

The Reality of Qualitative Internal Efficiency in Postgraduate Studies at Yemeni Public and Private Universities

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Abstract

This study investigates the similarities and differences in the qualitative internal efficiency of postgraduate studies across Yemeni public and private universities. The analysis focuses on five key dimensions: the mission and objectives of postgraduate programs, the academic structure, the organizational and administrative structure, the physical infrastructure, and financial resources. The ultimate goal is to propose actionable strategies for enhancing the qualitative internal efficiency of postgraduate studies in both sectors. This study employed a descriptive approach, utilizing documentary, analytical, and comparative methods. The most significant findings include: both Yemeni public and private universities articulate clear and defined missions and objectives. These focus on the efficiency of the output (postgraduate students) and on contributing to community service and research institutions to support national development strategies. Both university types adhere to the Yemeni Universities Law concerning the duration of study, the teaching system, admission procedures, and the mechanisms for supervision and thesis defense. Private universities are distinguished from their public counterparts by the full dedication of their faculty members to teaching duties, community service, and scientific research. Furthermore, private universities emphasize the periodic evaluation of their staff. Both Yemeni public and private universities operate with an approved and flexible organizational structure for postgraduate studies, enabling them to manage their affairs and fulfill their mission. There is a shared focus on transitioning from manual to electronic systems by linking all departments and colleges via an internal network. The study recommends developing a joint governance system that strategically leverages the strengths of both the public and private university models. Developing a unified accreditation system for all universities to ensure consistent quality and standardization

Keywords: Efficiency, Internal Efficiency, Postgraduate Studies

Introduction

The twenty-first century has marked a profound transformation in the governmental role concerning the outcomes of postgraduate programs. This role has shifted from merely funding academic programs to actively guaranteeing their efficiency, effectiveness, and the quality of their outputs. Consequently, many nations have established specialized bodies to evaluate academic programs and grant quality accreditation. University measurement and evaluation methods are diverse, encompassing the assessment of faculty, educational processes and methodologies, the internal structures of departments, colleges, and the university as a whole, curriculum review, student evaluation, and graduate follow-up. These techniques employ both quantitative and qualitative approaches.

National progress and advancement are intrinsically linked to a country's capacity to train its domestic workforce and its ability to invest in human capital and utilize it to boost production. Therefore, a strong focus on postgraduate studies is paramount. Their importance stems not only from representing the highest level of academic pursuit but also from their critical role in preparing the university faculty entrusted with qualifying the next generation of university students. This process is vital for developing a skilled workforce capable of addressing contemporary challenges, keeping pace with development and growth, and leading society across various scientific, political, economic, administrative, cultural, and technological domains (Al-Obeidi, 2004, 39).

Moreover, when properly planned, executed, and supported by high-caliber faculty, modern equipment, and well-equipped laboratories, postgraduate studies serve as a crucial tool for enhancing undergraduate programs. They are the primary mechanism for transforming a university from a simple knowledge-transfer institution (a teaching university) into a research university that generates scientific knowledge and actively seeks to apply it to solve the diverse problems hindering national development. However, postgraduate studies in emerging institutions, including Yemeni universities, have not yet reached full maturity. This is primarily due to constraints such as a limited number of specialized faculty, insufficient specialized libraries, and a lack of other resources necessary to efficiently manage their responsibilities (Mutahar, 2005, 10).

The measurement of university educational process efficiency has garnered considerable attention in recent years. This heightened focus is largely due to the significant quantitative wastage observed in many higher education institutions, which negatively impacts the volume and cost of educational output. This situation has fueled skepticism among governments and institutions that dedicate substantial portions of their budgets to higher education regarding the actual efficiency and effectiveness of the educational process (Al-Hilali, 2004, 2).

Numerous studies have explored the evaluation of efficiency and effectiveness and the measurement of university educational process efficiency. For instance, Dalal's study (2005), titled "Evaluating the Performance of Yemeni Public Universities with the Aim of Improving Efficiency and Effectiveness," concluded that a gap exists between the actual performance and the expected performance as perceived by students and the community regarding the services provided by university colleges.

Similarly, Al-Ataab's study (2007) evaluated the postgraduate program in the Colleges of Education at emerging Yemeni public universities from the perspective of educational leaders, faculty members, and postgraduate students. The findings indicated a weakness in the implementation level of postgraduate programs, particularly in the administrative service aspect. While the academic-scientific aspect was generally rated as average, postgraduate students expressed dissatisfaction with the administrative dimension of the programs, suggesting that the academic field performed better than the administrative service field.

