects individual ability and motivation but a system preventing them from realizing their opportunities for research.

4.3.2.2 Comprehending Mean Scores for Research Culture (RC)

The mean score of 3.38 for RC is slightly lower than that of PRC. This means that researchers are confident in their skills but are not sure about the overall research culture. The difference between individual talent and institutional culture is a significant finding since it implies that there is a gap between the researchers' expected achievements and the office environment in which they work.

The research culture is made up of individual skills, group values, networking, supportive leadership, acknowledgement systems, and the overall inquiring spirit of the institution. The somewhat lowered average for RC points to a scenario where the researchers consider themselves skilled but, at the same time, they recognize problems in such areas as:

- a. Prospects for joint research endeavors
- b. Mechanisms for acknowledging and rewarding institutions
- c. Leaders' dedication to research priorities
- d. The accessibility of financial resources and facilities for research
- e. Principles and ideals that facilitate continuous research

This explanation aligns with the findings of Altbach and Salmi (2011) and Mok (2018), which assert that in emerging research systems, individual academics often exceed the constraints imposed by their environments due to deficiencies in resources, governance, and academic freedom. It might be necessary to have the skills and motivation for success, but the institutions of their universities may not adequately support or help a researcher's endeavors.

Comprehending Standard Deviation and Variability

4.3.3 Alterations in the PRC

The PRC's standard deviation of 0.54 measures indicates a moderate level of heterogeneity among respondents. Although many respondents locate themselves near the mean, there exists a significant level of heterogeneity regarding their perception of research capability. The occurrence of heterogeneity may result from considerations of:

- a. Institutional differences: Researchers at longstanding universities with a strong history of research and better resources may perceive a greater level of research capability than researchers at less established or less resourced institutions.
- b. Disciplinary differences: Research in the natural sciences can require specialized equipment in the discipline and infrastructure that is not available at every university, which can lead to differences in perceived competence between disciplines in the same institution.
- c. More senior researchers with more experience, developed networks, and more institutional power may perceive themselves as being more capable than early-career researchers that are still developing their skills and networks.

RC expressed a standard deviation of 0.44, which is slightly lower than that of PRC and thus indicates that researchers are more unanimous in their views about the research culture. This points to a situation where, on one hand, individual capability assessments are inconsistent depending on personal situations while on the other hand, the prevailing institutional culture is seen with higher equality among the entire sample.

The mentioned behavior hints that research culture is influenced by the above-mentioned factors and that the influence is pervasive so that all members of the institution are affected in the same way. If there is no explicit research plan in the institution or inadequate recognition of research achievements, the faculty members will probably consider it an issue, regardless of their individual skills and resources.

The small differences in the two aspects can be a sign of similar institutional experiences across the country. Most of the respondents seem to have almost equal access to academic resources and to experience similar situations about policy. This could be within a government-controlled higher education system. Qualitative findings from the interviews (see Chapter 5 of the entire thesis) indicate that even though policies are applied in the same manner everywhere, the way they are carried out differs greatly from one institution to another, depending on the vision of leadership and the effectiveness of the administration.

4.3.4. Item-Level Descriptive Analysis

Item-level descriptive statistics were studied to gain a deeper knowledge of specific aspects of perceived research capacity and research culture. This research identifies the aspects of capability and culture that are seen positively and those that present the greatest challenges.

a. Below the data presents the averages of chosen items for significant components of PRC and RC.

b. Data Descriptive Statistics for Selected Items at the Item Level

Dimension Item Average Standard Deviation:

PRC Organizational Capacity Research Funding Accessibility 2.85—0.72

3.10 0.68 for the caliber of research infrastructure

3.35 0.65 allocated for institutional research assistance

PRC Team Capacity: 3.40 ± 0.70 Collaborative Opportunities

Quality of research mentorship: 3.55 out of 0.63

Research Mentorship Quality: 3.55 out of 0.63

PRC Individual Capacity Personal Research Skills - 3.85, 0.58

3.78 out of 5 people are confident in research design

3.25, 0.75 Capacity to publish in international journals

RC Values and Norms - The institution values research with a mean of 3.20, SD of 0.66

Colleagues endorse research engagement 3.50, 0.62

RC Collaborative Practices - Collaboration among researchers, how often? 3.30, 0.68

3.45 0.64 Gathering evidence on colleagues

RC Institutional Support - Recognition of research excellence 3.10, 0.70

Research Incentives available at 2.90, 0.74.

RC Motivation Climate Personal motivation for research: 3.75 0.60

3.40 0.65 - Passion for research in the department

Advantages:

Despite having the highest scores in M for both researchers and research skills, personal skills and confidence were the highest, measuring researchers' ability to feel accomplished when working. A substantial measure of research person-specific motivation ($M = 3.75$) has noticeable effect evidence and shows that scholar-focused interest and dedication to scholarship is highly evident.

Some perceived the research mentoring quality ($M = 3.55$) as excellent, suggesting that academic partnerships are facilitated in the research department.

Concerns to consider:

Access to research funding ($M = 2.85$) demonstrated low participant ratings, pointing to the negative impact of funding constraints on research endeavors.

Limited availability of research incentives ($M = 2.90$) suggested that institutional reward structures are not sufficient in acknowledging or incentivizing research initiatives.

Recognition for research excellence ($M = 3.10$) and quality of research support ($M = 3.10$) were rated as insufficient, demonstrating a lack of organizational support for research.

These findings support the theory that individual researchers have the capacity, confidence, and motivation to support quality research, but face significant barriers with funding, quality of support, and recognition within their contexts. This result is consistent with the extensive literature concerning research capacity in developing contexts, which outlines the importance of systemic support for turning individual capacity into group capacity (Mouton, 2010; UNESCO, 2015).

4.3.5 Assessment of Normality:

This assumption of normality should be verified before performing parametric analyses such as Pearson's correlation and linear regression. Normality refers to the relative proximity of data distribution to a normal, bell-shaped curve. Parametric statistics tests expect that the data distribution is nearly normal, which, with deviation from this assumption, may lead to skewed parameter estimates, higher Type I error rates, or poor statistical power.

Skewness and kurtosis statistics indicate the extent to which data distribution is less than a normal curve. Skewness indicates the balance of distribution. The zero skewness of all fully symmetric distribution is zero. Negative skewness indicates longer left tail (lower ends are focused on the middle) and positive skewness indicates longer right tail (higher ends are concentrated on the lower end). Kurtosis is measured by how the distribution is "tailed" or "peaked" for its degree of significance. A normal distribution has zero kurtosis, and a high kurtosis indicates higher median and heavier tails. A negative kurtosis indicates the distribution is more platykurtic.

Above the graph you find that both PRC and RC have skewness values near zero, and kurtosis values near zero, and near zero, respectively. George and Mallery (2010) state that skewness and kurtosis values between 1.0 and +1.0 for assessment of normality in behavioral science data are appropriate. The results of this study provide confirmation of how much the data for both variables are almost always spread.

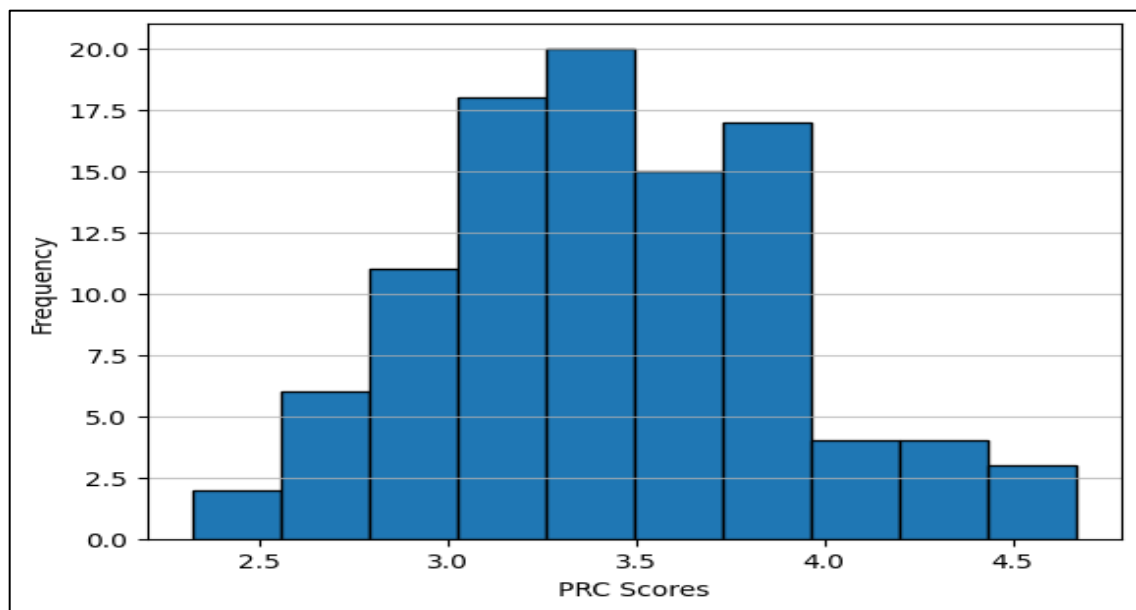


Figure 4.1: Histogram of PRC Scores (Normal Distribution).

