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# The Impact of Intellectual Capital on Improving the Quality of Educational Services: An Exploratory Study of the Opinions of a Sample of Administrative Leaders in Private Colleges (Al-Mammon University College and Bilad Al-Rafidain University College)

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**ABSTRACT**

This research aims to demonstrate the role, relationship, and impact of intellectual capital on the quality of educational services. The measurement of these two variables relied on the dimensions of each, where the dimensions of intellectual capital were defined as (human capital, structural capital, and relational capital), while the dimensions of the quality of educational services were considered to be (resources, curriculum, reliability, and efficiency). A questionnaire containing (42) items was designed to cover the dimensions of both variables, which were distributed among the research sample members in the studied community, represented by the faculties of Al-Mamoun University and Bilad al-Rafidain University College. A sample of (92) individuals holding higher degrees and assigned to leadership positions in the two colleges was selected, including roles such as (Deputy Dean, Department Head, Department Coordinator).

For the practical aspect of the research, descriptive statistics were used, represented by (mean, standard deviation, and coefficient of variation), which helped in determining the level of the research variables in the mentioned colleges according to the opinions, answers, and viewpoints of the research sample members. The results showed a high level of both variables, followed by an analysis of the results to understand the degree of relationship and correlation between the variables and the impact of one variable on the other. The results validated the hypotheses proposed by the researchers based on the outcomes of the relationships and regression between them.

The researchers concluded with some findings, including the strong relationship and impact of intellectual capital on the quality of educational services.

**Keywords:** *Intellectual Capital; Quality of Educational Services*

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## INTRODUCTION

The 1990s witnessed a significant development towards the knowledge transformation that influenced the redefinition of many concepts towards the new global economy, namely the knowledge economy and the emergence of new forms of capital. Previously, the economy was solely reliant on tangible assets and liabilities, but now, there's a shift towards considering intellectual capital as an alternative, not just a complement. This shift is due to the belief among managers and academics that intangible assets, primarily intellectual capital, are often the secret to the success of the organizations they work for or own. Today, intellectual capital has replaced assets represented by cash and investments.

Dar, in his 1991 article, highlighted the importance and role of intangible assets in the sustainability, continuity, and growth of organizations. This period crystallized the concept of intellectual capital, focusing on the mental capabilities of employees within an organization. In today's knowledge society, it's crucial to give significant attention to this topic in higher education institutions, in terms of investment, development, management, and creation, to serve the state institutions in general and higher education institutions in particular, including both public and private universities, to achieve exceptional capabilities with high quality that surpasses and competes with others.

Intellectual capital, being a resource, enhances the competencies, experiences, and diverse skills, which in turn improves the quality of educational services provided. Thus, this research revolves around the significant importance of intellectual capital as it represents a competitive advantage for the organization and its reflection on the quality of educational services. Intellectual capital is a source of wealth generation for the organization, a hidden treasure that needs to be sought after and extracted for practice and application, and knowledge dissemination is one of the primary methods for its extraction.

Intellectual capital is one of the assets of an organization that cannot be imitated by others. It is fundamental in achieving competitive advantage and is a source of creativity reflected in the quality of educational services. It is a strategic choice that cannot be disregarded. (Maary 2007)

Interest in intellectual capital began in the 1990s, with many researches and studies conducted in the field of management. This research will review some of these studies, presenting their findings, and will be an addition and complement to them, differing in terms of our understanding of the research papers concerning the relationship and impact between intellectual capital and the quality of educational services. For instance, some of these studies include:

- Moghadam etal's (2013) study "Intellectual Capital and Organizational Learning Capability" to demonstrate the relationship between intellectual capital and the capacity for organizational learning through a survey distributed among a sample of 150 employees in the regional city of Versailles. It found a strong relationship between human and structural capital with the ability to learn organizationally and a weak relationship between relational capital and this ability.

- Subagyo etal's (2020) study "Significant Relationship Intellectual Capital and Macro Economics" to illustrate the relationship between intellectual capital and macroeconomic variables in a sample of 61 listed Indonesian companies. This study selected economic variables such as bank interest rates, exchange rates, consumer prices, producer price indices, and inflation. It used a regression model to show the relationship between macroeconomic variables and intellectual capital, and a logarithmic linear regression model to test the strength of the relationship and its impact, which was partial with the macroeconomic variable.

- Mubarik etal's (2021) study "Intellectual Capital and Supply Chain resilience" to test whether the researched companies have a high level of intellectual capital. Data was collected from 159 companies in the food industry sector through a questionnaire distributed during the COVID-19 pandemic in 2019. The study used data modeling, least squares analysis, partial least squares analysis, and ANOVA to test hypotheses derived from intellectual capital and supply chain. The results showed a significant impact of the dimensions of intellectual capital on supply chain learning and resilience of companies. This study is distinguished by its conduct during the COVID-19 pandemic, providing a unique environment to examine resilience and learning.

- Dinb.v.etal's (2021) study "Vietnamese Student Satisfaction towards Education Service Quality and Education outcomes" reviewed some studies focusing on student satisfaction with the quality of higher education. For example,

Dinb etal (2021) attempted to develop measures based on service quality in the Vietnamese higher education sector. Also, Ngayen (2013) tested service quality in the same sector and conducted his study in two stages. The first exploratory stage, conducted on a sample of 675, found that Vietnamese students are concerned with three specific dimensions of service quality in their universities, including tangibles and responsiveness. He also proposed a set of tools to assess citizens' satisfaction with higher education in Vietnam, with satisfaction represented by five dimensions: access to educational services, teaching equipment, the educational environment, educational activities, and educational outcomes. The first four dimensions represent the quality of educational service, and student satisfaction is represented by their satisfaction with the quality of educational service.