Al-Mahbashi (2012) investigated the status of postgraduate programs at Sana'a University in light of academic accreditation standards. The study revealed that the academic leaders' and faculty members' assessments indicated that the academic accreditation standards for postgraduate programs at Sana'a University were not sufficiently met. Furthermore, the study confirmed deficiencies in the postgraduate programs, including the absence of a clear, precise, and written program description. These programs had not undergone self or external evaluation, failed to keep pace with scientific advancements in various disciplines, and did not adequately prepare students to utilize modern technology applications in their fields.

In light of the preceding context, the current study holds strategic importance for postgraduate studies in Yemeni universities. It is closely linked to analyzing the qualitative internal competitive efficiency of postgraduate studies in both Yemeni public and private universities across five academic standards: program mission and objectives, academic structure, organizational and administrative structure, physical infrastructure, and financial resources. These standards are derived from the Self-Evaluation Study Guide for Postgraduate Programs 2017, issued by the Council for Academic Accreditation and Quality Assurance. The study also seeks to identify proposed strategies for enhancing this efficiency in Yemeni universities, thereby contributing to the knowledge base and addressing a significant scientific and cognitive gap in this domain.

Study Problem

Yemeni universities have experienced considerable quantitative expansion. However, this growth has occurred without a corresponding alignment between educational outputs and the needs of the labor market. This

misalignment has resulted in a massive influx of graduates, many of whom remain unemployed. The core issue is not merely the increasing number of graduates, a logical outcome of quantitative expansion, but rather the quality and efficiency of these graduates and the relevance of their specializations to labor market demands. Consequently, a fundamental conflict exists between the quantity and quality of educational outputs and the market's demand for these outputs (Ministry of Planning and International Cooperation, 2014, 98).

Despite the vital role of postgraduate programs in enriching scientific study and qualifying leadership competencies essential for achieving university and societal goals, these programs face a crisis characterized by low student productivity, high retention rates, and a deficit in the preparation and number of faculty members primarily dedicated to postgraduate studies (professors, associate professors, etc.) (Mahmoud, 2004).

The stagnation in postgraduate studies and scientific research in Yemen can be attributed to the recent establishment of most Yemeni universities and the weakness of their material and human resources. Furthermore, the necessary driving and supporting components required to engage effectively in this field are lacking. This is particularly evident in the incomplete specialized teaching staff with advanced qualifications and experience, the inadequate structural infrastructure, the absence of sufficient material and moral support, and the lack of an encouraging environment for scholars, students, and researchers (Supreme Council for Educational Planning, 2014, 89).

The issuance of Republican Decree No. (210) in 2009, which established the Council for Academic Accreditation and Quality Assurance of Higher Education, represents a pivotal turning point for postgraduate programs in Yemeni universities. Recognizing the imperative to align educational outputs with labor market requirements and the growing interest in the efficiency and effectiveness of education and scientific research, particularly at the postgraduate level, the goal is to fulfill the aspirations of Yemeni society by undertaking educational and research roles within a framework of increasing productivity and required efficiency.

Therefore, there is an urgent need for measurement tools and indicators that can demonstrate the capacity of the postgraduate system in Yemeni universities to achieve its planned objectives. The most significant challenge to Yemen's development trajectory is improving the quality of education and its outputs to meet the needs and demands of the labor market. This necessitates effective solutions to these problems, which are encapsulated in the following main research question:

What is the reality of the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities?

The main question is further explored through the following sub-questions:

- What are the similarities and differences in the reality of the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities in terms of (program mission and objectives, academic structure, organizational and administrative structure, physical infrastructure, and financial resources)?
- What are the possible proposals for developing the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities?

Study Objectives

The study aims to ascertain the reality of the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities by achieving the following sub-objectives:

- To identify the similarities and differences in the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities across the five dimensions: program mission and objectives, academic structure, organizational and administrative structure, physical infrastructure, and financial resources.
- To formulate proposals for developing the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities.

Significance of the Study

The study's significance lies in its potential to inform officials and stakeholders responsible for postgraduate studies about the actual state of qualitative internal competitive efficiency in Yemeni universities, thereby highlighting key strengths and weaknesses. The findings are expected to have practical implications, assisting postgraduate administrators, planners, and decision-makers in making prudent decisions that enhance the quality of postgraduate outputs. Furthermore, the study contributes to the knowledge base by providing empirical data and information on the reality of qualitative internal competitive efficiency in Yemeni university postgraduate programs.

