

# The Digital Divide and its Impact on Quality of Education at Jordanian Private Universities Case Study: Al-Ahliyya Amman University

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## Abstract

The study aimed to identify the Impact of digital divide in its dimensions (Technological dimension, Knowledge dimension, and Legislation & laws dimension) on the quality of education (University presidency's commitment to quality, Academic reputation and published scientific research) at Al-Ahliyya Amman University.

To achieve this goal, the researcher used the descriptive and analytical approach, the study tool for collecting information and data was a questionnaire distributed to all employees, whose number is (630).

The study questions and hypotheses were analyzed and tested through the Statistical Package for Social Sciences (SPSS) program. This study has found many results, the most important is:

The digital divide in its combined dimensions has a statistically significant impact on the quality of education at Al-Ahliyya Amman University. It concluded with many recommendations, the most important is that a strategic plan be drawn up for universities to develop its infrastructure, improve and develop it continuously in order to enable digital access and bridge the digital divide among researchers and academics.

**Keywords:** the digital divide, the quality of education, Jordanian private universities, Al-Ahliyya Amman University

## 1. Introduction

With the advent of modern technology that is characterized by high speed and great influence in all areas of life, a huge revolution occurred in the world of information and knowledge, which led to the emergence of a separation divide between rich and poor countries, which is referred to as the "digital divide", where this divide represents a major challenge for developing or poor countries to keep pace with information systems represented by the imbalance of information streams (Hilbert, 2013).

The progress of societies is now measured not as industrial societies, but as knowledge or information societies. In the sense that the development of these societies depends on intellectual technology, where information is the driving force for its progress, and these societies are described as knowledge societies if most of their members are involved in the production, processing and distribution of information.

Brahma Sanou Secretary General of the International Telecommunication Union (ITU) has eloquently defined a digital divide, "The information divide is still wide between those who have and have-nots." The ownership here is due to the knowledge and ability to use information technology (Al Mallah, 2017).

However, the statistics and the results of studies indicate that despite all the efforts on development and modernization, this gap will remain because it widens year after year; For many reasons: technological, financial, economic, political and socio-cultural (Qurain, 2017). To overcome the digital divide, access to technology should be a basic human right.

It may be time to rethink how to deal with the digital divide as long as there is a will to learn skills besides providing access to information technology, and keeping people developing societies connected to their culture and global knowledge is an invaluable social service, regardless of ethnicity or Income, education, or age, being contributing factors to creating the digital divide, as the prices of computers, mobile devices, Internet services (the Internet) and

other information tools decrease, the digital gap between those who have knowledge and those who do not have it may continue to narrow (Berrio, 2014).

## **2. The Study Problem and Questions**

The issue of not keeping pace with the digital age, Unfamiliarity with information and communication technology and its use in accessing knowledge, employing it, producing modern academic knowledge and disseminating it, is called the digital divide, which is an important issue, which countries and peoples around the world have sought to measure, recognize its size, and strive to bridge and eliminate it.

The digital divide may have a negative impact on students' academic performance due to social inequalities among these students. The lack of infrastructure and adequate resources for some private universities weakened their experience in the field of information and communication technology and caused a digital divide in these universities. As such, the study problem revolves around answering the following questions:

### **The main question**

What is the impact of the digital divide on the quality of education at Al-Ahliyya Amman University?

From the main question above, the following questions are divided into:

- 1) What is the impact of the technological dimension represented in the information and communication technology infrastructure on the quality of education at Al-Ahliyya Amman University?
- 2) What is the impact of the knowledge dimension and capacity- building on the quality of education at Al-Ahliyya Amman University?
- 3) What is the impact of legislation and laws on the quality of education at Al-Ahliyya Amman University?
- 4) What are the interviewees' perceptions of the quality of education at Al-Ahliyya Amman University?

## **3. Objectives of the Study**

This study aims to identify the digital divide and its impact on the quality of education in private Jordanian universities, and to achieve this goal, many of the sub- objectives have been formulated as follows:

- 1) Identifying the components of social capital at Al-Ahliyya Amman University, as the first private Jordanian university.
- 2) Identifying the level of availability of organizational innovation at Al-Ahliyya Amman University.
- 3) Explaining the nature of the influential relationships between the study variables.
- 4) Presenting recommendations and proposals to officials at Al-Ahliyya Amman University to enhance the role that social capital plays in achieving organizational innovation at the researched university.

## **4. The Significance of the Study**

This current study has importance due to the fact that it deals with the issue of the digital divide represented by the lack of familiarity with information and communication technology and the inability and readiness of some private universities in Jordan to benefit from this huge revolution in the world of information and inability to discover the real reasons that can bridge this gap in order to achieve quality in education outputs, from this, the study came to show the following:

- 1) This study sheds light on definition the digital divide and its implications for the quality of education in Jordanian private universities.
- 2) Highlighting the importance of bridging the digital divide to achieve quality education in private Jordanian universities.
- 3) This study can contribute to the development and improvement of the quality of university education and then academic knowledge, which in turn leads to the development of society.