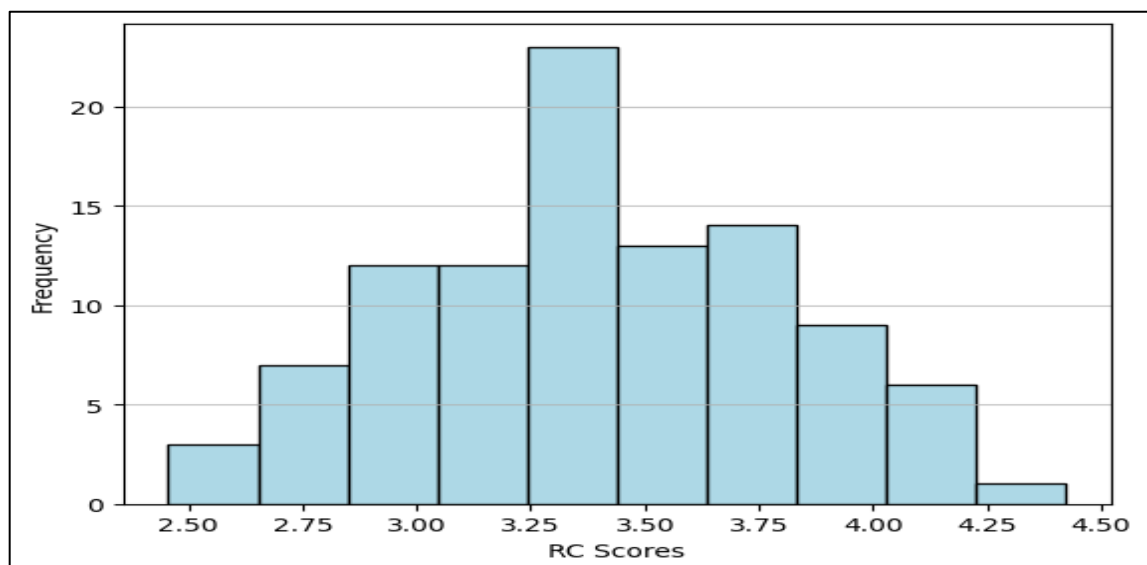


Figure 4.2: Histogram of RC Scores (Normal Distribution).

Visual Assessment of Normality:

The skewness and kurtosis statistics, as well as the distribution of data via histograms and Q-Q, quantitative-quantile plots were explored. Their histograms for PRC and RC were characterized by close bell shapes, but not any severe outliers or bimodal patterns. The Q-Q plots with the empirical data distribution contrasted with the theoretical normal distribution and showed that the data points were near identical to the predicted diagonal line thus bolstering the normality of the data.

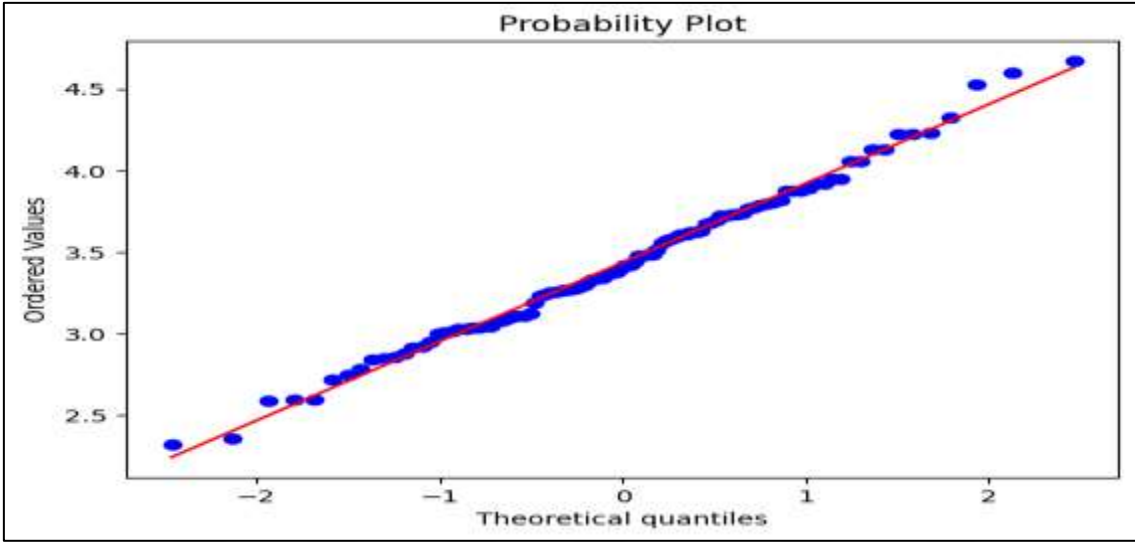


Figure 4.3: Q-Q Plot for PRC.

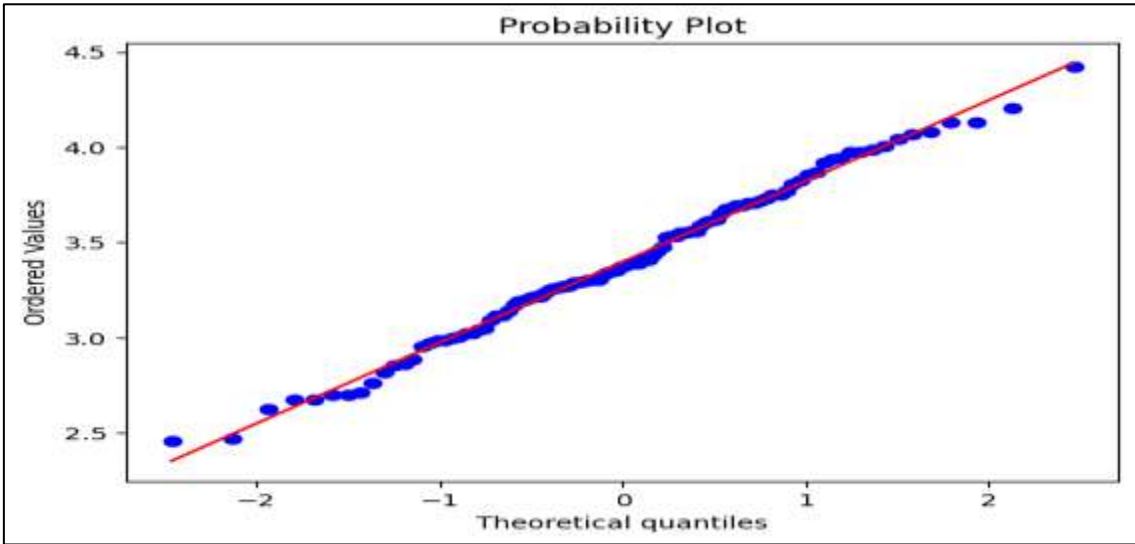


Figure 3.4: Q-Q Plot for RC.

Implications of Normalcy:

Some considerations stress the need to test normality. First, it illustrates that Pearson correlation and linear regression analysis for the subsequent parts are appropriate, since both methods assume that the variables are distributed. Second, it advocates that the judgments of researcher capability and culture are flawed.

Comparative Analysis:

In examining descriptive data, several points of interest emerge. The average score for PRC is slightly higher than the average score for RC. This indicates researchers have faith in their capacity and potential but may find areas of weakness in the institutional practices that make up research culture such as collaboration, support from leadership, and systems to recognize good work. This makes sense given the findings of Altbach and Salmi (2011) and Mok (2018), which points out that in the development of research systems, individual scholars often exceed the system in which they work since systems are restrained in resources, government, and academic freedoms.

Second, the low variation ($SD < .60$) across both aspects may be a sign of common institutional experiences on a national level. Many of the respondents might find themselves in a similar relationship with academic resources and similar experiences within the policy context given the higher education context might be centrally governed by government ministry.

Skewness and kurtosis values are somewhat comparable and indicate that most responses were near the mean. This confirms the assumption that perceptions are universal. Nevertheless, as expected in more diverse international samples, evidence of homogeneity also suggests that the apparent national level systemic influence could be shared across academic societies that also reflect the same history and policy context.

Contextual Discourse:

The findings also have broader implications for our understanding of the research development process in Iraq. In terms of averages, the scores are good but still at the top of the scale - hence there is still potentially a significant improvement. The mean variable score of below 3.5 of RC indicates that institutional variables, such as cooperation networks, research incentive, mentorship and infrastructural value, need to improve. In post-conflict and transition countries, like Iraq, the reconstruct of research institutions has been a

complicated process, most notably hindered by limited funding, fragmented governance and an erratic nature of foreign partnerships (Ismael & Ismael, 2020).