Study Scope

The study focused on determining the reality of qualitative internal efficiency in postgraduate studies by examining the application of the Level One academic accreditation standards for postgraduate programs, as issued by the Council for Academic Accreditation and Quality Assurance of Higher Education in Yemen. The study was delimited by the following boundaries:

- Substantive Scope: Determining the reality of the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities.
- Geographical Scope: Public universities (Sana'a University as a model) and private universities (University of Science and Technology as a model).

Study Terminology Qualitative Internal Efficiency:

This refers to the educational system's capacity to produce a graduate whose qualifications meet the intended purpose. Modern educational systems prioritize not merely the number of graduates but the provision of a new quality of graduates (Youssef, 2016, 58).

Qualitative Internal Efficiency (Operational Definition):

This is the educational system's internal achievement of its objectives, specifically the relationship between inputs and outputs. Operationally, it is the capacity of the postgraduate system in Yemeni universities to achieve its goals through the educational and research services it provides, in accordance with the Level One standards for postgraduate programs issued by the Council for Academic Accreditation and Quality Assurance of Higher Education in Yemen. It encompasses five standards:

- Program mission and objectives.
- Academic structure of the program.
- Organizational and administrative structure of the program.
- Physical infrastructure required for postgraduate programs.
- Financial structure required for program implementation.

Postgraduate Studies:

This is the higher university stage following the Bachelor's degree, leading to a Master's or Doctoral degree in a specialization. The standard duration of study is two years for a Master's and three years for a Doctorate. The student typically completes a preparatory year in the initial stage before proceeding to the writing and research stage (Al-Aani & Al-Attar, 2004, 164). Alternatively, the term refers to the process of revitalizing, renewing, developing, and enhancing the knowledge, experiences, skills, methods, and performance of individuals who have already obtained their high or higher degrees and entered professional life.

Postgraduate Studies (Operational Definition):

This refers to all currently active programs in postgraduate studies (Diploma, Master's, Doctorate) in Yemeni universities, as well as the specific regulations governing their application and implementation.

Theoretical Framework

The focus on efficiency is driven by the increasing expenditure on education, the proportion of the state's general budget allocated to education, and the growing imperative to reduce educational wastage (failure and dropout), which results in a loss of effort, financial, and human resources. There is also a strong emphasis on linking educational outputs at all levels, both quantitatively and qualitatively, to the needs of comprehensive national development, including economic and social progress. Furthermore, there is a rising interest in studying the efficiency of learning systems to identify and rectify shortcomings that impede educational institutions from fulfilling their community service role.

Efficiency is an aspirational goal for all contemporary organizations operating in a continuously competitive environment and under significant economic pressure. Managerial efficiency is defined by an institution's ability to effectively utilize its available resources to achieve desired goals. Measuring efficiency in the education sector is complex, as it involves multiple inputs corresponding to multiple outputs, where the nature and quality of the outputs differ from the inputs. While inputs include teachers, administrators, and technicians, outputs consist of both graduated students and those still pursuing their studies (Al-Mahdi et al., 2017, 89).

The concept of efficiency gained prominence in education due to the sustained growth and interest in education generally, and the rationalization of educational spending specifically. The aim is to maximize direct and indirect returns with minimal costs and effort, without compromising quality (Al-Shammari, 2019, 9).

A strong correlation exists between productivity and educational efficiency. Productivity is defined as the ratio of outputs to inputs—the rate at which inputs are converted into outputs. Educational efficiency, conversely, refers to the educational system's capacity to achieve its stated objectives, which involves arranging the input-output ratio across various educational institutions. This leads to the conclusion that productive efficiency and educational efficiency are two interconnected and integrated levels: internal efficiency and external efficiency.

Significance of Internal Efficiency (Farghal, 2020, 297):

- Minimizing educational wastage to the lowest possible level.
- Providing planners with insights into the strengths and weaknesses of the educational institution's efficiency.
- Optimizing input utilization and maximizing educational outputs.
- Preserving the educational institution's resources and ensuring their optimal allocation.

Types of Educational Efficiency

A distinction must be made between internal efficiency and external productivity.

Internal efficiency refers to the relationship between the educational system's outputs and its inputs, encompassing three primary dimensions: Quantitative Efficiency, Qualitative Efficiency, and Cost-Related Efficiency. External productivity, conversely, relates to the quality of the educational system's outputs and is defined by the system's ability to meet the labor market's needs for various specializations in the appropriate quantity, quality, and timeframe (Khalifa, 2004, 403).

Manifestations of Internal Efficiency

A- Quantitative Internal Efficiency:

Quantitative internal efficiency measures the educational system's ability to produce or graduate the largest number of students relative to the number of entrants (Maras, 2017, 212). Studying this form of efficiency is an effective strategy for enhancing educational productivity and reducing its cost, thereby enabling the optimal utilization of material and human resources and capabilities (Abdulqader, 2012, 24).