## **5. Theoretical Framework and Literature Review**

Society as a whole, is currently living in what is called the digital age, the era in which information and communication technology has largely dominated all activities and aspects of various economic, social and cultural life, the information and communication technology - if properly exploited - represents a valuable opportunity to accelerate development efforts society comprehensive, sustainable development (Shams, 2017).

The digital age is defined as “the era in which there is the ability to transform information, data, knowledge, images and traditional forms into digital, which are transferred through the Internet into electronic technology (Ayyad, 2017).

This era is characterized by the digitization of information in all its forms, and the speed of its exchange and transmission, which helps to spread it in a short time and this helped to double the production of new knowledge in recent times (EL- Moujb, 2016).

With the advent of new technology, which is characterized by high speed and enormous impact in all areas of life, a great revolution occurred in the world of information and knowledge that led to the emergence of a separating gap between the rich industrialized countries and those poor developing countries called the "digital divide". The term refers to the gap between those who are able to use the Internet because of their necessary skill and financial ability, and those who cannot use the Internet, meaning that the digital divide is attributed to the gap between users of modern communications, information technology and those who do not use it (Jose & Sofia, 2016).

This term appeared with the beginning of the widespread of e-commerce and e-government, where a wide debate began among scholars about the situation of people who could not use the Internet, which resulted in them losing many of the benefits and services provided to Internet users, and the extent of the Internet's contribution to creating a gap in society, both in countries developed countries or their counterpart in developing countries and the third world (Wong et al., 2015).

## 6. Definitions of the Digital Divide

Francisco et al., 2018 defines the digital divide as “access to knowledge in terms of the availability of the necessary infrastructure to obtain information and knowledge resources by automated means without losing sight non-automated means through human communication”.

This definition focuses on the boundary between the availability of communication networks, means of accessing them, and the elements of their connection to the Internet.

## 7. Reasons for the Digital Divide

There are many reasons, including technological, economic, political, social and cultural (Benjamin, 2020).

**Technological reasons:** It is confined to the rapid and amazing development of modern technology, the growth of monopoly, the intensity of cognitive integration, and the aggravation of technological closure.

**Economic reasons:** They are represented by the high cost of information culture and the bloc of large countries (the Group of Eight nations), the pressure of small countries, and impose economic sanctions on developing countries, the monopoly of large and multinational companies on global trade markets, and the cost of intellectual property. The economic bias of technology towards the strongest to the detriment of the weaker party.

**Political reasons:** These are the obstacles to setting information development policies, the bias of international organizations towards the major powers, and the uniqueness of the United States of America in the geoinformatics environment.

As for the socio-cultural reasons, they are reflected in the low level of education, unequal opportunities, illiteracy and the linguistic gap, and the absence of a scientific and technological culture.

## 8. Dimensions of the Digital Divide

### Technological dimension

It is the integrated framework on which digital networks operate, and this infrastructure includes data centers, computer devices, computer networks and database management devices. The companies producing infrastructure devices play an important role in the development of the Internet, both in terms of places of communication media and places to access them, and from Where is the amount of information that can be carried and how fast it is transmitted.

Information and communication technology infrastructure must keep pace with growth in any educational institution, and this usually requires innovative ways to meet changing needs (Cruz, 2016).

### Knowledge dimension and capacity- building

Knowledge is what distinguishes the educational institution and creates wealth for it, because in itself it is the most important real wealth in the light of the knowledge economy, so the university that wants and seeks to achieve quality in education and achieve a sustainable competitive advantage must pay attention to this essential element. On

the other hand, knowledge is referred to as the optimal investment of information and data through employing the skills, abilities and ideas of individuals working at the university in a world in which their known balance of knowledge increases, and that the various universities are not strong and steadfast unless they possess knowledge. And that those who provide this knowledge are the owners of real and most important capital in the university, whose characteristics are innovation and creativity in order to achieve the quality of its education (Al-Zanfali, 2016).

### **Legislation and laws**

With the development of the digital age and the growing endeavors to build a society based on information and knowledge, it was necessary to update the regulatory and legal frameworks to fit with the modern requirements of the technological space and increase their homogeneity. Legislation on communications and information technology is considered an essential element in providing the necessary regulatory and legal environment to develop the information and knowledge society, build confidence in electronic services, and secure protection for Internet users (Hassan & Mujahid, 2008).

In this context, and with a view to stimulating regional integration in building a knowledge society in the Arab region, the interest of the United Nations Economic and Social Commission for Western Asia (ESCWA) began to support and develop legislation related to information technology, as it launched a series of studies and held several specialized meetings and workshops. Among the most prominent activities launched by ESCWA in this context is the regional project on harmonization of legislation to stimulate a knowledge society in the Arab region, which it implemented in cooperation with member states (ESCWA / OES / 2019).

### **Quality of education**

The transformations that took place in the twenty-first century within the framework of the globalization of the economy and the spread of information technology and the Internet, have led many organizations and educational institutions to take advanced steps towards improving the quality of the educational products and services they provide.

Quality is as defined by (Crosby, 1992) as “the extent of conformity with the requirements. The more product specifications are in conformity with the customer’s requirements, the better quality the product will be.”