## STUDY PROBLEM

Organizations in general, and educational organizations in particular , adopt a focus on intellectual assets with the possibility of raising the level of quality of educational service. This calls for harmony between the two variables adopted in this research through studying the level of interest and perception of the research sample chosen in the research site. The intellectual dilemma in the relationship between these two variables requires stating the degree of relationship and impact between them to demonstrate the research sample's perception of these variables and the impact of intellectual capital on the quality of educational service, which is at the forefront of the goals pursued by university leaderships represented by department heads and deans' assistants in facing future challenges imposed by globalization on educational institutions. Iraqi universities find it difficult to keep up with these challenges, necessitating their focus on such studies to enhance the level of quality of educational service, enabling them to compete with advanced universities in this field. From this standpoint, the research problem revolves around the following questions that represent the starting point of our current research:

A. The extent of the researched organizations' interest in intellectual capital according to the opinions of the research sample.
B. Indicating the interest of the researched organizations in the quality of educational service according to the opinions of the selected research sample.
C. Demonstrating the nature of the relationship between intellectual capital and the quality of educational service.
D. Indicating the impact of intellectual capital on the quality of educational service.

## RESEARCH OBJECTIVES

The research aims to:
1. Study and review intellectual capital and its components in the researched organizations and the extent of their recognition by the research sample.
2. Determine the level of quality of educational service according to the opinions of the research sample.
3. Determine the level of the relationship between intellectual capital and the quality of educational service in the researched organizations.
4. Determine the level of impact of intellectual capital on the quality of educational service.

### Research Hypotheses

Main Hypothesis: Intellectual capital in its dimensions (human capital, structural capital, relational capital) significantly and statistically affects the quality of educational service in its dimensions (efficiency, material requirements, curricula, attitudes). This main hypothesis branches into the following sub-hypotheses:

- First Sub-hypothesis: Intellectual capital in its dimensions (human capital, structural capital, relational capital) has a significant statistical impact on the efficiency dimension.
- Second Sub-hypothesis: Intellectual capital in its dimensions (human capital, structural capital, relational capital) has a significant statistical impact on the material requirements dimension.
- Third Sub-hypothesis: Intellectual capital in its dimensions (structural capital, human capital, relational capital) has a significant statistical impact on the curricula dimension.
- Fourth Sub-hypothesis: Intellectual capital in its dimensions (structural capital, human capital, relational capital) has a significant statistical impact on the attitudes dimension.

## THEORETICAL FRAMEWORK OF THE RESEARCH

In this section, we discuss the theoretical framework of the research variables (intellectual capital and the quality of educational service) as follows:

### Intellectual Capital

The last decade of the last century marked the birth of the term intellectual capital, accompanied by new concepts and modern scientific foundations upon which institutions are built, including intangible assets, knowledge management, knowledge industry, etc. The discussion has shifted towards modern and traditional organizations. Intellectual capital is seen as the most important and rarest resource compared to other resources (dragger,2004, p:27) and has gained increased attention as the main driver of organizational performance. Many European countries allocate approximately 9% of their GDP to research and development in this field (carluce etal, 2006, p:27).

Many concepts have been proposed for this subject by thinkers and researchers in management. Among them, Boadker etal (2015) considered that intellectual capital has priority over physical resources in achieving competitive advantage in organizations. Frenst roms & Roos (2005, p:410) went further, asserting that intellectual capital represents a sustainable competitive advantage for organizations, achieving superiority through it, with its competitive importance lying in its inimitability since it is knowledge existing in the minds of employees.

Despite the variety of definitions, they all align with the directions mentioned above. From our perspective, intellectual capital includes all the knowledge assets or intangible assets that an organization possesses and invests in to achieve a competitive advantage and create added value for its products or services against similar organizations.

## IMPORTANCE OF INTELLECTUAL CAPITAL

In business organizations, there has been an increasing importance of intangible assets, which now represent the largest proportion of assets in the context of the new global economy (knowledge economy). This knowledge, continuously increasing and accumulating in human resources, represents the real wealth of organizations and their intellectual capital, the focus of this research. Its importance can be highlighted in a few points:

- It is the most valuable asset in the current century in the context of the new global economy - the knowledge economy. Therefore, it is an important and fundamental source for achieving competitive advantage.
- It contributes to increasing the market value of the organization, playing a significant role in the improvement process.
- It gives the organization a competitive advantage as the fundamental pillar in achieving competitive advantage.
- It contributes to attracting customers and enhancing their loyalty to the organization.
- It plays a prominent role in increasing the organization's managerial capability.
- It contributes to reducing costs and improving productivity.
- It forms an active force for the knowledge economy and the main source of wealth and prosperity (Al-Anzi, Saleh 2009).

## COMPONENTS OF INTELLECTUAL CAPITAL

Many initially believed that intellectual capital was part of human capital when this concept emerged. Others thought they were synonymous. However, after studying and researching this topic since the early 1990s, it was confirmed that human capital is the primary component of intellectual capital. Finally, the majority of researchers agreed that intellectual capital comprises the following components:

1. Human Capital: Most researchers agree that human capital is the basis of intellectual capital, representing the knowledge in the minds of employees, both creative and non-creative, possessing a proportion of knowledge commensurate with their capabilities. It includes high skills, specializations, and motivations of the employees in the organization (Al-Anzi and Saleh 2009, p:293).

2. Structural Capital: This represents all internal factors supporting the organization's operations, such as various devices, software, patents, legal rights, trademarks, and publications, enabling the organization to empower human capital and face environmental changes (Cswart, Juan 205).
3. Relational Capital (Customer Capital): This is the link that combines the components of intellectual capital, creating value for the organization. It includes the quality of services provided by suppliers, customer satisfaction and retention, and involvement in the organization's activities, as well as the exchange of ideas and information. Thus, it involves internal and external communication networks used to reinforce the organization's position. It is also seen as the ability to manage relationships between customers and the organization and with external entities.
After reviewing these three components of intellectual capital, a fourth component was added, represented by...