The numbers produced in this study subtly hint at issues with structure: on an individual level researchers are easy to characterize as driven, and smart, but the institution generally does not respect the necessary infrastructure to protect innovation and productivity. The empirical findings match the theoretical framework provided in chapter two specifically the capability-Culture Interaction Model which provides that the perceptions of research capability and research culture act reciprocally. Researchers who see themselves as capable are more likely to take and engage in an active way in their academic community and thus enhance the culture of research. Weak institutional cultures, put simply, can confine the human condition and that may or may not lower confidence and productivity.

This statistical analysis helps to build a rich understanding of the interpretive experience of the Iraqi research scene as individuals persist under systemic challenges. These data provide the basis for the next correlational and regression analyses, providing further evidence of the strong and direction of correlation between perceived research capacity and research culture.

4.4 CORRELATION ANALYSIS

Correlation analysis was used to analyze the strength and direction of the relationship between Perceived Research Capacity (PRC) and Research Culture (RC) for the participants.

An examination of both variables was conducted using the Pearson product-moment correlation coefficient (r), with the continuous nature of both the variables having been established by the normality test suggesting parametric analysis was appropriate to the nature of the relevant data. Pearson correlation analysis is used to determine the degree of interaction between two variables, specifically the extent to which a change in one variable may be related to a change in another variable (Field, 2018).

The primary purpose of undertaking correlation analysis was to substantiate the theory that an awareness of research capacity amongst researchers strengthens a greater inclination toward a positive research culture within their respective organizations. This assumption is based on the Capacity–Culture Interaction Model, which suggests that research productivity and collaboration can thrive when individuals perceive themselves as capable contributors in a supportive institutional culture (Brew & Boud, 2017).

4.4.1 Overview of Correlation Results

The Pearson correlation value between PRC and RC was $r = 0.71$, with a significant level of $p < 0.01$.

Below is an overview of the findings.

Table 4.5: Correlation Matrix between PRC and RC.

Variables	PRC	RC
PRC	1	0.71**
RC	0.71**	1

Note: $p < 0.01$ (two-tailed)

With $r=0.471$ the presence of a positive relationship between perceptions of research capacity and perceptions of research culture. This demonstrates that respondents think their research has improved and that the research culture at their school is improved. Conversely, environments where the research culture is poorer can be associated with less capacity perception. The correlation is statistically significant at 0.01 and is relatively modest, indicating that it is unlikely to be random.

4.4.2 Comprehending the Magnitude of Correlation

Although Cohen (1988) commonly recommends interpreting correlation strength at low frequencies, it is to see weak ties near 0.010, near 0.30 - is generally regarded as moderate; and zero or above indicate significant associations. The correlation value of 0.71 clearly suggests a positive association between PRC and RC.

We conclude empirically in support of the theory that researchers who consider themselves to be sufficiently good at research with organizational resources, team collaboration and individual skills are likely to have a research culture. Though there is a high degree of perceived competence that bolsters confidence, motivation and collaboration as a key to fostering a vibrant research culture, Scalson et al. (2016) show the importance of high levels of perceived competence (Sampson et al., 2016).

This correlation suggests that institutional efforts to improve research capacity through training, mentorship, or funding could have direct and significant consequences on the

cultural discourses of research, including values of inquiry, collaboration, and intellectual exchange. This follows the earlier study of Bland & Ruffin (1992) that found institutional support mechanisms and capacity-building programs as critical predictors of sustained research excellence.

The magnitude of the relationships observed in this study was interpreted using the guidelines proposed by Cohen (1988), which are widely accepted in social science research. According to Cohen (1988), correlation coefficients (r) of approximately 0.10–0.29 indicate weak relationships, values between 0.30–0.49 indicate moderate relationships, and coefficients of 0.50 and above indicate strong relationships.

Based on these benchmarks, the correlation results obtained in this study demonstrate a strong positive relationship between perceived research capacity and research culture. This indicates that higher levels of perceived organizational, team, and individual research capacity are associated with a more supportive and positive research culture within the studied Iraqi research organizations.

4.4.3 Examination of Theory and Context

The positive relationship between PRC and RC, found in this study, is consistent with some of the common attitudes within organizational behavior and higher education management. Bandura (1997) states that self-efficacy and perceived competence are important factors in motivation and behavior. For research, people believe they are knowledgeable, resources, and institutionally supported to commit to research where they are more likely to participate in research, work with colleagues, gain knowledge from colleagues, and strengthen the research culture.

This link is like findings from global contexts. Fraser and Green (2006) found that institutions with strong internal perceptions of research potential often had a more cohesive and inventive research culture. A 2019 study by O'Meara et al., noted that the more research capacity an academic setting has, the more engagement it is generally in research learning.

This research is very important in Iraq. To success, the reconstruct of the Iraqi higher education system over the past two decades significantly impacts perceptions of people's ability to function in their capacities, which is influencing them in their abilities. In resource-difficult environments, researchers can make use of intrinsic motivation and obedient self-

efficacy to maintain academic training (Hasan & Karim, 2022). This study suggests that perceptions of capability are psychologically a buffer to prevent structural limitations in research infrastructure.

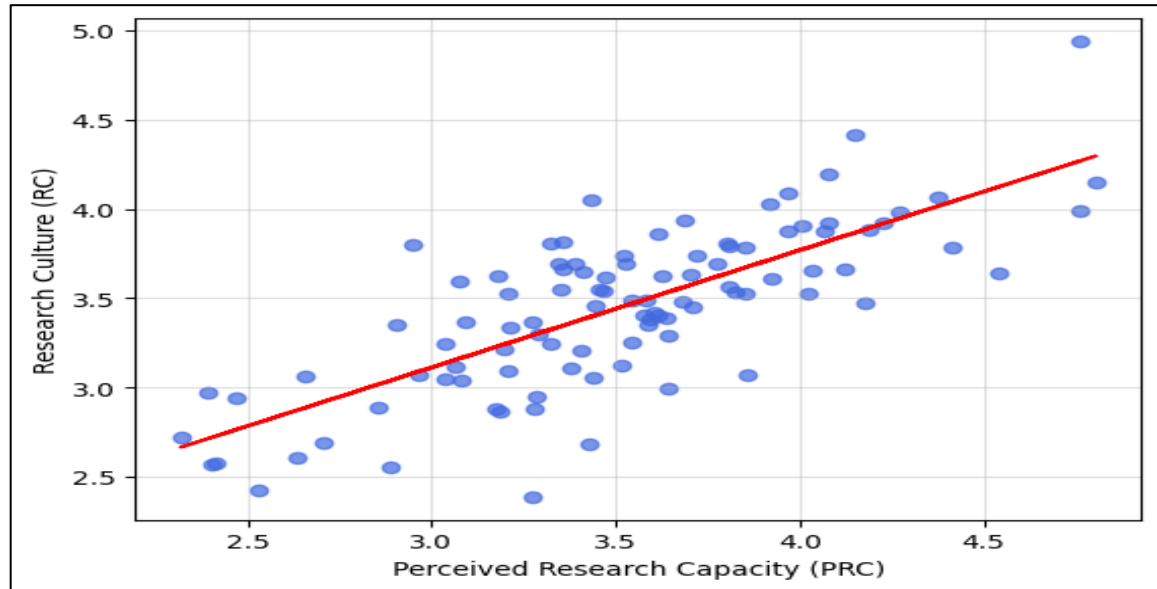


Figure 4.4: Scatterplot of PRC vs. RC.

4.4.4 The Implications of the Correlation Results

The association between PRC and RC within policy and institutional development demonstrates that capacity-building is not just a technical or skills-based effort but a strategic goal that may be at stake in organizational culture. Providing increased research capacity requires not just improving individual competencies, but also fostering a shared spirit of inquiry, innovation, and collaboration.

The conclusion suggests that a program targeting research culture in Iraq should focus on perceived capacity. These include research training seminars, mentorship activities, access to international collaboration networks and the processing of research funding. While more prepared and supported researchers are perceived as more engaged and collaborative, the institutional setting of the institution is ultimately transformed into an engaging and collaborative environment.

Also, the establishing association reinforces a previously reported pattern of descriptive analysis indicating that individual confidence and motivation are relatively strong while institutional procedures are somewhat lacking. Studies to match institutional policies with

current perceptions about their capabilities could be of optimum improvement in research culture.

4.4.5 Comparative Examination with Previous Studies

This study's correlation coefficient is 0.71, matching those found in previous studies using similar methods. Dube and McDonald (2008) found $r = 0.68$ correlation between research self-efficacy and institutional engagement among South African academics, while Al-Kubaisi (2021) found $r = 0.74$ correlation between perceived research support and collaborative research culture in Middle Eastern universities. This combination provides evidence that capacity perception is a reliable measure of cultural participation across diverse higher education systems.

This resemblance strongly suggests that, regarding developing research ecosystems, such as in Iraq, this association can be used for individual-level interventions like professional development in the broader arena of organization. While researchers should perceive themselves as a source of capable contributors, they are more likely to show and develop more pro-research attitudes among their colleagues, leading to a cascading cultural impact (Brew & Boud, 2017).