As for the international standard (ISO 9000: 2000), it defines quality as "the degree to which the set of characteristics inherited in the product meets the requirements of the customer."

Degree to Which a set of Inherent characteristics fulfills requirement.

Thus, quality focuses on the excellence of product quality in any field.

### **Total quality in higher education**

In recent times, higher education has witnessed major transformations at various levels to keep pace with the needs of society in general and the individual in particular, and this is in the context of the digital and technical age in where there is no way for anything but perfection, accuracy, or what is known as quality (Al-Khatib and Al-Khatib, 2010).

Considering that the quality of university education is part of the focus of this study, we can define this concept as “a process of documenting programs, procedures, and application of systems, regulations and directions aimed at achieving a qualitative leap in the teaching and learning process and upgrading students’ level in all mental, physical, psychological, social and cultural aspects.

This can only be achieved by mastering the educational process through the interaction of all the participating elements, whether individuals, methods, tools, and approaches in order to upgrade and improve the quality of the outputs represented in the frameworks and capabilities of the graduates that seek to serve community institutions, which ensures the continuity and success of the university on the one hand and solving development problems on the other hand (Al-Hilali, 2012).

Al-Zanfali, 2012 believes that achieving the required quality in education will only be by following educational curricula and study plans that encourage students to conduct scientific research, inquiry and analysis, and urge them to present their ideas to motivate them to innovate and develop their own abilities, which would contribute to the development of the learning process in itself.

## 9. Related Articles

### 9.1 Kamal, et al., (2020). *Digital Divide among Higher Education Faculty.*

Digital divide centers on access to various dimensions of information and communication technology (ICT) including physical access, motivation, skills, and actual usage of digital technologies. This divide tends to be even wider in the context of developing countries. Yet, there is a lack of literature on the digital divide among the faculty who teach in higher education settings. Thus, as a preliminary effort, by using a 57-item Faculty's ICT Access (FICTA) scale, we investigated the digital inequalities (at the physical, motivational, skills, and usage levels) among Pakistani faculty in respect of their personal and positional categories. We also examined the relationship between faculty's instructional usage of ICT and other dimensions of their ICT access. The findings revealed that there were significant differences in the faculty's access to technology at the four levels in respect of their personal and positional categories. Further, the findings of the study shed light on the theoretical implications of the framework of successive kinds of ICT access suggested by van Dijk (The deepening divide: inequality in the information society, 2005).

### 9.2 Benjamin (2020). *The Digital Divide: Online Learning for Students in the Time of Pandemic (COVID-19).*

On December 31, 2019, the China Country Office of the World Health Organization (WHO) reported an unknown case of pneumonia [1]. According to the report, pneumonia of unknown etiology was detected in Wuhan City, Hubei Province of China. The patients are mostly are dealers and vendors in the Huanan seafood market. Interestingly, the report mentioned that there was no significant evidence of human-to-human transmission, and no healthcare workers were infected. The first infection outside China was detected in Thailand [2]. The first death from the coronavirus was reported from the Philippines [3]. On February 11, 2020, WHO named the unknown case of pneumonia as COVID-19 [4]. On March 11, 2020, within a month, it was declared as a pandemic [5]. The world responded by restricting travels and closing its borders, social distancing, health measures, and telling its citizens to stay indoors. In April 2020, Fact Tank said that 91% of the world population lives in countries with restrictions on people arriving from different countries and 39% where borders are entirely closed [6]. As of July 2020, there are 15,296,926 confirmed cases, 628,903 confirmed deaths, in 216 countries and territories [7]. The statistics prove that many lives are affected, not just the developing countries but the developed countries like—the effect of the pandemic affected the lives of the people of the world. Many families were separated, the death brought sorrows and griefs. The closures of businesses brought down the economies of many nations, and the educational institutions were not spared as well.

### 9.3 Rael (2019). *The Digital Divide and Educational Equity A Look at Students with Very Limited Access to Electronic Devices at Home.*

Access to technology is essential to educational success as well as workforce and community development. However, geographical, income-based, and racial/ethnic disparities in technology access persist. This “digital divide”—the gap between people who have sufficient knowledge of and access to technology and those who do not—can perpetuate and even worsen socioeconomic and other disparities for already underserved groups. This brief takes a closer look at one particular group: students who have access to only one device at home, a group representing 14% of all survey respondents. Taking a deeper dive into the data on students with access to only one device is important because these students may face challenges not faced by students with access to two or more devices.

### 9.4 Rehaf (2019). *Analysis of Educational Quality, a Goal of Education for All Policy.*

Education is recognized as a human right since the adoption of Universal Declaration of Human Rights in 1948 besides health and shelter. Education for All Goals was established where more than 150 governments have adopted world declaration on Education for All policy to support the universal right for education. The ultimate goal of many countries is to guarantee the optimum educational access rates for improving the quality. Similarly, quality is reflected by a range of indicators, including government spending on education, student/teacher ratios, teacher qualifications, test scores, and the length of time students spend in school. Every investment must be measured against how it can serve such aspects to ensure the ultimate quality of Education for All programs. Investing in education reinforces a society's wealth and growth, where individuals can easily improve their own personal efficacy, productivity, and incomes. A major challenge lies in defining the ideal education indicators and circumstances among countries; especially poorly developed countries that strive to establish a quality evaluation theme. Therefore, there is need of multifaceted standpoint and reasoning framework to realize educational policy evaluations that can truly contribute to the improvement of educational situation in developing countries and around the world.