## QUALITY OF EDUCATIONAL SERVICE

The progress of countries is sometimes measured through their educational systems, which are important contributors to society with competent administrative leadership. In the context of the current economy, represented by the knowledge economy, striving for and researching the development of higher education systems is a crucial factor for ensuring societal advancement and development. Educational systems based on sound foundations represent the main pillar for knowledge generation and building an advanced state in various fields, enabling it to keep up with continuous developments in this area to meet societal needs and the labor market. This involves improving the quality of outputs to keep pace with rapid changes and developments, especially in higher education systems, as institutions in this sector play the most important role in workforce investment. Higher education plays a significant role through research and studies in various economic, cultural, and social fields, making it essential to ensure its quality, a fundamental and crucial condition that cannot be neglected to prevent the waste of human and material resources in enhancing the competitive advantage of higher education institutions in the contemporary world. This is one of the important factors in the continuity, sustainability, and success of organizations.

Therefore, the quality of educational service is one of the most important means and methods relied upon to improve the quality of education, elevate its performance level, and raise the level of its outputs to meet the requirements of an era witnessing a scientific explosion that can only be addressed or coped with by enhancing the quality of education to match the requirements of this explosion or development, which has become difficult to control by all means.

Before delving into the quality of educational service, it's essential to mention the general concept of quality, a term that has been in use for a long time. Burrow Green (1993) mentioned that quality sometimes relates to what is good and of high value, usually understood as excellence and consistency. Krajewsky & Ritzman (2000) described it as the extent to which a product meets its use and needs. Chattersee & Sharma (2014) defined it as measuring the standards of a product or service that meets the beneficiary's aspirations.

These definitions focus on the human element as the primary pillar in achieving quality through their involvement in all its processes, then focusing on resources and how they are used to complement human effort to ensure quality.

Regarding the definition of service quality, the American Marketing Association defined it as the activities or benefits offered for sale or associated with a particular good. It is also measured as the extent to which the level of service being delivered matches consumer expectations. It was also defined as the essential production of an intangible benefit, either in itself as an important element of a tangible product, meeting a specific need through some form of exchange (Beaumont 2012, p:30). It was referred to as the quality of learners, the university environment, learning processes, and outcomes, represented by skills and knowledge that positively reflect on society (Adms, 1993, p:23).

Thus, quality in education is not limited to the quality of one or more elements of the educational process or the outcomes generated from it, but is described as a state of interaction and integration between various elements that achieve an effective response to the needs and expectations of stakeholders in the process. Therefore, it can be said that quality is a relative concept that is difficult to generalize or confine to a specific standard.
Despite the many concepts proposed around the quality of educational service, it is noted that most research and studies on it previously focused on measuring the functional performance of educational services in various educational institutions without concentrating on the quality of educational service (Sultan & Wong, 2011, p:11). Beaumont (2012, p:40) also agreed with this trend. However, this does not deny the studies that were prepared later according to the interest shown by some countries in this regard, including Britain, one of the first countries to focus

on implementing quality in higher education and establishing the world's first specialized agency for ensuring higher education quality, followed by European Union countries in the 1990s. Consequently, interest in this topic prevailed in most countries thereafter. Many considered the concept of quality in education as new and interpreted by researchers who adapted the concept of service quality in education from industrial fields. Therefore, it was indicated that quality in education means excellence in education and the added value to the educational process, matching the specific outcomes of education free from defects (Buslowska & Shauchenka, 2012, p:87).

## DIMENSIONS OF EDUCATIONAL SERVICE QUALITY

Researchers have developed a model for the dimensions of educational service quality and created a ready-to-use scale to measure these dimensions from the perspectives of relevant parties, including students, faculty, and other employees in educational institutions (Kazemi, 2015, p:23). This model serves as the basis for measuring the quality of educational service as it is more related to the educational environment in the institutions and colleges representing the research community, with some modifications and additions made to serve this research.

**These dimensions include:**

A. Efficiency: Refers to the extent of knowledge possession and development by faculty members (covered in the research) and their pedagogical expertise in communicating with their students.
B. Physical Resources: Relates to everything tangible and associated with education, such as equipment, facilities, and the attractiveness of the work environment, including supportive services.
C. Curriculum: Concerns courses and curricula related to their perspectives and aspirations about the job market, as well as the possession of knowledge and skills relevant to the job market by the educational institutions they belong to.
D. Attitudes: Refers to the faculty members' ability to understand and address the needs and desires of their students, offering advice and personal interest, and showing empathy in their work context.

Descriptive Statistics and Normal Distribution Tests for the Dimensions of the Data

Descriptive Statistics of the Variables

This section is dedicated to presenting the results of the descriptive statistical analysis of the dimensions of the variables and their items using various descriptive statistical tools. These include measures of central tendency (mean of responses to the scale questions for each dimension of the variables), and measures of dispersion, represented by standard deviation and coefficient of variation. These measures determined the relative importance of the items in this research. The statistical description also involved determining the level of responses to the items based on the mean by dividing the response levels into five categories, created by calculating the range between the highest and lowest limits of the scale (5-1=4), and then dividing the result by the highest limit of the scale (4 / 5=0.80). This resulted in the following categories:

- Very Low (1 – 1.80) - Low (1.81 – 2.6) - Moderate (2.61 – 3.40) - High (3.41 – 4.20)
- Very High (4.21 – 5)

**Firstly**: Presentation of the Results of the Descriptive Statistical Analysis through Measures of Central Tendency and Dispersion

**1. Intellectual Capital**: In this research, intellectual capital served as the independent variable, measured through three dimensions: human capital, structural capital, and relational capital. The following is a detailed presentation of the results of these dimensions:

**A. Human Capital**: Table (1), dedicated to the descriptive statistical results of this dimension, shows that the first item ("The faculty in the college possesses a high level of experience and skill") obtained the highest relative importance with a mean of (3.9022) and the lowest standard deviation (0.83941). This led to a reduction in the coefficient of variation to (0.21511), indicating a high level of agreement among respondents on this item. Conversely, the fifth item ("The college makes utmost efforts to retain highly skilled and competent faculty members") obtained a

mean of (3.8587) with the highest standard deviation (1.00090) compared to other items in this dimension. This raised the coefficient of variation to its highest level in this dimension (0.25939), also indicating a high level of response and the fifth and final relative importance in its sequence. The remaining items of this dimension fluctuated between these extremes in description, using the same descriptive tools.