B- Qualitative Internal Efficiency:

This is demonstrated by the system's capacity to define educational goals for its inputs and its competence in investing its available material and human resources. It also reflects the ability to benefit efficiently from the educational process through the roles prescribed by the study programs (Al-Saadi, 2019, 231).

Furthermore, it signifies the degree to which quality standards are met by graduates according to established specifications, ensuring that graduates are capable of social and economic contribution (Abbas et al., 2011, 186).

Qualitative efficiency is fundamentally dependent on the quality of the output and the extent to which it possesses quality or meets the specifications and standards set by the system (Al-Dhabani, 2007, 760).

C- Cost-Related Internal Efficiency:

This dimension focuses on measuring the unit cost, which should be minimized without compromising the quality of the output (Al-Siddiqi, 2020, 232). It differentiates between cost-related efficiency and the theoretical cost per student, which assumes all enrolled students complete the educational stage within the prescribed period without educational wastage (failure). The educational or actual cost borne by society for a student to complete the educational stage within the allowed period accounts for failure or dropout and their impact on increasing the average time required for completion, and the resulting increase in the unit cost of the final output (Al-Qahtani, 2015, 85).

In essence, it means that the unit cost should be at the lowest possible level without sacrificing quality. A lower cost of education coupled with maintained quality is an indicator of the educational system's efficiency. This is measured by calculating the cost per graduate, considering the

average duration of study spent in the educational stage and comparing it with the necessary duration for graduation without failure (Maras, 2017, 214).

Factors Contributing to Low Internal Educational Efficiency

The economic perspective on education necessitates the rationalization of invested capital and the rationalization of expenditure. Wastage is a primary factor leading to low educational efficiency. Therefore, avoiding educational wastage is crucial, as any resulting loss of money, time, or effort expended in education is termed loss or wastage (Al-Ajmi, 2020, 10).

Evaluation and Measurement of Internal Efficiency

A- Evaluation of Internal Efficiency:

Evaluating the internal efficiency of the educational system is a critical step, a necessary checkpoint to ensure the educational process is moving in the correct direction. Evaluation is the optimal method for identifying strengths and weaknesses in performance. It also prompts a review of established goals, addresses deficiencies in the educational process, and ensures the qualification of staff involved (Al-Qadah, 2015, 167).

B- Methods for Measuring Qualitative Internal Efficiency:

Qualitative internal efficiency is measured using various evaluation tools, such as achievement tests, social relationship tests, intelligence tests, and tests for measuring skills and attitudes (Abdulqader, 2012, 32).

Qualitative internal efficiency is directly linked to the quality of education provided and the quality of the learner produced by the system. It is measured by the efficiency of the educational elements within the system and the degree to which the output conforms to the targeted specifications. This is achieved through the analysis of examination results, which is then used to address and correct the quality of the educational product in future processes.

This is accomplished by evaluating the content of the educational process, the objectives and structure of education, educational aids, study plans, curricula, teaching methods, teacher preparation, and education management.

Study Methodology

The study adopted the descriptive approach, employing its documentary, analytical, and comparative forms. The goal was to clarify and classify the similarities and differences between Yemeni public and private universities across various comparable aspects, using the standards of qualitative internal efficiency and quality standards. This comparative analysis was

intended to lead to proposed strategies for developing postgraduate studies in Yemeni universities. Data was collected from documents, previous studies, books, statistics, and reports.

Study Results and Discussion

The main research question, "What is the reality of the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities?"

Is addressed by answering the following sub-questions:

First: Results Related to the First Sub-Question

The first sub-question asks, "What are the similarities and differences in the reality of the qualitative internal competitive efficiency of postgraduate studies in both Yemeni public and private universities in terms of (program mission and objectives, academic structure, organizational and administrative structure, physical infrastructure, and financial resources)?"

To answer this question, the researcher followed these steps:

- 1. Analysis of relevant literature and research on qualitative internal efficiency standards:** The literature consistently defines qualitative internal efficiency by the quality of the outputs and the conformity of the output type to established specifications. This refers to the educational system's ability to produce a graduate with qualifications that meet the intended purpose, emphasizing the provision of a high quality of graduates rather than merely a specific number.
- 2. Review of postgraduate program standards issued by the Academic Accreditation and Quality Assurance of Higher Education in Yemen:** A review of the standards for qualitative internal efficiency and quality in postgraduate studies, as adopted by previous research and academic literature, confirms that they all revolve around key, undisputed axes. The most important of these are the specifications related to: program mission and objectives, academic structure, organizational and administrative structure, physical infrastructure, and financial resources.
- 3. Comparative analysis of the most prominent similarities and differences in the qualitative internal competitive efficiency of postgraduate studies** in Yemeni public universities (Sana'a University as a model) and private universities (University of Science and Technology as a model) across the five dimensions.