### 9.5 Francisco, et al., (2018). *Internet Use by Secondary School Students: A Digital Divide in Sustainable Societies?*

Although the use of the Internet is generalized, its potential as a teaching tool is rarely taken into account. At the same time, there exists a digital divide affecting vulnerable or disadvantaged groups: students of foreign origin and students with special educational needs. It is necessary to identify how inequality can be overcome to reach the objectives set by the United Nations regarding sustainable forms of development for education and to foster more inclusive and egalitarian societies. In this research with students aged 12–16, the objective was to establish profiles according to gender, social class, ethnic background and educational special needs. We used a mixed methodological design, applying a questionnaire to 2734 students from 15 centers and qualitative data collection techniques. We made a descriptive and inferential analysis (SPSS program) and a qualitative data content analysis supported by the “Maxqda” program. The results show that, although most students have Internet access, students of foreign origin and students with special educational needs use this resource less frequently. There are significant differences for gender. Likewise, social divide has an impact on the learning potential of the Internet. Some proposals for improvement are provided, from the framework of the school, with a view to improving socio-educational equity and inclusion in societies in search of a more sustainable form of development.

### 9.6 Husain & Syed (2016). *Determinants of Education Quality: What Makes Students' Perception Different?*

In recent decades, the commercialization of education has become more apparent and the need for using marketing tools is greater than before. This study aims to identify the demographic and background information of students that differentiate their perception about quality of higher education. A sample of 432 students was taken from five top private universities of Bangladesh to evaluate their perception toward dimensions of higher education. Multinomial regression analysis was conducted to identify the characteristics of students which make their perception about quality of higher education dissimilar. The findings show that status of students for scholarship, extracurricular activities, parents' education, age, previous result, and university they study in have a significant influence on perception about quality of higher education. Part-time job status has moderate influence on the students' perception. This research carries value to education policy-makers and university authorities. They can use these findings to formulate regulations, and target specific groups of students to ensure favorable academic environment and increase the brand image of their institutions.

#### **Study Approach**

In this study the researcher relied on the descriptive and analytical method for its suitability to the subject of the current study, and it was used according to the following steps:

Collecting, reading and analyzing previous studies and literature related to the subject of the study, determining the problem of the study, and then preparing the theoretical framework to cover all points to be studied and theoretical qualification for it.

#### **Study population**

The study population consists of all the employees of Al-Ahliyya Amman University, whose number is (630) employees, administrative employees and academics (<https://www.ammanu.edu.jo>).

#### **Study sample**

The sample is considered part of the study population and is taken to accurately represent the community, and the sample is used to study the characteristics of the study population and infer its features.

In order to choose a sample size that is representative of the community and free from bias, which is reflected in the possibility of generalizing the results to all members of the study population. To achieve this, the researcher used the comprehensive survey by including all the items of the statistical community at Al-Ahliyya Amman University, which are (630) items (<https://www.ammanu.edu.jo>).

### **10. The Statistical Methods Used**

- 1) Percentages, frequencies, arithmetic mean, relative weight and arrangement for the purposes of knowing the frequency of a variable category in the demographic characteristics of the study sample and analyzing the items of the study variables.
- 2) Cronbach's Alpha test to find out the stability of the items of the questionnaire.
- 3) Pearson correlation coefficient to assess the linear relationship between social capital with its dimensions and its role in achieving organizational innovation.

- 4) Linear Regression test to study the effect of independent variables on the dependent variable and the main hypothesis.
- 5) (Durbin - Watson) test for the self-correlation of the study variables.
- 6) Pearson's Chi-Square Test.

Table 1. the stability values of the study instrument using Cronbach's Alpha

Number	Study variables	Number of paragraphs	paragraph numbers	Cronbach's Alpha
1	The technological dimension	5	5-1	0.923
2	Knowledge dimension and capacity- building	5	10-6	0.911
3	Legislation and laws	5	15-11	0.874
4	University Presidency commitment to quality	5	20-16	0.896
5	Academic reputation and publication of scientific research	5	25-21	0.870
	<b>Total</b>	<b>25</b>	<b>25-1</b>	<b>0.905</b>

Table No.1 shows us that the Cronbach's alpha coefficients fall between (0.870-0.923) and this indicates that all the paragraphs of the study variables have made the condition of stability by exceeding them (0.700), which means that all the paragraphs of the questionnaire are stable, that is, the stability of the resolution is high and statistically significant and thus The questionnaire, in its final form, can be distributed to the study population, whose number is (630) individuals, which makes the researcher sure of the validity of the questionnaire and its validity to analyze the data and answer the study questions.