**Table (1) Descriptive Statistics for the Dimension of Human Capital**

| S | Descriptive Statistics / Items | Mean | Standard Deviation | Coefficient of Variation | Response Level | Relative ImportanceTop of Form |
|---|---|---|---|---|---|---|
| 1 | The faculty working in the college possess a high level of experience and skill. | 3.9022 | 0.83941 | 0.21511 | High | 1 |
| 2 | The college is committed to developing the capabilities and skills of the faculty through various means. | 3.8261 | 0.93302 | 0.24386 | High | 4 |
| 3 | The college has faculty members with high knowledge of their job specifications. | 3.7500 | 0.88485 | 0.23596 | High | 3 |
| 4 | Some faculty members in the college have been working for several years. | 4.1087 | 0.89512 | 0.21786 | High | 2 |
| 5 | The college makes utmost efforts to retain highly skilled and competent faculty members with specialized qualifications | 3.8587 | 1.00090 | 0.25939 | High | 5 |
| | Overall Average for the Dimension | 3.8891 | 0.57061 | 0.14672 | High | |

B: Structural Capital: Table (2) shows the results for the dimension of authorities and responsibilities, where the fourth item ("The college works on developing infrastructure to enhance its performance and achieve satisfaction among all employees") achieved the highest mean (4.2283) and the lowest standard deviation (0.69698) compared to other items of this dimension. These results led to a reduction in the coefficient of variation to the lowest limit (0.16484), with a very high response level and the highest relative importance in its sequence. These results indicate clear harmony in the sample's responses about the content of this item. On the other hand, the lowest mean (3.3478) was in the second item ("The college follows up and encourages its faculty to write outstanding scientific research") with the highest standard deviation (0.98822) and a coefficient of variation of (0.29518), indicating a moderate response level and the fifth relative importance. The response levels of the remaining items representing this dimension fell within the high category range, with their relative importance varying between these two items according to the descriptive statistical tools used in this section.

**Table (2) Descriptive Statistics for the Dimension of Structural Capital**

| s | Descriptive statistics / Paragraphs | Arithmetic mean | standard deviation | Coefficient of variation | Answer level | Relative importance |
|---|---|---|---|---|---|---|
| 1 | The college is keen to provide training and development programs for all faculty and staff at the college | 3.9565 | 0.86333 | 0.21820 | high | 3 |
| 2 | The college follows up and encourages its teachers to write distinguished scientific research. | 3.3478 | 0.98822 | 0.29518 | Moderate | 5 |
| 3 | The college encourages the opinions and ideas presented by faculty members and gives them high attention and appreciation. | 3.6304 | 0.96894 | 0.26689 | high | 4 |
| 4 | The college is working to develop the infrastructure to further improve its performance and achieve the satisfaction of all employees. | 4.2283 | 0.69698 | 0.16484 | very high | 1 |
| 5 | The college clearly explains the policies and procedures followed for all employees. | 4.1630 | 0.78834 | 0.18937 | high | 2 |
| | Overall Average for the Dimension | 3.8652 | 0.52799 | 0.13660 | high | |

**C: Relational Capital**: Table (3), which presents the descriptive statistical results for this dimension, shows that the fourth item ("The college invests a lot in ideas and opinions originating from students.") obtained the highest relative importance with a mean of (3.9783) and the lowest standard deviation (0.77002). These results led to a decrease in the coefficient of variation to (0.19356), indicating a high level of agreement among the research sample about the content of this item. On the other hand, the first item ("The college focuses on achieving student satisfaction and works on building good relationships with them") had the lowest mean (3.7609) but the highest standard deviation (0.99857) compared to the other items in this dimension. This resulted in the highest coefficient of variation (0.26551), also indicating a high level of response, but with the fifth and final relative importance in its sequence. The remaining items representing this dimension varied between these two extremes in description, using the same descriptive tools.

**Table (3) Descriptive Statistics for the Dimension of Relational Capital**

| S | Descriptive statistics / Paragraphs | Arithmetic mean | standard deviation | Coefficient of variation | Answer level | Relative importance |
|---|---|---|---|---|---|---|
| 1 | The college is interested in achieving student satisfaction and works to build good relationships with them. | 3.7609 | 0.99857 | 0.26551 | high | 5 |
| 2 | The Deanship of the College and the Department Administration are interested in and listen to the opinions and suggestions of students and work to solve their problems. | 3.8370 | 0.91720 | 0.23904 | high | 4 |
| 3 | The college is interested in the time available to them to identify problems with students and works to address them. | 3.7599 | 0.86912 | 0.23210 | high | 3 |
| 4 | The college invests a lot of ideas and opinions that come from students. | 3.9783 | 0.77002 | 0.19356 | high | 1 |
| 5 | The college faces difficulty in directly fulfilling students' desires. | 3.9130 | 0.84713 | 0.21649 | high | 2 |
| | Overall Average for the Dimension | 3.8522 | 0.58694 | 0.15237 | high | |

2. Quality of Educational Service: In this research, the quality of educational service served as the dependent variable, measured through four dimensions: efficiency, resources, curriculum, and attitudes. The following is a detailed presentation of the results for these dimensions:

A. Efficiency: The analysis results for this dimension, as shown in Table (4), indicate that the second item ("The faculty members possess relevant theoretical and practical knowledge related to their work") achieved a mean of (3.9130) with the lowest standard deviation (0.73607). These results reflected a decrease in the coefficient of variation to (0.18811), indicating a high level of agreement among the sample members regarding the content of this item, with the highest relative importance. Meanwhile, the first item ("The college has an adequate number of faculty members with various specializations") achieved a mean of (3.8478) with a standard deviation of (0.88869) and a coefficient of variation of (0.23096), also indicating a high response level.