The researcher based the comparison on an analysis of the regulations, legislation, and literature concerning the application level of the agreed-upon standards. The data and information related to this comparison are presented in the following tables, which highlight the most significant similarities and differences.

1. Standard of Program Mission and Objectives

Comparison Criteria	Postgraduate Studies in Yemeni Public Universities (Sana'a University)	Postgraduate Studies in Yemeni Private Universities (University of Science and Technology)
<p>Mission and Program Objectives</p>	<p>Sana'a University's mission is to "achieve a distinguished and leading position at the level of Yemen, and the Arab region, becoming a center for attracting students to obtain high-quality education in various scientific specializations, bringing about fundamental changes in various fields based on scientific research and information technology, and working to utilize the university's capabilities and contribute to community service and its institutions to achieve development strategies."</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. To provide opportunities for specialized and in-depth study in various knowledge leadership areas to meet the community's need for human resources in various specializations. 2. To develop the level of university services for students by introducing qualitative programs to raise the efficiency of current and graduating students. 3. To focus on building the educational capacities of faculty members, particularly in updating programs and teaching methods to keep pace with contemporary requirements. 4. To conduct and encourage scientific research and direct it toward community service. 5. To document scientific and cultural ties with universities and scientific bodies both domestically and internationally (www.su.edu.ye). 	<p>The University of Science and Technology's mission is to "strive to provide postgraduate studies and complete individual and group research projects to contribute to human development and solve local and regional societal problems; through the efficient utilization of the university's material and organizational resources, expansion, partnership, and cooperation with universities and research institutions."</p> <p>Objectives:</p> <ol style="list-style-type: none"> 1. To meet the needs of higher education institutions and the labor market for holders of higher degrees. 2. To secure the university's needs for faculty members and their assistants. 3. To provide qualification opportunities for those wishing to enroll in postgraduate programs. 4. To direct thesis and dissertation projects to contribute to solving community problems. 5. To prepare qualified cadres in the cognitive and research fields in various specializations. 6. To contribute to achieving the university's vision, mission, and objectives (ust.edu.ye).
<p>Faculty Participation in Mission Definition</p>	<p>Similarity: Both universities share the finding that faculty members do not participate in defining the mission and vision of the university's components. This is attributed to the centralized nature of both public and private university institutions.</p>	<p>Similarity: The study (Shamsan, 2022, 10) indicates that faculty members at the University of Science and Technology concur that they are not involved in defining the mission and vision of the university's components.</p>
<p>Focus on Competitiveness</p>	<p>Difference: Sana'a University explicitly focuses on competitiveness at the local and regional levels.</p>	<p>Difference: There is no similar explicit focus on competitiveness.</p>

2. Standard of Academic Structure

Comparison Criteria	Postgraduate Studies in Yemeni Public Universities (Sana'a University)	Postgraduate Studies in Yemeni Private Universities (University of Science and Technology)
Degrees Awarded	Difference: Sana'a University awards: Diploma degree: in 20 specializations. Master's degree: in 83 specializations. Doctoral degree: in 61 specializations.	Difference: The University of Science and Technology awards: Master's degree: in 14 specializations (5 medical, 4 engineering and technological, 5 humanities).
Adherence to Study Duration	Similarity: Both universities adhere to the study duration specified in the Universities Law: Master's: Maximum: 6 semesters. Minimum: 4 semesters. 30 credit hours. Master's Thesis: 6 credit hours. Doctorate: Maximum: 8 semesters. Minimum: 6 semesters. 30 credit hours. Doctoral Dissertation: 12 credit hours (Ministry of Higher Education and Scientific Research, 2008, pp. 16-20).	Similarity: The requirements are identical to those in public universities.
Faculty Member Efficiency	Indicators of education at Sana'a University in 2023 show the student-to-faculty ratio: Humanities and Social Sciences: 25 students per faculty member. Engineering, Computer, and Natural Sciences: 10 students per member. Difference: Faculty members face: 1. Engagement in external work. 2. A modest perception of the financial benefit from promotion (www.su.edu.ye).	The study (Shamsan, 2022, 15) indicates that the faculty member: 1. Implements the course according to a specific timetable. 2. Values time management. 3. Encourages scientific activities. 4. Participates in community service. Difference: 1. Current circumstances have negatively impacted community service. 2. Faculty members conduct self-evaluation.
Encouraging Scientific Research	Similarity: Both universities are committed to encouraging faculty members to publish scientific research, pursue self-development, and keep pace with contemporary requirements. Distinction: Sana'a University received financial rewards for publishing research "Decision No. 400/2023", and it has produced over 15,000 research papers.	Similarity: Encourages the publication of scientific research and self-development.