Table 2. demographic and functional characteristics of the study population

Character	Frequency	Percentage
<b>Gender</b>		
Male	396	62.8%
Female	234	37.2%
<b>Total</b>	<b>630</b>	<b>100%</b>
<b>Age</b>		
30 Years and less	116	18.4%
31-40	154	24.4%
41-50	242	38.4%
51 and more	118	18.8%
<b>Total</b>	<b>630</b>	<b>100%</b>
<b>Education</b>		
Bachelor	154	24.4%
Master	192	30.4%
Doctoral	284	45.2%
<b>Total</b>	<b>630</b>	<b>100%</b>
<b>Working Experience</b>		
Less than 5 years	76	12.0%
5-10	190	30.2%
11-15	248	39.4%
16 and more	116	18.4%
<b>Total</b>	<b>630</b>	<b>100%</b>

<b>Job Title</b>		
Administrative	76	12.6%
Instructor	51	08.1%
Asst. Prof.	146	23.2%
Associate. Prof.	233	36.9%
Professor	124	19.2%
<b>Total</b>	<b>630</b>	<b>100%</b>

**11. Presentation and Discussion of Results**

**The first question:** What is the impact of the technological dimension represented in the information and communication technology infrastructure on the quality of education at Al-Ahliyya Amman University?

Table 3. the arithmetic mean, standard deviation, estimates of the study sample, and t-test for the technological dimension

N	Paragraph Technological dimension	Arithmetic Mean	Standard Deviation	The relative weight of the sample estimates	t test value	Sig.	Rank
1	The university has comprehensive and constantly updated databases to meet the needs of the beneficiaries.	3.96	1.040	%78.2	33.16	0.000	3
2	The presence of the Internet in the faculty offices helps to disseminate information efficiently and effectively.	3.87	0.923	%77.4	37.20	0.000	4
3	The availability of digital internet in the university contributes to improving the quality of the educational ability of the faculty member.	4.13	0.964	%82.6	40.81	0.000	2
4	The university shares databases of international educational and research institutions.	4.28	0.815	%85.6	42.16	0.000	1
5	Computerization of libraries at the university helps provide a common structure for interacting with other libraries and research centers.	3.80	1.016	%76.0	32.14	0.000	5
	<b>Total</b>	<b>4.00</b>	<b>1.033</b>	<b>%80.0</b>	<b>39.72</b>	<b>0.000</b>	<b>-</b>

Table 3 shows that the value of T.Test (t = 39.72) and the value of the calculated test significance was sig (0.000), which is a significant value indicating that there is a clear response to the field of internal relations among university employees and the relative weight of this field is equal to (80.0%) This result indicates that the axis of the technological dimension was at a high degree in Al-Ahliyya Amman University, and that the highest paragraph was No. (4) and obtained approval with a high degree with a relative weight (85.6%) and a significance level less than (0.05) which stipulated (The university shares databases of international educational and research institutions); Therefore, this paragraph is considered a statistical function, as are the rest of the paragraphs in this field.

**The second question:** What is the impact of the knowledge dimension and capacity building on the quality of education at Al-Ahliyya Amman University?



Table 4 the arithmetic mean, standard deviation, estimates of the study sample, and the t-test for the cognitive dimension and capacity-building

N	Paragraph	Arithmetic Mean	Standard Deviation	The relative weight of the sample estimates	t test value	Sig.	Rank
	<b>Knowledge dimension and capacity-building</b>						
1	The university gains knowledge through consultants in regional and international universities and scientific institutes.	3.82	1.014	%76.4	13.36	0.000	4
2	The university uses many methods to distribute knowledge and make it available to all its employees.	3.94	1.025	%78.8	14.92	0.000	3
3	The university has a flexible administrative system that facilitates the distribution of knowledge to all employees.	4.20	0.933	%84.0	16.18	0.000	1
4	The university holds training courses on the importance of knowledge and how to use it to achieve the set goals.	4.16	0.891	%83.2	15.23	0.000	2
5	The university classifies and tabulate administrative data and then turns it into information in order to support decisions.	3.80	1.013	%76.0	11.17	0.000	5
	<b>Total</b>	<b>3.98</b>	<b>0.887</b>	<b>%79.6</b>	<b>14.33</b>	<b>0.000</b>	<b>-</b>

Table 4 shows that the value of T test ( $t = 14.33$ ) and the value of the calculated test significance was ( $\text{sig} = 0.000$ ), which is a significant value indicating that there is a clear response to the field of external relations between workers at Al-Ahliyya Amman University and other external parties. The overall relative weight of the field was equal to (79.6%) and this result indicates that the external relations at the university came with a high degree, and it is clear that the highest paragraph is paragraph No. (3), which stated (The university has a flexible administrative system that facilitates the distribution of knowledge to all employees) It obtained approval to a large degree with a relative weight (84.0%) and a significance level less than (0.05). Therefore, this paragraph is considered a statistical function, like the rest of the paragraphs in this field.

**The third question:** What is the impact of legislation and laws on the quality of education at Al-Ahliyya Amman University?