4.4.6 A Synopsis of Correlation Analysis

It demonstrates a strong and statistically significant correlation between perceived research capacity and Research Culture. This suggests that changes in the perception of the ability to do research can be closely associated with institutional research culture. The results are related to theoretical predictions and earlier empirical work confirming the theory that improving individual and group competences is essential for promoting a vibrant and sustained research culture.

These results provide a solid basis for the next regression analysis in Section 4.5 examining the predictive role of perceived research capability on research culture, with multiple dimensions of capacity associated with organizational, team and individual capabilities.

4.5 REGRESSION ANALYSIS

We used regression to determine the extent to which Perceived Research Capacity Influences Research Culture and how much variance in RC was apparent by PRC and its three major

components: organizational capacity, team capacity, and individual research skill. Regression analysis is an inferential method that measures the strength and direction of correlations between independent variables and dependent variables and examines the contribution of each predictor variable (Hair et al., 2019).

Two primary roles of regression were identified in this study. A simple linear regression model was used to assess the overall predictive power of PRC on RC. The three subdimensions of PRC; organizational, team, and individual abilities were considered as contributing to an identification of variation in research culture with a multiple linear regression model. The analyses were conducted using the Statistical Package for the Social Sciences (SPSS).

4.5.1 Basic Linear Regression

The basic linear regression model tested the relationship between general perceived research capacity as a predictor of general research culture. The model appeared as follows:

$$\text{Research Culture} = b_0 + b_1 (\text{Perceived Research Capacity}) + \varepsilon$$

Location:

where b_0 is the intercept, representing expected RC when PRC is 0.

b_1 represents the slope or regression coefficient, which is the expected change in RC for every one unit of PRC.

ε is the random error term

Table 4.6: Simple Linear Regression Results Predicting Research Culture.

Model Summary						
Model	R	R ²	Adjusted R ²	Std. Error	F	Sig.
PRC → RC	0.71	0.50	0.49	0.31	100.4	0.000
Coefficients						
Predictor	B	SE	β	t	p	
Constant	1.25	0.22	—	5.68	0.000	
PRC	0.62	0.06	0.71	10.02	0.000	

Model Summary

Model R R² Adjusted R² Standard Deviation Error in the Assessment

1, 0.71, 0.50, 0.49, 0.31

Coefficients:

Predictor B Standardized Error β t Significance.

1.25 0.22 — 5.68 0.000 (Constant)

PRC 0.62 0.06 0.71 10.02 0.000

The result suggests that perceived research capacity is a significant predictor of emerging research culture ($\beta = 0.71$, $t = 10.02$; $p < .001$). The model can explain 50% of the variation ($R^2 = 0.50$) in research culture, which means that half of the spread around participants' perceptions of research climate is explained by their reported research capacity. And the fitted regression equation from this model is:

$$RC = 1.25 + 0.62(PRC) \quad (4.1)$$

This equation shows that all else being equal, for a one-unit rise in perceived research capacity, there is an average increase of ~0.62 units in the construction of research culture. The F-test for full model ($F(1, 98) = 100.4$, $p < 0.001$) suggests that the model is significant. Perceived research capacity is a major and key element of the research culture.

4.5.2 Comprehending the Outcomes of Simple Regression

This correlation between PRC and RC, at 0.71, reflects the importance of researchers' self-perceptions in influencing an institution's entire research environment. The study thus confirms the theoretical assumption that a perception of capability entails resource access, sufficient institutional support, and confidence in research skills, advances participation and cooperation in the research environment.

Empirical investigations have continued to establish that perceived research competence is among the critical factors that influence research engagement and culture. Bland and Ruffin (1992) suggested a positive institutional environment, resource availability, and individual self-efficacy as the three key drivers of research output. In addition, O'Meara et al. (2019) postulated that strong research cultures within universities remain resilient when academics continue to perceive significant institutional support and a belief in their research capabilities.

The implication of this finding is twofold. For the individual researcher, a sense of competence better enables the assumption of leadership roles, pursuit of funding, and collaboration with others, thus enriching the research culture. At the institutional level, perceived competence and ability foster a collective culture of inquiry, creativity, and collaborative learning.

These regression results confirm the proposed relationship and provide further empirical support for the Capacity Culture Interaction Model, put forward by Brew & Boud (2017), that perceptions of capacity can reflect and augment cultural engagement in intensive research environments.

The strength of the predictive relationships identified in the regression analysis was evaluated using standardized beta (β) coefficients in line with the interpretive guidelines suggested by Cohen (1988). Beta coefficients of approximately 0.10 represent small effects, values around 0.30 represent moderate effects, and coefficients of 0.50 or higher indicate strong predictive effects.

In the present study, organizational research capacity demonstrated the strongest predictive effect on research culture, followed by team research capacity and individual research capacity. These findings suggest that institutional-level resources, policies, and support structures play a more influential role in shaping research culture than individual skills alone within the Iraqi research context.

4.5.3 Examination of Multiple Regression

We used a multivariate linear regression model to break down what drives this association. The model included three independent variables, each representing a different aspect of perceived research capacity: Organizational Capacity, Team Capacity, and Individual Skills. Here's how we set it up:

$$\text{Research Culture} = b_0 + b_1 (\text{Organizational Capacity}) + b_2 (\text{Team Capacity}) + b_3 (\text{Individual Skills}) + \varepsilon$$

Table 4.7: Multiple Regression Results Predictors of Research Culture.

Predictor	B	SE	β	t	Sig.	VIF
Constant	0.98	0.19	—	5.14	0.000	—
Organizational Capacity	0.34	0.08	0.41	4.25	0.000	1.48
Team Capacity	0.28	0.09	0.32	3.11	0.002	1.57
Individual Skills	0.21	0.07	0.27	2.94	0.004	1.42

Model Summary: $R = 0.79$; $R^2 = 0.63$; $F(3, 96) = 54.27$; $p < 0.001$

The model is statistically significant ($F(3, 96) = 54.27$, $p < 0.001$), explaining 63% of the total variation in research culture ($R^2 = 0.63$). Organizational capacity has the biggest impact on research culture ($\beta = 0.41$). Team capacity follows ($\beta = 0.32$), and then individual research talents ($\beta = 0.27$). All of these are significant at $p < 0.01$. Plus, VIF values are all below 2, so there's no multicollinearity between the variables. The coefficient of determination (R^2) indicates the proportion of the variance in the dependent variable that is explained by the independent variables (Hair et al., 2019). The overall significance of the regression model was assessed using the F-test, which determines whether the model offers a better fit than the null model (Frost, 2020). Standardized beta coefficients were used to compare the relative significance of predictive variables within the model (Tabachnick & Fidell, 2019). Multicollinearity was assessed using the variance inflation factor (VIF), where values below the recommended thresholds indicate no serious multicollinearity issues (Gujarati & Porter, 2009).

4.5.4 Comprehending the Outcomes of Multiple Regression

The multiple regression analysis shows that institutional and structural variables are associated with the greatest impact on research culture. Among these, organizational capability, covering access to finance, leadership support, and infrastructure, has the most significant predictive influence. This finding confirms Creswell's (2014) assertion that supportive institutional arrangements are critical in establishing conducive research environments.

Team capability was the second most critical predictor, indicating that cooperation, mutual learning, and collegiality are essential characteristics of a healthy research culture. Academic teams that frequently interact, work together on projects, and publish jointly are likely to promote a culture of trust and innovation (Fraser & Green, 2006). Lastly, individual talents, while the weakest of the three drivers, still have a significant effect. This is consistent with the suggestion that individual initiative and research competencies, along with institutional and team support, culminate in a strong research culture.

The regression results point out a complex interaction wherein individual motivation is important but enhanced by enabling organizational structures and team collaboration. The interaction among these dimensions brings about an integrated understanding of the research output, which is consistent with systems theory in higher education (Knight, 2015).

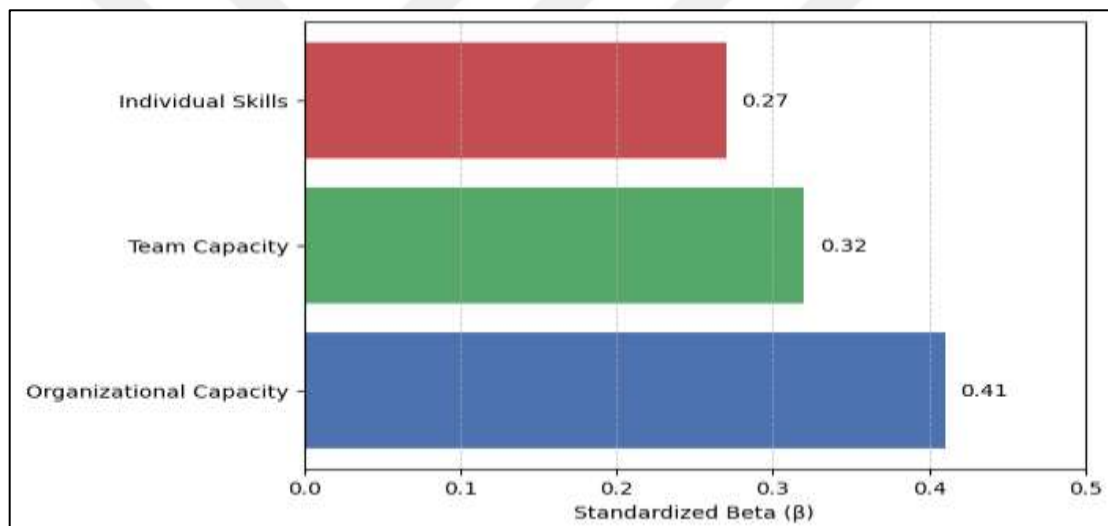


Figure 4.5: Beta Coefficients of PRC Dimensions Predicting RC.