3. Standard of Organizational and Administrative Structure

Comparison Criteria	Postgraduate Studies in Yemeni Public Universities (Sana'a University)	Postgraduate Studies in Yemeni Private Universities (University of Science and Technology)
Organizational Structure	<p>Similarity: An approved, comprehensive, and flexible organizational structure exists for postgraduate studies, capable of managing its affairs and achieving its mission.</p> <p>Administration: Managed by the Council of the Vice Presidency for Postgraduate Studies and Scientific Research, headed by the Vice President for Postgraduate Studies and Scientific Research.</p>	<p>Similarity: An approved, comprehensive, and flexible organizational structure exists for postgraduate studies, capable of managing its affairs and achieving its mission.</p> <p>Administration: Managed by the Council of Postgraduate Studies and Scientific Research, headed by the Dean of Postgraduate Studies.</p>
Electronic Transformation	<p>Similarity: The university prioritizes transitioning from a manual to an electronic system by linking all departments, colleges, and centers to an internal network called the (SAAR) network.</p>	<p>Similarity: Focuses on transitioning from a manual to an electronic system by linking all departments to an internal network.</p>
Annual Plans	<p>Similarity: The study (Shamsan, 2022, 22-23) indicates that the university's administrative body does not rely on an annual plan to conduct its work, and coordination between different administrative departments in formulating plans is lacking.</p>	<p>Similarity: The same issue observed a lack of reliance on an annual plan and insufficient coordination between departments.</p>
Simplifying Procedures	<p>Difference: Al-Amaari's study (2016) confirms that Sana'a University suffers from:</p> <ol style="list-style-type: none"> 1. Complex administrative routine. 2. A long chain of procedures. 3. Senior management being preoccupied with routine tasks. 4. Staff lacking knowledge of regulations and policies. 	<p>Difference: The study (Shamsan, 2022, 25-26) indicates that the University of Science and Technology:</p> <ol style="list-style-type: none"> 1. Is keen on facilitating service. 2. Simplifies procedures.
Exchange of Administrative Expertise	<p>Difference: The study (Shamsan, 2022, 26-28) indicates that Sana'a University:</p> <ol style="list-style-type: none"> 1. Lacks the transfer of administrative expertise. 2. Administrative leaders neglect the delegation of authority. 3. Energies are consumed by routine matters instead of planning and development. 	<p>Similarity: The study (Shamsan, 2022, 26-28) highlights the University of Science and Technology's commitment to:</p> <ol style="list-style-type: none"> 1. Transferring administrative expertise. 2. Providing training courses and workshops for its employees.

4. Standard of Physical Infrastructure

Comparison Criteria	Postgraduate Studies in Yemeni Public Universities (Sana'a University)	Postgraduate Studies in Yemeni Private Universities (University of Science and Technology)
Basic Infrastructure	<p>Similarity: Provides a somewhat suitable infrastructure, including:</p> <ol style="list-style-type: none"> 1. Libraries. 2. Administrative offices. 3. Classrooms. 4. Workshops and laboratories. 	<p>Similarity: Provides a suitable infrastructure, including:</p> <ol style="list-style-type: none"> 1. Adequate seating capacity. 2. Workshops and laboratories. 3. Library. 4. Administrative offices.
Infrastructure Problems	<p>Difference: Suffers from:</p> <ol style="list-style-type: none"> 1. Shortage of devices, machines, and educational aids. 2. Lack of periodic maintenance for equipment. 3. Failure to provide laboratory and workshop requirements in a timely manner. 4. Underutilization of some equipment due to being out of order. 	<p>Difference: The study (Shamsan, 2022, 30-31) indicates that the university suffers from:</p> <ol style="list-style-type: none"> 1. Restrictions on introducing required modifications. 2. Failure to consider the needs of students with special needs. 3. Lack of safety precautions, such as firefighting and emergency exits.
Physical Assets	<p>Al-Mahbashi (2012, 125) indicates that the university:</p> <ol style="list-style-type: none"> 1. Possesses a large number of lands, buildings, equipment, and devices. 2. Suffers from a lack of protection of lands from looting and seizure. 3. Deficiency in the use of means to preserve these assets. 	<p>The university (https://ust.edu) indicates that it:</p> <ol style="list-style-type: none"> 1. Possesses a large number of physical assets. 2. Attributes the low number of problems to diverse funding sources.
University Libraries	<p>Al-Mahbashi (2012, 125) indicates that:</p> <ol style="list-style-type: none"> 1. It is keen on establishing specialized libraries. 2. The central library oversees them. 3. Financial regulations prevented the payment of subscription fees for scientific journals. 4. Complaints about the out datedness of references and scientific books. 5. Lack of availability of scientific journals and foreign periodicals. 	<p>The study (Shamsan, 2022, 30) indicates that the university:</p> <ol style="list-style-type: none"> 1. Is keen on establishing specialized libraries. 2. Due to the prevailing circumstances, the central library was unable to provide scientific books. 3. Lack of availability of scientific journals and foreign periodicals.