Table 5. the arithmetic mean, standard deviation, and estimates of the study sample individuals and the t-test for legislation and laws

N	Paragraph	Arithmetic Mean	Standard Deviation	The relative weight of the sample estimates	t test value	Sig.	Rank
	<b>legislation and laws</b>						
1	Universities and educational institutions are committed to the basic Law of Jordanian Universities issued by the Ministry of Higher Education.	4.36	1.031	%87.2	18.10	0.000	1
2	The university encourages modern teaching methods and techniques to motivate students to learn.	3.97	1.012	%79.4	12.31	0.000	4
3	The university respects and guarantees the	3.84	0.874	%76.8	10.78	0.000	5

	application of human rights principles in dealing with students and their families.						
4	Clarity of legislation and laws at the university helps build complementary roles and decision-making.	4.29	1.096	%85.8	16.44	0.000	2
5	Follow-up instructions issued by the university presidency contribute to consolidating legislation and laws in the university.	4.10	1.071	%82.0	14.28	0.000	3
	<b>Total</b>	<b>4.11</b>	<b>0.956</b>	<b>%82.2</b>	<b>15.44</b>	<b>0.000</b>	<b>-</b>

Table 5 shows that the value of T test ( $t = 15.44$ ) and the value of the calculated test significance was ( $\text{sig} = 0.000$ ), which is a significant value indicating that there is a clear response to the field of external relations between workers at Al-Ahliyya Amman University and other external bodies. The overall relative weight of the field is equal to (82.2%) and this result indicates that the external relations at the university came with a high degree, and it is clear that the highest paragraph is Paragraph No. (1) which stated (Universities and educational institutions are committed to the Basic Law of Jordanian Universities issued by the Ministry of Higher Education). It obtained approval to a large degree with a relative weight (87.2%) and significance level less than (0.05); Therefore, this paragraph is considered a statistical function, like the rest of the paragraphs in this field.

**The fourth question:** What are the interviewees' perceptions of the quality of education at Al-Ahliyya Amman University?

Table 6. the arithmetic mean, standard deviation, and estimates of the study sample individuals and the t-test of the dependent variable to the quality of education

N	Paragraphs of the dependent variable (Quality of education)	Arithmetic Mean	Standard Deviation	The relative weight of the sample estimates	t test value	Sig.	Rank
<b>The university presidency's commitment to quality:</b>							
1	The university is keen to grant award of excellence in Scientific Research to its faculty members.	4.29	0.841	%85.8	32.09	0.000	1
2	The university sees the employment of its graduates by international business organizations as a true criterion for judging the quality of its education.	3.87	1.032	%77.4	19.55	0.000	5
3	The university is interested in the results of the university proficiency exam decided by the Ministry of Higher Education as it reflects the quality of the graduate.	3.90	1.044	%78.0	22.91	0.000	4
4	The university pays clear attention to participates in the criteria of the King Abdullah Award for uniquely Employee.	4.20	0.936	%84.0	29.46	0.000	2
5	The university has a clear vision and mission that focuses on quality in education.	3.96	0.916	%79.2	26.14	0.000	3
	<b>Total</b>	<b>4.04</b>	<b>0.844</b>	<b>%80.8</b>	<b>27.29</b>	<b>0.000</b>	<b>-</b>
<b>Academic reputation and publication of scientific research:</b>							
6	University faculty have an academic and professional reputation that correspond to the university's mission and goals.	4.12	0.913	%82.4	13.32	0.000	3
7	The faculty members of the university	3.79	1.029	%75.8	10.24	0.000	5

	contribute to the development of curricula and study plans.						
8	The university encourages its faculty members to attend conferences and hold scientific meetings regionally and internationally.	4.20	0.887	%84.0	15.39	0.000	2
9	The university focuses on the requirements of scientific research and is keen on the participation of faculty members as a basis for evaluation and contract renewal.	4.33	0.992	%86.6	18.44	0.000	1
10	The university is keen to harmonize graduates with the requirements of the labor market.	3.94	1.034	%78.8	11.95	0.000	4
	<b>Total degree</b>	<b>4.08</b>	<b>0.971</b>	<b>%81.6</b>	<b>12.82</b>	<b>0.000</b>	<b>-</b>
	<b>The dependent variable as a whole</b>	<b>4.06</b>	<b>0.945</b>	<b>%81.2</b>	<b>11.97</b>	<b>0.000</b>	<b>-</b>

As shown in Table 6 for the field (Quality of Education) that the value of T.Test reached ( $t = 27.29$ ), and the value of the calculated test significance was ( $Sig = 0.000$ ), which is a significant value indicating that there is a clear response to the field of problem solving as one of the dimensions of innovation organizational at Al-Ahliyya Amman University, and the relative weight of this field was equal to (80.8%), which indicates that solving problems at the university came with a high degree. It is clear that the highest paragraph is Paragraph No. (1), which states (The university is keen to grant award of excellence in Scientific Research to its faculty members.) and obtained approval to a large degree with a relative weight of (85.8%) and a level of significance less than (0.05), so this is considered The paragraph is a statistical function like the rest of the paragraphs in this field.