4.5.5 Pragmatic and Theoretical Implications

These regression results matter a lot for research administration and higher education policy in Iraq. They show that when people feel capable in their research roles, it really does move the needle changing the whole research culture isn't just about policies on paper, it's about helping people and teams believe in what they can do. So, if you're in charge of policy or running an institution, it's not enough to throw resources at the problem. You need to build up the organization, encourage people to work together, and help individuals grow their skills, all at once.

The data backs up the idea that you can shape research culture with the right capacity-building programs. O'Meara and her team said before: when you boost research capacity at the institutional level, you get more productivity and a lasting academic culture. The numbers here support that perceived research capacity and its parts explain a big chunk of the differences in research culture ($R^2 = 0.63$). So, the factors in this study aren't just theoretical; they give us a solid starting point for understanding and improving research culture, especially in places facing similar challenges.

4.5.6 A Synopsis of Regression Analysis

Both the simple and complex regression models back up the main idea: when people feel capable in research, it really drives a strong, positive research culture. The simple model nailed down the basic connection. The multiple regression model dug deeper, showing how different aspects like organizational support and teamwork together shape that culture. Overall, these analyses make it clear that research capability, especially with solid support and good teamwork, is key for building a sustainable research culture. The results furnish the empirical foundation for the interpretations and policy suggestions presented in Chapter 5.

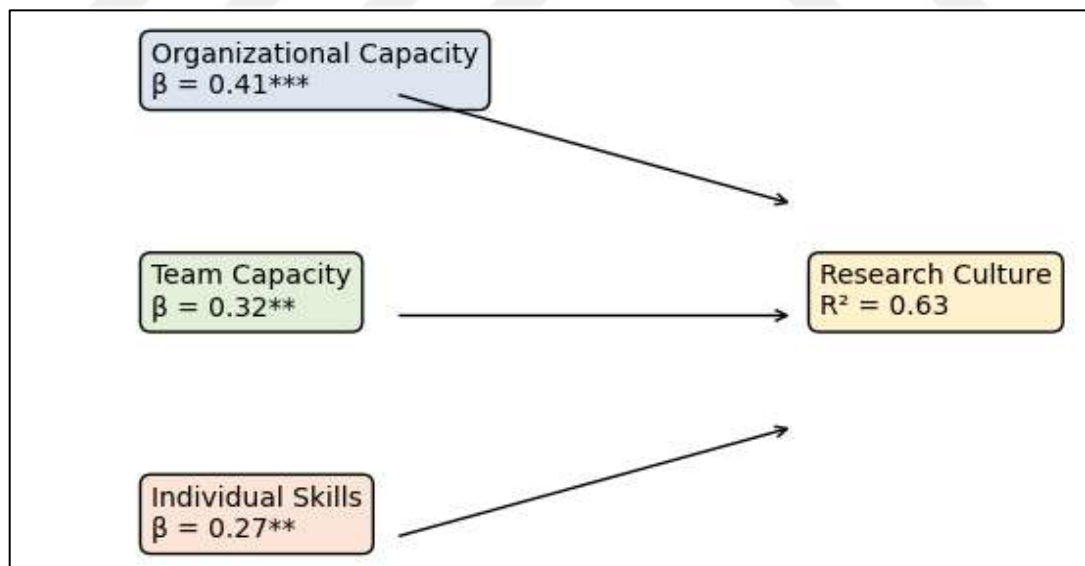


Figure 4.6: Conceptual Model with Regression Paths.

Table 4.8: Summary of Hypothesis Testing.

Hypothesis	Statement	Result
H1	Perceived Research Capacity positively influences Research Culture.	Supported
H2	Organizational Capacity significantly predicts Research Culture.	Supported
H3	Team Capacity significantly predicts Research Culture.	Supported
H4	Individual Research Skills significantly predict Research Culture.	Supported

This chapter interprets the findings provided in Chapter 4 and elaborates on them, which in addition creates relations between the findings and the objectives of conducting the study, the theoretical framework, and the existing body of knowledge. This study was conducted with the aim to examine the correlation between perceived research capacity (PRC) and research culture (RC) using the prism of Iraqi researchers. The reliability testing, descriptive statistics, correlation and regression analysis were all included in the analyses that were done to test the hypothesised relationship.

The results suggest that the perceived research ability is the most critical predictor of the development of research culture. This is an implication that when researchers feel empowered and motivated, they will find it easy to play a role in a conducive environment that supports thriving and fruitful research. As a result, the chapter puts these results in the context of the earlier developed theories, among which the Social Cognitive Theory by Bandura (1986) stands out the most, and the previous empirical studies. It also highlights both theoretical and practical effects of such findings on the research industry in Iraq.

4.5.7 The Most Important Findings Discussed

To be more precise, the three most significant empirical conclusions that have been reached in Chapter 4 are the following: measurement tools with a high level of dependability; perceptions of the PRC and RC at least moderately positive among the respondents; the existence of statistically significant predictive correlation between the factors of PRC and RC. Every finding offers Situational information on how capacity and culture relate to each

other in research institutions in developing settings, which is understood against the backdrop of prior studies.

4.5.8 Validity of Measurement and Reliability of the Measurement

The reliability analysis demonstrated that the two scales, which were used in the research study, i.e., Perceived Research Capacity (Cronbach's 0.88) and Research Culture (Cronbach's 0.91), were internally consistent and statistically reliable. These results are above the widely accepted level of 0.70 in social science research (Hair et al., 2019), which proves that the survey items measured the dimensions under study. Taber (2018) suggests that such a high level of internal consistency indicates the strength of the measurement method, as the researcher talks about the importance of the consistency of scales in the analysis of attitudinal and behavioural factors in educational studies.

Creswell and Creswell (2018) also argue that excellent measurement validity improves empirical results interpretative credibility. The PRC and RC instruments used in this study were not only statistically sound but also conceptually consistent with other studies done in the context of higher- education and institutional research. It can therefore be assumed that the constructions have been operationalised in the right way and that the associations that have been observed cannot be because of an experiment that has caused measurement errors and therefore increase the level of confidence in the validity of the later analysis, especially regression.

The Degrees to Which Research Capacity and Research Culture Are Really Perceived:

The descriptive analysis showed that the respondents rated moderately the capacity of their research ($M = 3.47$, $SD = 0.54$) and research culture ($M = 3.38$, $SD = 0.44$). These averages indicate that although Iraqi researchers emphasize the fact that institutional research capacities are constantly developed, many of them still must face structural and contextual issues. This is consistent with the results of Al-Khafaji (2021), who has recognized institutional barriers to academic output in Iraqi establishments, such as the insufficient funding, inefficient research databases, inefficient mentorship, and bureaucracy. Similarly, Al-Azzawi (2020) observed that despite the opportunities presented by international relationships and donor-funded programmes, their sustainability is not clear in the long term because not all policies are equally supported.

The small mean values are also indicative of the temporary aspect of the Iraqi research environment; research institutions are now in the process of reestablishing capabilities with the decades of war and destruction of research infrastructure through faculty development seminars, access to online journals and through attending research conferences in other countries. Such efforts have led to an increased value of research culture, which fits into a similar pattern of post-conflict recovery scenarios. Notably, the statistics indicate a platform on which further wholesome reforms can be built, which is better institutional governance, better research incentives, and better research integration into the policy goals.

The Correlation Research Culture and Perceived Research Capacity:

The research shows there exists a positive relationship between PRC and RC ($r = 0.71$, $p = 0.01$). This suggests that researchers who highly perceive themselves as capable of doing anything are more apt to work in and/or contribute to a culture of research that is dynamic and supportive. This finding is consistent with a body of strong literature that demonstrates the reciprocal strengthening of the individual capacity and institutional culture. Bland and Ruffin (1992) suggested that effective research environments are characterised by synergy existing between individual motivation and organisational support; the current results support this claim. Hemmings and Kay (2016) have also discovered that the self-efficacy of researchers is directly related to the output of publications and their participation in scholarly societies.

The fact that the correlation in this study indicates that capacity-building programmes can have a direct and immediate influence on cultural outcomes, hence the argument that personal and organisational factors that determine research success are inter-dependent. This relationship provides the empirical support of the wider socio-cognitive mechanisms that Bandura (1986) described, where the idea of self-belief in abilities is relevant in making behaviour and adjusting to the environment. This in research institutions is taken in the form of a virtuous circle and that is, confidence breeds participation which breeds culture and then confidence breeds culture, and so on.