**Table (4) Descriptive Statistics for the Dimension of Efficiency**

| s | Descriptive statistics / Paragraphs | Arithmetic mean | standard deviation | Coefficient of variation | Answer level | Relative importance |
|---|---|---|---|---|---|---|
| 1 | The college has sufficient teachers and various specializations. | 3.8478 | 0.88869 | 0.23096 | high | 5 |
| 2 | Teachers possess theoretical and practical knowledge relevant to their work. | 3.9130 | 0.73607 | 0.18811 | high | 1 |
| 3 | Teachers work to constantly update the curriculum. | 3.9022 | 0.75680 | 0.19394 | high | 2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | The Deanship of the College is keen to develop the skills of teaching staff and continuously communicate this. | 3.9239 | 0.82853 | 0.21115 | high | 3 |
| 5 | ,The employees technicians, and department secretaries are highly competent in their duties. | 3.7717 | 0.79977 | 0.21204 | high | 4 |
| | Overall Average for the Dimension | 3.8717 | 0.57919 | 0.14959 | high | |

B. Resources: Table (5) displays the results of descriptive statistics for the dimension of resources. In this dimension, the fifth item ("The educational environment in which the faculty members work is highly attractive") achieved a mean of (3.8804) with a standard deviation of (0.66038) and a coefficient of variation of (0.17018), indicating the highest relative importance and a high response level. On the other hand, the first item ("The college possesses modern technical devices and equipment") had a mean of (3.5000) with the highest standard deviation (1.04303). This value contributed to an increase in the coefficient of variation to (0.29801) and ranked it fifth among the items in this dimension. The relative importance of the remaining items in this dimension varied between these two extremes, with all of them receiving high response levels.

**Table (5) Descriptive Statistics for the Dimension of Resources**

| s | Descriptive statistics / Paragraphs | Arithmetic mean | standard deviation | Coefficient of variation | Answer level | Relative importance |
|---|---|---|---|---|---|---|
| 1 | The college possesses modern technical devices and equipment. | 3.5000 | 1.04303 | 0.29801 | high | 5 |
| 2 | The college has sufficient equipment, workshops and laboratories. | 3.8152 | 0.86354 | 0.22634 | high | 4 |
| 3 | The faculty member can access and use the devices and equipment with ease. | 4.0543 | 0.74663 | 0.18415 | high | 2 |
| 4 | The faculty member can access sources of ,information, sources and scholarly references the information) network) with ease. | 3.8370 | 0.81574 | 0.21260 | high | 3 |
| 5 | The educational environment in which teachers work is highly attractive. | 3.8804 | 0.66038 | 0.17018 | high | 1 |
| | Overall Average for the Dimension | 3.8174 | 0.54965 | 0.14398 | high | |

C. Curriculum: Table (6) presents the results of descriptive statistics for the curriculum dimension, emphasizing that the third item ("The college's deanship is keen on forming work teams to complete educational programs") achieved a mean of (3.7826) with the lowest standard deviation (0.75340), resulting in a decrease in the coefficient of variation to (0.19917). It held the highest relative importance and a high response level.

Looking at the results of the remaining items, it is evident that the second item ("The knowledge acquired by students can be applied in other fields") obtained a mean of (3.9674) with the highest standard deviation (0.95447). These values led to an increase in the coefficient of variation to (0.24057), ranking it fourth in relative importance with a high response level. Meanwhile, the relative importance of the other items in this dimension varied between these two extremes, with all of them receiving high response levels.

**Table (6) Descriptive Statistics for the Curriculum Dimension**

| s | Descriptive statistics / Paragraphs | Arithmetic mean | standard deviation | Coefficient of variation | Answer level | Relative importance |
|---|---|---|---|---|---|---|
| 1 | Faculty members are keen to ensure that the curricula are appropriate to the requirements of the labor .market (job opportunities) | 3.7283 | 0.79977 | 0.21451 | high | 3 |
| 2 | The knowledge gained by students can be applied in other fields | 3.9674 | 0.95447 | 0.24057 | high | 4 |
| 3 | The College Deanship is keen to form work teams to implement educational programs | 3.7826 | 0.75340 | 0.19917 | high | 1 |
| 4 | The Deanship of the College and the scientific departments provide opportunities for students to develop their abilities and prepare them for practical and professional life in society | 3.7935 | 0.76371 | 0.20132 | high | 2 |
| | Overall Average for the Dimension | 3.8016 | 0.62077 | 0.16329 | high | |

**D. Attitudes: Table (7)** explains the results of the descriptive statistics for this dimension, which shows that the first item ("Faculty members have a clear understanding of student needs") achieved a mean of (3.7935) with the lowest standard deviation (0.68801) and a coefficient of variation value of (0.18136). It held the highest relative importance and a high response level.

Looking at the results of the remaining items, it is evident that the third item ("Faculty members provide advice and guidance to students regularly and continuously") obtained a mean of (3.9239) with the highest standard deviation (1.14098). These values led to an increase in the coefficient of variation to (0.290776), ranking it fourth in relative importance with a high response level. Meanwhile, the relative importance of the other items in this dimension varied between these two extremes, with all of them receiving high response levels.

**Table (7) Descriptive Statistics for the Attitudes Dimension**

| s | Descriptive statistics / Paragraphs | Arithmetic mean | standard deviation | Coefficient of variation | Answer level | Relative importance |
|---|---|---|---|---|---|---|
| 1 | Faculty members have a clear understanding of students' needs. | 3.7935 | 0.68801 | 0.18136 | high | 1 |
| 2 | Faculty members have the desire and constant readiness to provide assistance. | 4.0000 | 0.77033 | 0.192582 | high | 2 |
| 3 | Faculty members work to provide advice and counseling to students on a permanent and ongoing basis. | 3.9239 | 1.14098 | 0.290776 | high | 4 |
| 4 | Faculty members give clear personal attention to their students. | 3.9348 | 0.78172 | 0.198668 | high | 3 |
| | Overall Average for the Dimension | 3.8560 | 0.57564 | 0.149285 | high | |

In order to increase confidence in the validity of the dimensions and variables analyzed using statistical description tools for research variables and to prepare for testing research hypotheses, it is also necessary to ensure the suitability of the data for multiple linear regression models. This is done through what is known as the normal distribution tests for the dimensions of the variables as a fundamental requirement, as shown in Table (8), which illustrates these results for the dimensions of the variables investigated in this study according to the Kolmogorov-Smirnov test, which is used to test the following hypotheses for normal distribution:

- Ho: The data is normally distributed.
- H1: The data is not normally distributed.