As we can be seen from Table 6 for the field (academic reputation and publication of scientific research) that the value of T.Test reached ( $t = 12.82$ ), and the value of the calculated test significance reached ( $Sig = 0.000$ ), which is a significant value indicating that there is a clear response to the dimension of taking- decisions at Al-Ahliyya Amman University. The relative weight of the total field was equal to (81.6%), which indicates that the decision-making process at the university came with a high degree. It is clear that the highest paragraph is Paragraph No. (9) which states (The university focuses on the requirements of scientific research and is keen on the participation of faculty members in it as a basis for evaluation and renewal of contracts) and obtained approval to a large degree and with a relative weight of (86.6%) and a level of significance less than (0.05) Therefore, this paragraph is considered a statistical function, like the rest of the paragraphs in this field.

**Analysis of study questions and hypothesis testing**

**The main question:** What is the impact of the digital divide on the quality of education at Al-Ahliyya Amman University?

**From this question,** the following hypothesis is formulated:

There is no statistically significant role at the level of significance ( $\alpha \leq 0.05$ ) for the digital divide in its dimensions (the technological dimension, the knowledge dimension, legislation and laws) on the quality of education in its dimensions (the university presidency's commitment to quality, academic reputation and publication of scientific research) at Al-Ahliyya Amman University.

Table 7. Results of multiple linear regression analysis of the digital divide in its dimensions in the quality of education at Al-Ahliyya Amman University

Dependent variable	R	R <sup>2</sup>	F	Freedom degree	Sig.	Independent variables Dimensions of the digital divide	$\beta$	t value	Sig.
quality of education	0.806	0.649	149.65	2	0.000	The technological dimension	0.740	28.03	0.000
				627		Cognitive dimension	0.639	24.14	0.000
				629		Legislation and laws	0.577	20.74	0.000

The main hypothesis was tested at the level of significance (0.05), and the results were shown in Table No. 7 according to the following:

- The tabular F value was extracted to compare it with the calculated F value, and it became clear that the calculated F value (149.65) is greater than the tabular F value (2.65) and it proves the significance of the model used in the regression analysis.
- The significance level of the test was compared with the level of significance adopted in the study to indicate the existence of a role of influence on the dependent variable (education quality). The above table No. (7) shows that the significance level for (F) reached (0.000), which is less than the level of significance adopted in the study (0.05). Thus, we reject the null hypothesis and accept the alternative hypothesis. There is a statistically significant role at the level of significance ( $\alpha \leq 0.05$ ) of the digital divide in its dimensions (the technological dimension, the knowledge dimension, and the legislation and laws) on the quality of education in its dimensions (the university presidency's commitment to quality, academic reputation and publication of scientific research) at Al-Ahliyya Amman University.
- The value of R is inferred to indicate the existence of a correlation between the independent variables and the dependent variable, and through Table No. (7) above, it was found that the value of the correlation is equal to (0.806), and it indicates a strong positive correlation between the dimensions of the digital divide and the quality of education at Al-Ahliyya Amman University.
- The results proved that there is an explanatory capacity for the independent variables combined (the technological dimension, the cognitive dimension, and the legislation and laws) on the dependent variable (the quality of education) and its value (64.9%), and it was inferred from the value of the determination coefficient ( $R^2 = 0.649$ ).

Table 8. Chi-Square Test to find out the relationship between the technological dimension of the digital divide and the quality of education at Al-Ahliyya Amman University

The dimension	Quality of education	
	Chi-Square Test	Sig.
The technological dimension	28.32	0.000

Table 8 shows that there is an influential and statistically significant relationship between the technological dimension at the university and the achievement of the quality of education in it, where the value of Chi-square (28.32) and with statistical significance (0.000), which is smaller than the level of significance in the hypothesis (0.05). Thus, we reject the null hypothesis and accept the alternative hypothesis, that is, there is a relationship between the technological dimension in the university and the achievement of the quality of education in it, and this result intersects with the study of (Kamal, et al., 2020).

Table 9. Chi-Square Test to find out the relationship between the cognitive dimension and capacity-building for the digital divide and the quality of education at Al-Ahliyya Amman University

The dimension	Quality of education	
	Chi-Square Test	Sig.
Cognitive dimension and capacity building	25.14	0.000

Table 9 shows the existence of a statistically significant impact relationship between the cognitive dimension and capacity building for the digital divide and the quality of education at Al-Ahliyya Amman University, where the value of the chi-square was (25.14) and in statistical significance (0.000), which is smaller than the level of significance of the hypothesis (0.05). Thus, we reject the null hypothesis and accept the alternative hypothesis, there is a relationship between the cognitive dimension and capacity-building for the digital divide and the quality of education at Al-Ahliyya Amman University, and this result intersects with the study of (Raeal, 2019).