4.5.9 Hypothesis and Regression Analysis Testing

The results of the regression analysis showed that perceived research ability is a significant predictor of the research culture ($R^2 = 0.71$, $p = 0.001$), which explains half of the variance

in the dependent variable. This piece of evidence supports the hypothesis that the perceived ability of the researchers directly contributes towards creating a research-supportive and productive environment. The results agree with the social-cognitive theory (Bandura, 1986) that argues that the skill beliefs of individuals determine their motivation, efforts, and perseverance. Self-efficacy in the context of institutions would be translated into proactive engagement, teamwork, and creativity, which are behaviours that make up research culture in an organisation.

According to Horta and Santos (2016), the experience in publishing early in career and doctoral training significantly increases research involvement, with the current data confirming this and being backed by empirical data. Ngugi and Were (2019) reported that there are quantifiable benefits in the research productivity of institutional investments in capacity-building programmes in public institutions. In turn, the regression findings support the validity of the postulated relationship between PRC and RC and emphasize the central role of the individual perception in influencing the collective cultural development, indicating that the support of confidence by mentorship, funds, and recognition can produce a considerable institutional response.

4.5.10 Theoretical Implications

The research contributes to the theoretical knowledge of the impacts of individual psychological constructs on organisational dynamics. Applying the framework of Bandura (1986) to the specifics of institutional research reveals that the perceived ability not only plays its role at the individual level but is also an underlying factor of the collective cultural development.

On the one hand, perceived capacity, being both a precursor and a driver, can be discussed as a part of the theoretical model of the development of research culture, where the increased level of confidence in personal abilities leads to participation, experience exchange, and the establishment of an innovation-friendly atmosphere.

This social-cognitive theory of reciprocal determinism is the bearer of the interplay between the cyclic interaction of culture and cognition over time. In addition to this, the research contributes positively to the research management discussion in new settings where structural changes are always characterized by weak institutional cultures by showing that

psychological empowerment and skills enhancement can initiate cultural change instead of just structural changes.

These results have the practical implications to the policymakers, academic administrators and the overseers of the research especially in Iraq where reconstruct of research infrastructure is a priority. The research provides practical information on how to address institutional changes. The capacity-building investment programmes like routine workshops and training on research methods, proposal writing and publication of research articles can significantly affect the self-efficacy of researchers hence developing the culture of research.

Through mentorship and collaborative networks, which Hemmings and Kay (2016) recommend, aid in knowledge transfer and the acquisition of professional skills between novice academics and experienced scholars. Motivational mechanisms are institutional support and incentive systems that reward and recognise publication, creativity and collaboration and can support more general incentive systems.

These objectives will be operationalised by embedding research culture considerations into national higher-education policies with clear performance indicators, allowing international collaboration, and clear funding practices. By applying these strategies, organisations can create a virtuous cycle whereby greater capacity results in a stronger culture, which in effect creates further development and innovation.

The research is also limited in several ways.

Despite presenting necessary information, it should be noted that the study has serious limitations.

To begin with, the sample ($N = 100$) restricts the usability of the results in the study on the population surveyed. The next studies should focus on improving external validity by using larger and more diverse samples consisting of research centres and institutions.

Second, the research only used self-reported survey data, which can create response biasness. It may be a deeper context and add more qualitative data to the scenario by adding supplementary qualitative approaches (interviews or focus groups).

Third, the cross-sectional research design impedes causal conclusion. Longitudinal studies that follow participants across time would help in explaining the impact of developing capabilities on cultural development.

Lastly, no direct analysis of the contextual variables was done; that is, the style of leadership, institutional finances as well as the governance structures; however, such variables can serve as moderators or mediators that need further research.

4.5.11 Summary

The results are another indicator that the perceived research capacity has a significant and positive impact on the research culture. They shed light on the dynamic interaction between individual empowerment and institutional development and show that empowering researchers and increasing their capabilities, self-confidence, and access to resources is one of the ways to have a stronger, more cooperative, and innovative research environment.

The implication in the Iraqi context is that there is a possibility that the processes of transformation of an immature to mature and sustainable research culture can be expedited through strategic investments in human capital facilitated by clear institutional policies and international collaborations. In a larger sense, work is part of the wider discussions of knowledge-economy development by noting that the culture of research is born out of the perception but developed through long-term institutional investment.

5. DISCUSSION AND CONCLUSIONS

This chapter interprets the findings provided in Chapter 4 and elaborates on them, which in addition creates relations between the findings and the objectives of conducting the study, the theoretical framework, and the existing body of knowledge. This study was conducted with the aim to examine the correlation between perceived research capacity (PRC) and research culture (RC) using the prism of Iraqi researchers. The reliability testing, descriptive statistics, correlation and regression analysis were all included in the analyses that were done to test the hypothesized relationship.

The results suggest that the perceived research ability is the most critical predictor of the development of research culture. This is an implication that when researchers feel empowered and motivated, they will find it easy to play a role in a conducive environment that supports thriving and fruitful research. As a result, the chapter puts these results in the context of the earlier developed theories, among which the Social Cognitive Theory by

Bandura (1986) stands out the most, and the previous empirical studies. It also highlights both theoretical and practical effects of such findings on the research industry in Iraq.

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5.1 THE MOST IMPORTANT FINDINGS DISCUSSED

To be more precise, the three most significant empirical conclusions that have been reached in Chapter 4 are the following: measurement tools with a high level of dependability; perceptions of the PRC and RC are at least moderately positive among the respondents; the existence of statistically significant predictive correlation between the factors of PRC and RC. Every finding offers situationalized information of how capacity and culture relate to each other in research institutions in developing settings that is understood against the backdrop of prior studies.

Interpreting the findings according to Cohen's (1988) benchmarks indicates that the relationships identified in this study range from moderate to strong in magnitude. The strong association between perceived research capacity and research culture is consistent with previous empirical findings reported by Brew et al. (2016) and Pham et al. (2020), who found that institutional research support and capacity are key drivers of positive research cultures.

Notably, the strength of organizational research capacity as a predictor of research culture appears more pronounced in the present study. This may be attributed to the resource-constrained and post-conflict context of Iraq, where institutional support, infrastructure, and governance play a critical role in enabling research activities. In such contexts, deficiencies at the organizational level may have a disproportionately strong impact on research culture compared to individual-level factors.

5.1.1 Validity of measurement and Reliability of the measurement

The reliability analysis demonstrated that the two scales which were used in the research study, i.e., Perceived Research Capacity (Cronbach's 0.88) and Research Culture (Cronbach's 0.91), were internally consistent and statistically reliable. These results are above the widely accepted level of 0.70 in social science research (Hair et al., 2019), which proves that the survey items measured the dimensions under study. Taber (2018) suggests that such a high level of internal consistency indicates the strength of the measurement method, as the researcher talks about the importance of the consistency of scales in the analysis of attitudinal and behavioral factors in educational studies.

Creswell and Creswell (2018) also argue that excellent measurement validity improves empirical results interpretative credibility. The PRC and RC instruments used in this study were not only statistically sound but also conceptually consistent with other studies done in the context of higher- education and institutional research. It can therefore be assumed that the constructions have been operationalized in the right way and that the associations that have been observed cannot be because of an experiment that has caused measurement errors and therefore increase the level of confidence in the validity of the later analysis, especially regression.

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The descriptive analysis showed that the respondents rated moderately the capacity of their research ($M = 3.47$, $SD = 0.54$) and research culture ($M = 3.38$, $SD = 0.44$). These averages indicate that although Iraqi researchers emphasize the fact that institutional research capacities are constantly developed, many of them still must face structural and contextual issues. This is consistent with the results of Al-Khafaji (2021), who has recognized institutional barriers to academic output in Iraqi establishments, such as the insufficient

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5.1.3 The Correlation Research Culture and Perceived Research Capacity

The research shows there exists a strong positive relationship between PRC and RC ($r = 0.71$, $p = 0.01$). This suggests that researchers who highly perceive themselves as capable of doing anything are more apt to work in and/or contribute to a culture of research that is dynamic and supportive. This finding is consistent with a body of strong literature that demonstrates the reciprocal strengthening of the individual capacity and institutional culture. Bland and Ruffin (1992) suggested that effective research environments are characterized by synergy existing between individual motivation and organizational support; the current results support this claim. Hemmings and Kay (2016) have also discovered that the self-efficacy of researchers is directly related to the output of publications and their participation in scholarly societies.

The fact that the correlation is strong in this study indicates that capacity-building programs can have a direct and immediate influence on cultural outcomes, hence the argument that personal and organizational factors that determine research success are inter-dependent. This relationship provides the empirical support of the wider socio-cognitive mechanisms that Bandura (1986) described, where the idea of self-belief in abilities is relevant in making behavior and adjusting to the environment. This in research institutions is taken in the form of a virtuous circle and that is, confidence breeds participation which breeds culture and then confidence breeds culture, and so on.