**Table (8) Results of the Normal Distribution for Research Dimensions**

| Tests of normality | | | |
|---|---|---|---|
| Dimensions | Kolmogorov-Smirnov | | |
| | Statistical | Df | Sig. |
| Human capital | 0.073 | 92 | .200* |
| Structural capital | 0.084 | 92 | 0.117 |
| Relational capital | 0.073 | 92 | .200* |
| Efficiency | 0.077 | 92 | .200* |
| Supplies | 0.089 | 92 | 0.071 |
| Curricula | 0.087 | 92 | 0.079 |
| directione | 0.088 | 92 | 0.076 |

The results presented in Table (8) for the normal distribution tests of the dimensions and variables of the research indicate the non-significance of all the tests, thus rejecting hypothesis H1 and accepting hypothesis H0. In other words, it means that the data for the dimensions exhibit the property of normal distribution, confirming the suitability of the data for using the multiple linear regression model.

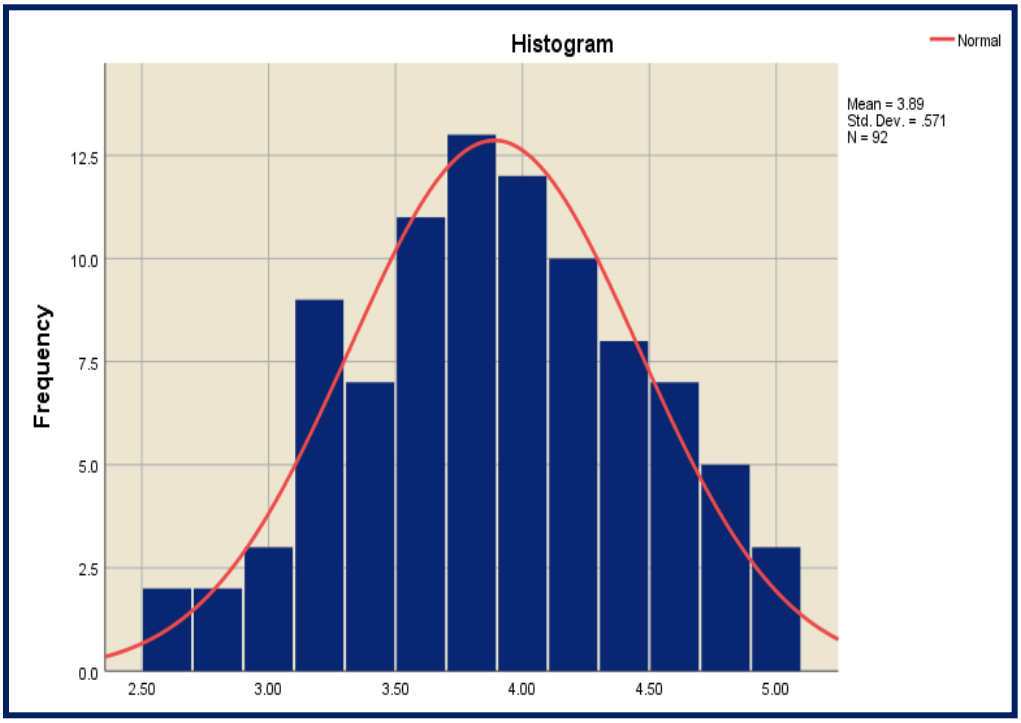



**Figure (1) illustrates the normal distribution of the data for the Human Capital dimension.**

**Secondly: Testing the Research Hypotheses**

Multiple regression models were determined according to the relationships in order to test the research hypotheses using the software programs SPSS (24) and AMOS (23). This was done to study the direct impact of intellectual capital as an independent or explanatory variable on the quality of educational service as a dependent variable. The research hypotheses are formulated as follows:

**Main Hypothesis**: This hypothesis states the existence of a statistically significant relationship between the dimensions of intellectual capital (human capital, structural capital, relational capital) and the dimensions of the quality of educational service.

**Sub-Hypothesis 1**: The results displayed in Table (9), graphically represented in Figure (2), indicate a statistically significant impact of human capital (.21, P=0.048=β) and relational capital (.34, P=0.004=β) on the first dimension of educational service quality, represented by the efficiency dimension. However, there is no significant impact of structural capital. The model's explanatory power, as measured by the determination coefficient, reached 32% (R2= 0.32) with a highly significant statistical value (P=0.000). This means that 32% of the variance in the efficiency dimension is explained by both human capital and relational capital.

**Table (9) Results of Testing Sub-Hypothesis 1**

| Statistical indicators / Regression paths (hypotheses) | female teacher Regression β | Statistics a test Teacher T | Parameter significance Sig. | Factor Interpretation R2 - | Statistics a test Sample F | Significance of the test model P |
|---|---|---|---|---|---|---|
| Human Capital<---Efficiency | .21 | 1.984 | .048 | .32 | 13.991 | .000 |
| Structural capital<---Efficiency | .11 | 1.062 | .291 | | | |
| Relationship capital<---Efficiency | .34 | 2.959 | .004 | | | |