Table 10. Chi-Square Test to find out the relationship between legislation and laws as one of the dimensions of the digital divide and the quality of education at Al-Ahliyya Amman University

The dimension	Quality of education	
	Chi-Square Test	Sig.
Legislation and laws	24.73	0.000

Table 10 shows the existence of a statistically significant impact relationship between legislation and laws as one of the dimensions of the digital divide and the quality of education at Al-Ahliyya Amman University, where the value of the chi-square was (24.73) and in statistical significance (0.000), which is smaller than the level of significance of the hypothesis (0.05). Thus, we reject the null hypothesis and accept the alternative hypothesis, that is, there is a relationship between legislation and laws as one of the dimensions of the digital divide and the quality of education at Al-Ahliyya Amman University, and this result intersects with the study of (Benjamin, 2020).

## 12. Results of the study

- 1) As can be seen the results of Table No. (2) that the majority of the sample items are males at a rate of (62.8%). However, the percentage of females, which amounted to (37.2%), is an indication of the development occurring in Jordanian patriarchal society about giving the opportunity for Jordanian women because the success of Jordanian women in obtaining leadership and academic positions and their effective contribution to public life are considered the most important aspects of gender justice. We also found that the majority of university employees are young men whose ages ranged from (31 to 50 years) and their percentage reached about (63%) of the total employees. It is striking that the percentage of those with a high academic rank (associate professor and professor) amounted to more than 55%.
- 2) The study showed that the dimensions of the digital divide (combined) have achieved different levels at Al-Ahliyya Amman University, as follows:
  - The technological dimension (information and communication technology infrastructure) achieved a high response score of (4.00) members of the study sample with a relative weight (80.0%), and this indicates the keenness of Al-Ahliyya Amman University to pay attention to providing information and communication technology as it works to change the teaching and learning processes. By adding vital elements to learning environments, including providing virtual environments and simulation systems that support the credibility and reliability of the learning process, especially while dealing with complex and difficult parts. This result is consistent with the study of (Francisco, et al., 2018).
  - The knowledge dimension and capacity-building achieved a high response score of (3.98%) with a relative weight of (80.0%). Knowledge management as a new concept for higher education institutions is one of the available management solutions that give them the opportunity to keep pace with the accelerating environmental changes, and to effectively apply knowledge management strategies and techniques, It inevitably leads to improving the capacity of these institutions to improve the quality of their educational services and decision-making, thus increasing the value and upgrading of these institutions. This result is consistent with the study of (Rehaf, 2019).
  - The dimension of legislation and laws and their application at Al-Ahliyya Amman University achieved a high response score (4.11) with relative weight (82.0%). This indicates that in light of the presence of many laws recently issued to govern the work of public and private universities, including those related to university management, including those related to higher education, we find It came with texts that deal with and regulate the process of managing the university body through its various councils, as it gave each council powers and authorities.
  - The education quality variable at Al-Ahliyya Amman University achieved a high degree of response score (4.06) and with a relative weight of more than (81.0%). This indicates the importance of higher education quality as one of the means of improving and developing the quality of education and upgrading its level in the era of globalization that can be described As the era of quality that works to raise the value of the educational institution among other institutions, and make it able to compete at the local and international levels. This result intersects with the study of (Husain & Syed, 2016).
- 3) The study found a statistically significant effect of the digital divide with its combined dimensions on the quality of education in its dimensions (combined) at Al-Ahliyya Amman University, as the value of the Pearson correlation coefficient (R) for this influential relationship was more than (80%) and a significance (0.000), which is less than the significance. (0.05) and this result intersects with the study of (Rehaf, 2019).
- 4) The study found a statistically significant impact relationship between the technological dimension and the quality of education at Al-Ahliyya Amman University.
- 5) The existence of a statistically significant impact relationship between the knowledge dimension, capacity building and the quality of education at Al-Ahliyya Amman University.

- 6) The existence of a statistically significant impact relationship between legislation and laws and the quality of education at Al-Ahliyya Amman University.

### 13. Recommendations

According to the conclusions and findings of this study, I have concluded the following recommendations:

- 1) A strategic plan for universities are put to improve and develop their infrastructure on an ongoing basis in order to enable digital access and bridge the digital divide among academic researchers.
- 2) The responsible authorities make available modern electronic devices and the availability of the Internet at a reasonable price and at high speed fit with the economic conditions of universities and academic researchers in order to facilitate the process of acquiring and benefiting from them.
- 3) Universities should organize regular conferences to introduce the latest developments in the digital age and how to benefit from them and employ them in scientific research, which leads to raising the level of knowledge of researchers and academics and improving the quality of education.
- 4) The university administration makes the issue of bridging the digital divide one of its most important goals in its strategic plan and sets procedures for implementing this.
- 5) Training courses for faculty members be hold on the developments of the digital age and how to employ them in scientific research.
- 6) The university faculty members are obligated to integrate information and communication technology into the educational process and hold periodic competitions in this regard to encourage them to follow all the developments of the digital age.
- 7) Providing modern and advanced computer laboratories and a strong internet network in all the university's faculties and its various halls that allow all researchers to obtain knowledge easily and allow faculty members the opportunity to teach research students how to properly access knowledge.
- 8) Urging the senior management to make intensive and continuous efforts to support efforts aimed at enriching and enhancing knowledge management and information technology at the university and creating a stimulating regulatory environment to achieve quality education.

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