5. Standard of Financial Resources

Comparison Criteria	Postgraduate Studies in Yemeni Public Universities (Sana'a University)	Postgraduate Studies in Yemeni Private Universities (University of Science and Technology)
Main Funding Sources	<p>Difference: Sana'a University relies on:</p> <ol style="list-style-type: none"> 1. Government funding as the main source. 2. Fees from postgraduate and expatriate students. 3. Limited sources from the private sector. 	<p>Difference: The University of Science and Technology relies on:</p> <ol style="list-style-type: none"> 1. Investment and fees collected from students. 2. Resources from the university hospital. 3. Contribution of colleges and centers to financial resource development.
Financial Management	<p>Similarity: Financial management exists within postgraduate studies.</p> <p>Tasks:</p> <ol style="list-style-type: none"> 1. Following up with department accountants. 2. Organizing financial matters. 3. Supervising the disbursement of entitlements for scholarship recipients. 4. Disbursing financial entitlements for postgraduate students. 5. Following up on the collection of tuition fees. 6. Clearing the custody of researchers. 7. Preparing periodic plans and reports. 	<p>Similarity: Financial management exists, including:</p> <ol style="list-style-type: none"> 1. A financial regulation for postgraduate studies. 2. A plan for financial resource development. 3. Optimal utilization of resources. <p>Advantage: A system for oversight and accountability, given the university's investment-based nature.</p>
Scientific Research Regulation	<p>Chapter (24) of the Scientific Research Regulation specifies the funding sources:</p> <ol style="list-style-type: none"> 1. The share of the Vice Presidency for Postgraduate Studies from the university budget. 2. An independent budget from the Ministry of Higher Education. 3. Benefiting entities. 4. Aid, grants, and assistance. 5. Individuals and institutions. 6. Returns from scientific research. 7. Consultations and testing. 8. Sales of scientific outputs (Sana'a University, 2007, 23). 	<p>Distinction: An effective system for oversight and accountability is in place to control financial resources, reflecting the private nature of the university.</p>

Summary of Comparison

In summary, the comparison reveals that both Yemeni public and private universities possess a defined vision, mission, and objectives. However, the centralized decision-making process excludes faculty members and

stakeholders from defining these elements, which the researcher suggests may lead to a lack of engagement in achieving the stated mission and objectives. Both university types have a somewhat suitable infrastructure for postgraduate programs and consistently apply the relevant regulations and legislation. They also share the presence of a financial regulation and a plan for financial resource development.

Second: Results Related to the Second Sub-Question

"What are the possible proposals for developing the qualitative internal efficiency of postgraduate studies in both Yemeni public and private universities?"

Based on the comparative analysis of the similarities and differences in the qualitative internal competitive efficiency of postgraduate studies across the five dimensions (mission and objectives, academic structure, organizational and administrative structure, physical infrastructure, and financial resources), and guided by the standards of qualitative internal competitive efficiency and quality. The following proposals are offered to enhance the qualitative internal competitive efficiency of postgraduate studies in Yemeni universities:

1. Proposals for the Qualitative Internal Competitive Efficiency of Program Mission and Objectives:

- Disseminate a culture of quality within postgraduate programs as a prerequisite for competitive efficiency.
- Develop a comprehensive strategy for postgraduate studies aligned with quality standards, ensuring the participation of all academic and administrative stakeholders in its formulation.
- Diversify and introduce new programs and courses in Yemeni universities that are responsive to national development needs and labor market demands.
- Establish centralized information databases for students, faculty, administrators, and financial affairs to guide the development process.
- Instill a spirit of scientific research in researchers and teaching staff and provide sample opportunities for participation in various scientific and professional conferences and seminars.