5.2 HYPOTHESIS AND REGRESSION ANALYSIS TESTING

The results of the regression analysis showed that perceived research ability is a significant predictor of the research culture ($R^2 = 0.71$, $p = 0.001$), which explains half of the variance in the dependent variable. This piece of evidence supports the hypothesis that the perceived ability of the researchers directly contributes towards creating a research-supportive and productive environment. The results agree with the social-cognitive theory (Bandura, 1986) that argues that the skill beliefs of individuals determine their motivation, efforts, and perseverance. Self-efficacy in the context of institutions would be translated into proactive engagement, teamwork, and creativity, which are behaviors that make up research culture in an organization.

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5.3 THEORETICAL IMPLICATIONS

The research contributes to the theoretical knowledge of the impacts of individual psychological constructs on organizational dynamics. Applying the framework of Bandura (1986) to the specifics of institutional research reveals that the perceived ability does not only plays its role at the individual level but is also an underlying factor of the collective cultural development.

On the one hand, perceived capacity, being both a precursor and a driver, can be discussed as a part of the theoretical model of the development of research culture, where the increased level of confidence in personal abilities leads to participation, experience exchange, and the establishment of an innovative-friendly atmosphere.

This social-cognitive theory of reciprocal determinism is the bearer of the interplay between the cyclic interaction of culture and cognition over time. In addition to this, the research contributes positively to the research management discussion in new settings where structural changes are always characterized by weak institutional cultures by showing that psychological empowerment and skills enhancement can initiate cultural change instead of just structural changes.

What this mean to Everyday Life?

These results have the practical implications to the policymakers, academic administrators and the overseers of the research especially in Iraq where reconstruct of research infrastructure is a priority. The research provides practical information on how to address institutional changes. The capacity-building investment programs like routine workshops and training on research methods, proposal writing and publication of research articles can significantly affect the self-efficacy positively of researchers hence developing the culture of research.

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These objectives will be operationalized by embedding research culture considerations into national higher-education policies with clear performance indicators, allowing international collaboration, and clear funding practices. By applying these strategies, organizations can create a virtuous cycle whereby greater capacity results in a stronger culture, which in effect creates further development and innovation.

Despite presenting necessary information, it should be noted that the study has serious limitations. To begin with, the sample ($N = 100$) restricts the usability of the results in the study on the population surveyed. The next studies should focus on improving external validity by using larger and more diverse samples consisting of research centers and institutions.

Second, the research only used self-reported survey data, which can create response biasness. It may be a deeper context and add more qualitative data to the scenario by adding supplementary qualitative approaches (interviews or focus groups).

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Lastly, no direct analysis of the contextual variables was done; that is, the style of leadership, institutional finances as well as the governance structures; however, such variables can serve as moderators or mediators that need further research.

The results are another indicator that the perceived research capacity has a significant and positive impact on the research culture. They shed light on the dynamic interaction between individual empowerment and institutional development and show that empowering researchers and increasing their capabilities, self-confidence, and access to resources is one of the ways to have a stronger, more cooperative, and innovative research environment.

The implication in the Iraqi context is that there is a possibility that the processes of transformation of an immature to mature and sustainable research culture can be expedited through strategic investments in human capital facilitated by clear institutional policies and international collaborations. In a larger sense, work is part of the wider discussions of knowledge-economy development by noting that the culture of research is born out of the perception but developed through long-term institutional investment.

In conclusions This thesis explored the Perceived Research Capacity (PRC) and Research Culture (RC) of the scholars of the Iraqi higher education sector. A quantitative study of a sample of 100 scholars working in various institutional and disciplinary backgrounds showed that the perceived research capacity is a predictor and determinant of research culture. The results are useful to the theoretical knowledge base and offer practical suggestions to post-conflict and emerging research ecosystems. So, the thesis answered the research question in four main conclusions

The alpha coefficients of 0.88 and 0.91 when assessing the constructs of PRC and RC, respectively, were used to show strong reliability of measurement tools. Despite the complexity and cultural flexibility of the constructs, they can be effectively and reliably

evaluated in the situation of Iraq. High internal consistency, therefore, guarantees the reliability of the information and the legitimacy of further processing.

The descriptive statistics indicated that the Iraqi researchers had comparatively positive views on their research competences ($M=3.47$) and institutional culture of research ($M=3.38$). These results recognize the current strengths and developments but at the same time show that there is much room to develop even more. Even though researchers have the necessary experience and interest, existing institutional systems limit their possibilities.

Third, significant positive relationships between PRC and RC ($r = 0.71$, $p < 0.01$) suggest that researchers with more positive views on individual and organizational capabilities will have more chances to report on stronger and supportive research cultures. The relationship between capacity perceptions and cultural experiences is strongly connected, as this association highlights.

Fourth, the regression analysis showed that PRC explained 50 percent of the variation in RF (0.71 , $p, < 0.001$, $R^2 = 0.50$). The validity of this predictive relationship is helpful in corroborating the claim that perceive

ed competence in researchers directly affects the culture of institutional research.

The research adds a lot to the theoretical perspectives in the sense that it expands Bandura social cognitive theory as well as self-efficacy framework to an organizational culture context, thus showing that competence beliefs can influence the individual performance as well as cultural trends. The research combines both research capacity development and the literature on organizational culture, hence resulting in the findings that these two areas are not independent interventions, but instead are related.

The results add to the existing body of knowledge on post-conflict and new research development. The study suggested that perceptions can alleviate the material scarcity in resource limited environments. Researchers who hold onto their capabilities will continue to participate and contribute to the research culture even in the presence of structural barriers.

The practical implications are of great scale and can be implemented by different stakeholders. Enhancement of research capacity is a driver to cultural transformation that should be one of the priorities of institutional leaders, rather than skill development. Emphasis should be made on professional growth, mentorship, recognition, strategic

infrastructure investment, and enhancing collaborative networks because these initiatives improve self-esteem and solidify the research culture.

As far as policy makers are concerned, national research policy must be able to sustain funding, international cooperation, lessen the bureaucratic barriers, academic freedom of researchers, and invest in research infrastructure. The strengthening of institutional capability through policies is predicted to strengthen the research culture in higher education.

The research proposes that proactive career building, active networking, involvement in institutional research, and mentorship of junior colleagues can be used in promoting cultural change. Cultural evolution is guided by both personal and organizational behaviors which are controlled by the higher authority.

The results provide evidence-based guidelines on how Iraq can rebuild and expand its research industry that has been affected by a long period of disruption. This research shows that the Iraqi researchers are resilient, skilled, and dedicated in the face of significant obstacles. It is possible to set up institutional and policy frameworks which can tap into human capabilities.

Although the study shows that there is improvement, it is not a complete one. Some of the methods that can hasten the process of Iraq transitioning into a strong research culture include expansion of capacity-building activities, which include training, mentoring, financing, infrastructure, and international partnerships. The high degree of relationship between PRC and RC presupposes cultural gains because of such efforts.

Even though the study is mainly restricted to Iraq, the findings can be generalized to other post-conflict and third world countries that are facing similar problems. The research may help nations to rebuild their research systems, especially the ones with intellectual capital and limited resources, and support regions to improve their research ecosystems. It is expected of the theoretical mechanisms provided including the impact of the perceived competence on cultural engagement to operate in various contexts in different forms.

The cross-sectional nature of the study, use of self-reported data, small sample size, and exclusion of some variables are methodological weaknesses. The most effective way to determine both temporal precedence and causality is to use longitudinal designs in future studies, add qualitative methods to elicit contextual differences, expand to comparative

international research, and test more integrative models that include multiple predictors and mediating processes.

Despite these shortcomings, the research provides significant empirically based information on capacity culture interactions in a little-known setting. The good associations found, the theoretical consistency of the results, and the agreement with the existing research in other settings support the main conclusions, but the complete understanding can be achieved only with the help of further studies.

Research cultures cannot be developed by policy requirements, oral promises, and organizational improvements. Instead, these cultures are born out of everyday behaviors, attitudes, relations, and experiences of institutional researchers. Scholars who feel that they have the necessary abilities, resources, and encouragement are more likely to become active scholars. These personal encounters, in the long run, produce collaborative networks, ideological solidarity, intellectual vitality and normative demands which, in combination, constitute the research culture.

The Iraqi research institutions need to improve technical expertise and confidence to expand. Participation should be motivated by recognition mechanisms, institutional frameworks should support it, and leadership should emphasize research as part of institutional identity and national progress.

The process of changing the existing state to the desired future is time-based. New cultural norms and behaviors take time to be established. Such transformation is possible, and the implementation plan is clear as exhibited in this thesis.

Iraqi institutions will be able to develop dynamic and productive cultures of research that can be used to improve innovation, development of society, and economic growth. Perceived research capacity can be enhanced through interventions of a quasi-personal level, including professional growth, mentorship, facility enhancements, financial distribution, recognition, and collaboration. These measures will also strengthen institutions and help Iraq to reform and flourish.

The research states that good attitudes were promising at the beginning of this journey. The Iraqi institutions of research can build research cultures that can incorporate international standards and be higher than the international standards by responding to the local needs,

goals, and circumstances. This can be developed based on strategic investment, commitment and evidence-based strategies. This thesis provides evidence based on empirical findings on the concept of capacity building and offers guidelines on the way capacity building should be practiced.