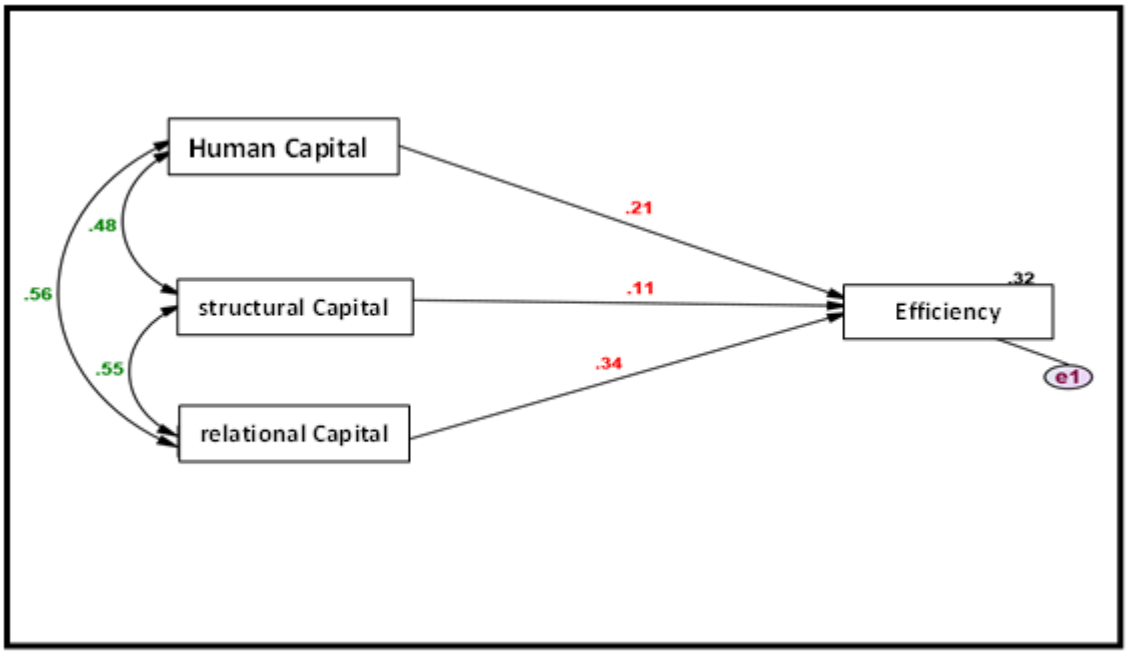


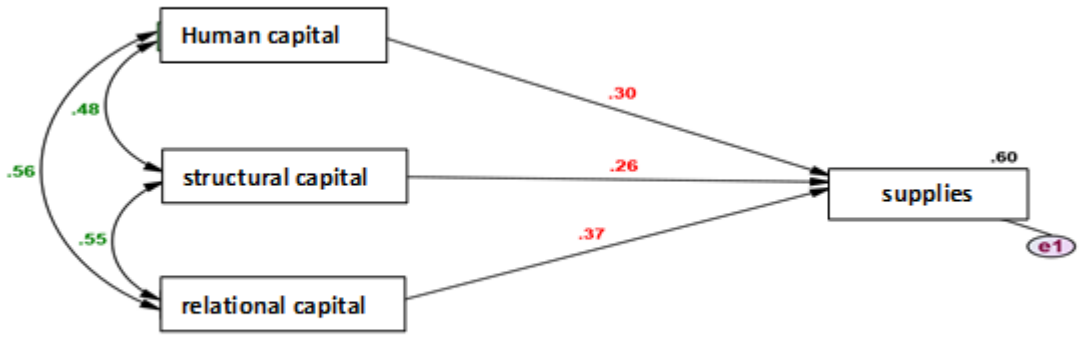

**Figure (2) Path Diagrams of the Relationship between Dimensions of Intellectual Capital and Efficiency Dimension**

**Sub-Hypothesis 2**: The table (10) presents the results of testing this hypothesis, as shown in Figure (3). The results show a significant impact of all dimensions of intellectual capital, represented by human capital (.30, P=0.001=β), structural capital (.26, P=0.003=β), and relational capital (.37, P=0.000=β) on the dimension of requirements. As for the explanatory power of the model, it is represented by the determination coefficient, which reached a percentage of (R2= 0.60) with full significance (P=0.000). This means that (60%) of the variation in the dimension of requirements is explained by the dimensions of intellectual capital, including human capital, structural capital, and relational capital.

**Table (10) Results of Testing Sub-Hypothesis 2**

| Statistical indicators / Regression paths (hypotheses) | female teacher Regression B | Counting a test Teacher t | Parameter significance Sig. | Factor Interpretation R2 - | Counting a test Sample F | Significance of the test model P |
|---|---|---|---|---|---|---|
| Human Capital<---Curricula | .05 | .467 | .641 | .43 | 13.991 | .000 |
| Structural capital<---Curricula | .16 | 1.972 | .049 | | | |
| Relationship capital<---Curricula | .53 | 5.014 | .000 | | | |

**Figure (3) Pathways of the relationship regression between the dimensions of intellectual capital and the requirements dimension.**

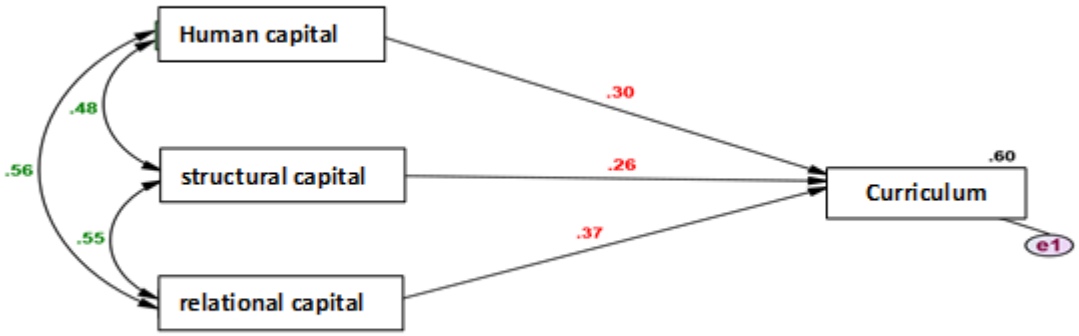



Sub-Hypothesis 3: Table (11) presents the results of testing this hypothesis, as illustrated in Figure (4). The results indicate a significant effect of the structural capital dimension (.16, P=0.049=β) and the relational capital dimension (.53, P=0.000=β) on the third dimension of the educational service quality variable, represented by the curriculum dimension. However, there was no significant effect of the human capital dimension. The explanatory power of the model, represented by the determination coefficient, reached a percentage of (R2= 0.43) with complete statistical significance (P=0.000). This means that (43%) of the variance in the curriculum dimension can be explained by both the structural and relational capital dimensions.