2. Proposals for the Qualitative Internal Competitive Efficiency of the Academic Structure:

A- Faculty Members:

- Provide professional development programs for faculty members in collaboration with the Council for Academic Accreditation and Quality Assurance of Higher Education and specialized centers in other universities, both domestically and internationally.

- Establish clear and specific standards for evaluating the performance of postgraduate faculty members in cooperation with the universities' academic affairs departments.

B- Postgraduate Courses:

- Develop the content of postgraduate courses, shifting the focus to rely more heavily on research activities and practical applications.
- Conduct a comprehensive review and development of curricula and specializations to ensure their relevance to the practical reality of graduates and their capacity to refine post-graduation scientific potential.
- Ensure that lectures move beyond the method of indoctrination and that programs incorporate greater scope for practical training.
- Establish a system for the periodic evaluation of courses, based on the principle of continuous evaluation, utilizing internal and external expertise.
- Adopt a policy of self and external evaluation to continue enhance the qualitative internal competitive efficiency of postgraduate studies.

C- Scientific Research:

- Emphasize practical application and training for research publication as a fundamental requirement for thesis registration.
- Encourage national and international institutions to adopt and fund university research and theses.
- Organize scientific conferences, particularly international ones, to facilitate the exchange of views, experiences, and expertise.
- Systematize research and reports that address critical community issues and problems.
- Support distinguished postgraduate researchers through the funding and marketing of their scientific research.

3. Proposals for the Qualitative Internal Competitive Efficiency of the Organizational and Administrative Structure:

- Update the regulations and manuals governing work to align with competitive efficiency and quality standards.
- Train lecturers and administrators on the practical application of quality and competitive efficiency in postgraduate studies according to scientific specifications.
- Simplify administrative procedures and actively implement electronic administration.

4. Proposals for the Qualitative Internal Competitive Efficiency of the Physical Infrastructure:

- Ensure internet access for students within classrooms and resolve network issues in cooperation with the Ministry's Information Technology Center and the University's College of Computer Science.
- Supply the college and university libraries with modern references and scientific books required by students.
- Utilize modern technology tools and techniques in teaching courses.
- Activate and promote dedicated postgraduate studies websites and services through social media platforms.

5. Proposals for the Qualitative Internal Competitive Efficiency of the Financial Structure:

- Develop and invest the self-resources of postgraduate studies efficiently and effectively.
- Ensure the optimal utilization and efficient expenditure of available resources for postgraduate studies.
- Activate scientific, research, service centers, and consultation offices that operate on a fee-for-service basis.
- Provide opportunities for the private sector to invest in certain components of the postgraduate educational process, such as student services.

Conclusion

The study yielded several key findings:

- Yemeni public and private universities share a clear mission and objectives, focusing on the efficiency of postgraduate outputs and contributing to community service and research for development strategies.
- The highest governing bodies (Councils of Representatives, Ministers, and Universities) are responsible for formulating the vision, mission, and strategic plans for universities, excluding faculty members from this process.
- Public universities distinguished by the greater diversity of academic degrees and specializations offered in their postgraduate programs compared to private universities.
- Both university types adhere to the Yemeni Universities Law regarding study duration, teaching systems, admission procedures, and supervision/defense mechanisms.
- Private universities are characterized by the full dedication of faculty members to their duties and a focus on periodic staff evaluation, setting them apart from public universities.

- Both sectors have an approved and flexible organizational structure for postgraduate studies and are focused on electronic transformation by linking departments and colleges via an internal network.
- Private universities demonstrate a greater commitment to facilitating services, simplifying procedures, and ensuring the transfer of administrative expertise among staff.
- Both Yemeni public and private universities strive to provide a reasonably suitable infrastructure for postgraduate studies, including libraries, administrative offices, classrooms, workshops, and laboratories.
- Both university types agree on the existence of financial management, a financial regulation for postgraduate studies, and a plan for financial resource development aimed at optimal resource utilization.

Recommendations

- Develop a joint governance system that strategically leverages the strengths of both the public and private university models.
- Establish a mechanism for continuous coordination and collaboration between public and private universities.
- Develop exchange programs to facilitate the transfer of expertise between academic and administrative staff.
- Create a national network for scientific research to connect all universities.
- Develop a unified accreditation system for all universities to ensure consistent quality and standardization.

Future Research Directions

This study opens several avenues for future studies to further deepen the understanding of efficiency in higher education:

- Quantitative studies to measure efficiency indicators using advanced statistical methods.
- Longitudinal research to track the evolution of efficiency over extended periods.
- Comparative studies with international experiences, particularly in other developing countries.
- Research on the impact of technology on improving internal efficiency.

Ethical considerations

Not applicable.

Conflict of Interest

The authors declare no competing interests.

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