5.4 RECOMMENDATION

a. Strengthening Institutional Research Capacity

The study makes it clear: research culture really depends on how strong an institution's research capacity is. So, things like solid institutional structures, transparent administration, and enough resources aren't just nice to have they're essential. Universities need real research management offices to handle funding, ethics, and project oversight. When these processes work, researchers get to spend less time tangled up in paperwork and more time doing what matters asking questions and pushing boundaries. And here's the thing: labs, libraries, and digital resources still lag in many Iraqi universities. Without up-to-date databases and research tech, progress just stalls. Better digital connectivity changes the game, helping people work together, share ideas globally, and raise the bar for the whole institution. In the end, a well-supported and well-run environment is the backbone of real research excellence and lasting innovation.

b. Promoting Collaborative Research and Team Capacity

Team research capacity isn't far behind it's the next big driver of a strong research culture. Collaboration isn't just a buzzword. When people work together, ideas spark, productivity climbs, and everyone learns more. Iraqi universities could really benefit from building more interdisciplinary teams and encouraging departments to join forces. Mentorship also matters; when senior researchers guide newcomers, everyone grows skill, confidence, even the sense of responsibility. And if universities open doors to regional and international collaboration, scholars get exposed to new ways of thinking and research quality only gets better. At the end of the day, when people value teamwork and collective wins, you end up with a lively, inclusive research environment that keeps getting stronger over time.

c. Developing Personal Research Skills

While very important, institutional and team capacities, individual competence and self-efficacy also play a significant role in shaping research culture. Researchers who feel

capable and supported are more likely to be motivated to undertake and publish quality research. For this, universities need to develop continuous professional development programs focusing on research design, data analysis, proposal writing, and ethics. Regular workshops, seminars, and online courses will enhance methodological skills and confidence. Encouragement of participation in international conferences and exchange programs will lead to greater exposure and innovation. Recognition of individual achievements through awards, promotions, and publication incentives ensures motivation and helps nurture a culture of excellence and accountability.

d. Policy and Governance Reforms

The Ministry of Higher Education and Scientific Research at the national level should implement a single, evidence-based policy framework to guarantee autonomy, transparency, and accountability. It is necessary to establish a National Research Fund to provide support to high-impact projects, while encouraging competition based on merit and innovation. Universities should be allowed to have full flexibility in determining research priorities and collaborating with industry to diversify sources of funding. Governance reforms of this kind will ensure better coordination, strategic planning, and institutional responsiveness to place Iraq's higher education system in a regionally and globally competitive position.

e. Fostering a Culture of Recognition and Motivation

A lot of Iraqi researchers feel like their hard work goes unnoticed. That's a tough place to be. If you want people to stay motivated and loyal to their institutions, you must show them their efforts matter. Universities need to step up with clear, honest ways to reward great work things like research awards, internal grants, or promotions tied to performance. But don't just focus on how many papers someone publishes. Real recognition covers mentorship, creativity, and community involvement too. Evaluation systems should be about growth and new ideas, not just ticking boxes. When people feel safe to speak up and know they're valued, trust and collaboration get stronger. In the end, a fair recognition system brings everyone's goals together and keeps people committed to pushing research forward.

f. Integrating Research into Teaching and Learning

Bringing research into the classroom sparks curiosity and gets students thinking more critically. Iraqi universities need to make research-based learning a regular part of both undergrad and postgrad studies. When students take on small projects with guidance from faculty, they get a real feel for how research works. Professors should pull examples and insights from their own research into their lectures, making it easier for students to see how theory connects to the real world. This approach builds strong analytical and technical skills early on, so graduates walk away understanding why research really matters for their future careers. If universities keep this up, they'll create a lasting research culture that sticks.

g. Strengthening International Collaboration

Working with universities abroad centre's is a keyway to build up expertise and resources. Iraqi universities need to reach out sign agreements, start joint research, and set up faculty exchanges with respected institutions worldwide. These partnerships open the door to funding, better labs, and fresh ways of doing things. Programs like dual degrees and joint PhD supervision can take postgraduate research up a notch. But the point isn't to become dependent; real collaboration means both sides benefit and learn from each other. With the right approach, these connections help Iraqi researchers step up and start leading the way in global research, not just following along.

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APPENDIX A

SURVEY

This research is part of an ongoing master's thesis at Altınbaş University. The study aims to investigate the impact of perceived research capacity on research culture. The answers to the questions will be presented cumulatively, and your personal data will not be shared with any other person or institution. Thank you in advance for your support in our research.

ZAHRAA JAAFAR SAHIB

I. Research Capacity

A. Organization Level (Center)

1. Please rate your organization's success or skill level for each of the following aspects.

Organization		1	2	3	4	5
1	has adequate resources to support staff research training					
2	has funds, equipment, or admin to support research activities					
3	has a plan or policy for research development					
4	has senior managers who support research					
5	ensures staff career pathways are available in research					
6	ensures organisation planning is guided by evidence					
7	has consumers involved in research					
8	accesses external funding for research					
9	promotes clinical practice based on evidence					
10	encourages research activities relevant to practice					
11	has software programs for analysing research data					
12	has mechanisms to monitor research quality					
13	has identified experts accessible for research advice					
14	supports a multi-disciplinary approach to research					
15	has regular forums/bulletins to present research findings					
16	engages external partners (e.g., universities) in research					
17	supports applications for research scholarships/ degrees					
18	supports the peer-reviewed publication of research					

B. Team Level (Unit / department)

2. Please rate your team's current success or skill level for each of the following aspects.

Team		1	2	3	4	5
1	has adequate resources to support staff research training					
2	has funds, equipment or admin to support research activities					
3	does team level planning for research development					
4	ensures staff involvement in developing that plan					
5	has team leaders that support research					
6	provides opportunities to get involved in research					
7	does planning that is guided by evidence					
8	has consumer involvement in research activities/planning					
9	has applied for external funding for research					
10	conducts research activities relevant to practice					
11	supports applications for research scholarships/ degrees					
12	has mechanisms to monitor research quality					
13	has identified experts accessible for research advice					
14	disseminates research results at research forums/seminars					
15	supports a multi-disciplinary approach to research					
16	has incentives & support for mentoring activities					
17	has external partners (e.g., universities) engaged in research					
18	supports peer-reviewed publication of research					
19	has software available to support research activities					

C. Individual Level

3. Please rate your own current success or skill level for each of the following aspects.

individual		1	2	3	4	5
1	Finding relevant literature					
2	Critically reviewing the literature					
3	Using a computer reference system (e.g., Endnote)					
4	Writing a research protocol					
5	Securing research funding					
6	Submitting an ethics application					
7	Designing questionnaires					
8	Collecting data e.g. surveys, interviews					
9	Using computer data management systems					
10	Analysing qualitative research data					
11	Analysing quantitative research data					
12	Writing a research report					
13	Writing for publication in peer-reviewed journals					
14	Providing advice to less experienced researchers					

II. Research Culture:

To what extent do you agree with the following statements		1	2	3	4	5
1	I have a good level of job satisfaction					
2	I feel included in my immediate research environment/group					
3	My manager promotes a good work-life balance.					
4	My working environment supports my mental health and wellbeing					
5	My institution is committed to equality, diversity and inclusion					
6	I feel that my future at my institution is secure					
7	Different ideas and approaches to research are valued in my working environment					
8	Creativity is welcomed within my working environment					
9	There are opportunities for me to collaborate with colleagues/peers					
10	I feel like I can voice ideas, concerns and questions without fear of repercussion or humiliation					
11	I feel that ethical standards are high in my research environment					
12	I feel able to raise any concerns I have with research practice at my institution					

Socio-Demographic information:

1. Please indicate any research activity you are currently involved with

☐ Writing a research report, presentation or paper for publication
☐ Writing a research protocol
☐ Submitting an ethics application
☐ Collecting data e.g. surveys, interviews
☐ Analysing qualitative research data
☐ Analysing quantitative research data
☐ Writing a literature review
☐ Applying for research funding
☐ Not currently involved with research
☐ Other _____

2. Please state whether research-related activities are part of your role description:

☐ Yes

☐ No

If yes, what provisions are made for you to conduct research as part of your role?

☐ Software	☐ Administrative support
☐ Research supervision	☐ training
☐ Time	☐ Library access

☐ Research funds	☐ Other _____
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3. Please indicate your professional qualifications:

- ☐ Certificate
- ☐ Undergraduate
- ☐ Postgraduate
- ☐ PhD
- ☐ Other

4. Are you currently enrolled in any higher degree study or other professional development related to research?

- ☐ Yes
- ☐ No

5. What is your age?

☐ under 20	☐ 20-29	☐ 30-39	☐ 40-49	☐ 50-59	☐ over 60
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6. What is your gender?

- ☐ Male
- ☐ Female

7. How long have you been Working in research center

☐ less than 5 years	☐ 5-10 years	☐ over 10 years
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