**Table (11) Results of Testing Sub-Hypothesis 3**

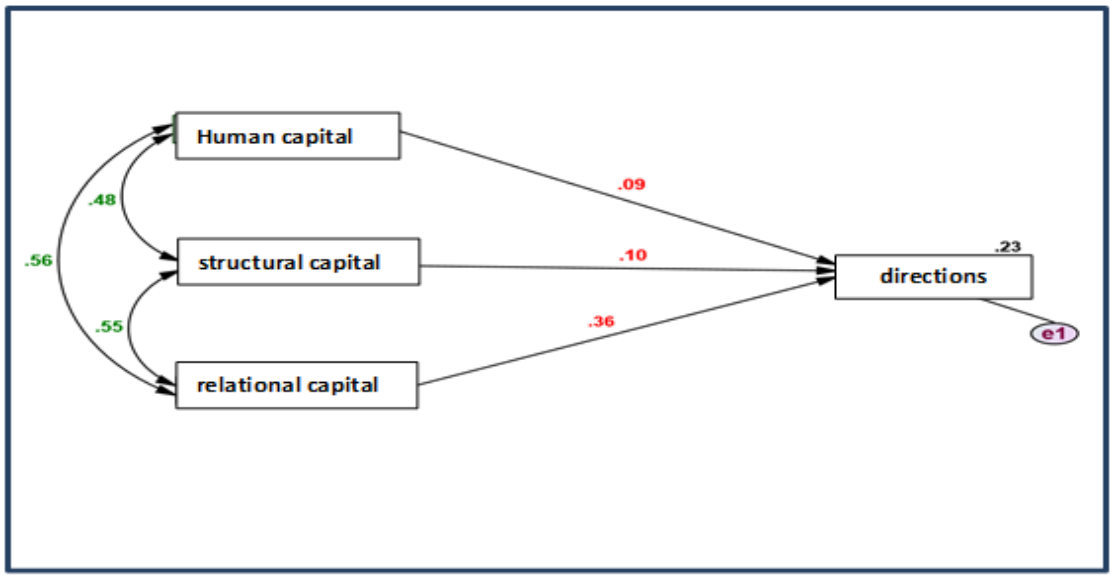
| Statistical indicators / Regression paths (hypotheses) | female teacher Regression B | Counting a test Teacher t | Parameter significance Sig. | Factor Interpretation R2 - | Counting a test Sample F | Significance of the test model P |
|---|---|---|---|---|---|---|
| Human Capital<---Curricula | .05 | .467 | .641 | .43 | 13.991 | .000 |
| Structural capital<---Curricula | .16 | 1.972 | .049 | | | |
| Relationship capital<---Curricula | .53 | 5.014 | .000 | | | |

**Figure (4) Pathways of the Relationship Regression between Intellectual Capital Dimensions and the Curriculum Dimension**




Hypothesis Subsection Four: It is evident from Table (12), which presents the results of testing this hypothesis and is graphically represented in Figure (5), that there is a significant effect of the relational capital dimension (.36, P=0.000=β) only on the directional dimension, while there is no effect on the other dimensions. As for the coefficient of determination, its value was (R2= 0.23) with complete significance (P=0.000), meaning that only (23%) of the variance in the directional dimension is explained by the relational capital dimension.

**Table (12): Results of testing Hypothesis Subsection Four.**




| Statistical indicators / Regression paths (hypotheses) | female teacher Regression B | Counting a test Teacher T | Parameter significance Sig. | Factor Interpretation R2 - | Counting a test Sample F | Significance of the test model P |
|---|---|---|---|---|---|---|
| Human Capital<---directione | .09 | .790 | .432 | .23 | 8.961 | .000 |
| Structural capital<--- directione | .01 | .839 | .404 | | | |
| Relationship capital<--- directione | .36 | 2.914 | .005 | | | |

**Figure (5): Regression Paths of the Relationship between Intellectual Capital Dimensions and the Directional Dimension.**

## CONCLUSIONS AND RECOMMENDATIONS

**Firstly, Conclusions:**

1. It became evident through the analysis of the questionnaire prepared for this purpose that the level of intellectual capital has increased as indicated by the higher mean scores for each dimension.
2. The quality of educational services in the selected colleges has improved, as indicated by the statistical analysis of the dimensions of this variable, with higher mean scores for each dimension and, consequently, an overall increase in the average for these dimensions.
3. There is a significant correlation between intellectual capital in most of its dimensions and the quality of educational services, confirming the hypothesis formulated by the researchers.
4. There is a statistically significant impact between the research variables and the dimensions used for each of them, as indicated by the results.
5. The results demonstrate the validity of the dimensions and variables analyzed using descriptive statistical tools according to the Kolmogorov-Smirnov test, which tests the hypothesis for normal distribution: HO for normally distributed data and H1 for data that do not follow a normal distribution.

**Secondly, Recommendations:**

1. We recommend that college administrations focus on retaining teaching staff who possess academic titles, skills, and practical experience in their fields to enhance intellectual capital in the dimensions considered in this research.
2. Encourage teaching staff by college administrations to produce productive scientific research that enhances the scientific and research status of those colleges.
3. Colleges should pay attention to monitoring their students, understanding their problems, and taking measures to address them.
4. Prioritize the information system in colleges and continuously update and expand information and communication technology to meet the needs of both teaching staff and students.

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