Innovative Teaching and Knowledge Economy in Universities from the Perspective of Academics at Mascara University

الابداع التدريسي واقتصاد المعرفة في الجامعات من وجهة نظر اساتذة كليات جامعة معسكر

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Abstract:

The purpose of this study is to find out the underlying relationship between the quality of innovative teaching and Knowledge Economy from the perspective of the teachers interviewed in the Faculties at Mascara University. Thus, the study was conducted based on a questionnaire composed of four main axes and the target sample included 120 academics. Then, the questionnaire data were analyzed by using the Statistical Package for the Social Sciences Software (SPSS) based on the calculation of the average scores and the Pearson correlation coefficient. The study concluded that there is a close correlation between the quality of lectures, teaching, and the availability of the requirements of the Knowledge Economy and encouraging research resources and administrative facilities.

Key Words*: Innovation, Innovative Teaching, Knowledge Economy, Academics Mascara University.*

ملخص:

تهدف هذه الدراسة الى الكشف عن طبيعة العلاقة التي تربط جودة الابداع التدريسي باقتصاد المعرفة من وجهة نظر اساتذة الكليات المستجوبة في جامعة معسكر ،ولتحقيق اهداف الدراسة تم الاعتماد على استبيان مكون من اربعة محاور رئيسية ،حيث شملت عينة الدراسة على 120 استاذ ،و قد تم تحليل البيانات الواردة من الاستبيانات عن طريق استخدام برنامج الحزم الاحصائية للعلوم الاجتماعية spss اعتمادا على حساب المتوسطات الحسابية و معامل الارتباط بيرسون ،و خلصت الدراسة لوجود علاقة قوية بين جودة المحاضرات و جودة التدريس لدى الأساتذة و توفر متطلبات اقتصاد المعرفة إضافة الى توفر الامكانيات البحثية المشجعة و التسهيلات الإدارية .

الكلمات المفتاحية: الابداع، الابداع التدريسي، اقتصاد المعرفة، الابداع التدريسي في جامعة معسكر.

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INTRODUCTION

The last quarter of the century witnessed the greatest change in human life, as there was a transition, in the mode of production in science and technology, from individual innovation to the era of collective and institutional production. In fact, individuals were the basis of invention and innovation within the first and the second transitions. On the other hand, the third transition was characterized by the revolution of cutting-edge sciences in the electronic, nuclear, physical, and biological areas. Hence, institutions, universities, and learned societies became pioneers in innovative and technological industries. Furthermore, focus shifted in economy from tangible to intangible assets due to knowledge and development of technology. Moreover, knowledge contributed significantly to developing new and more dynamic concepts with high flexibility. Knowledge and data collection, commonly known as Knowledge Economy, became the basic components in the economic resources. It is worth noting that human intelligence, by producing and investing in its capital of ideas, skills and best practices, was the key factor in the development of Knowledge Economy.

In light of the above, the main question the research paper undertakes is: **Does Knowledge Economy have a Positive Impact on Innovative Teaching in Algerian Universities?**

To answer this question, the following main axes were discussed:

Axis one: Fundamentals of Knowledge Economy and Innovative Teaching and Related notions.

Axis two: The Role of Knowledge Economy in the Achievement of Innovative Teaching: A case study.

To answer the research question, the study adopts a descriptive research method, which focuses on the discussion of notions related to Knowledge Economy and innovative teaching, and the analysis of the data of the questionnaire. In addition, the research paper aims to find the underlying relationship between the variables of the study.

The present research paper deals with the importance of Knowledge Economy and the need to meet at least a small part of its requirements in order to achieve effective and innovative teaching.

First Axis: Fundamentals of Knowledge Economy and Innovative Teaching and Related Notions.

1. Knowledge Economy:

Knowledge Economy is a new branch in economic sciences. It depends on a good and profound understanding of knowledge and its current roles in building a well-developed economic model based on the widespread use of computing and internet, i.e. an economy that is more consistent with globalization and knowledge challenges.

The current study tackles primarily the aspects related to Knowledge Economy by examining the difference between knowledge and Knowledge Economy management.

1.1. Knowledge:

Knowledge is the fundamental and distinctive characteristic of human society; it is one of the significant achievements to both economy and society. In fact, it is infinite, renewable, diverse and multifaceted. Indeed, it is generated by itself on a continuous basis. Davenport, for instance, defined it as follows: "Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms". (Davenport, 1998, p.5)

In the same vein, Ghadeer assumes that: "Knowledge is the outcome of the mixture of information, skills, perceptions and the governance capacity; where information, among various tools such as intuition, speculation, actual practices and instinctive governance, is a tool to acquire knowledge". (Bassem Ghadeer Ghadeer, 2010, p.62).

Thus, knowledge is the outcome of scientific research and innovative projects. Also, it is a massive amount of data exploitable in all fields.

In contrast, Freidric Hayek (1945) in his book "The use of knowledge in society" and Fritz Machlub in his book "The production and distribution of knowledge in the U.S.A" posited that knowledge should be considered as a good or merchandise, i.e. knowledge, after being determined, might be assessed. Consequently, economic power in the world has taken a new direction based on Knowledge Economy, information, and communication power to achieve leadership and anticipation. Therefore, making logical, ideal and right decisions depends on continuous flow of information, measured and updated facts. (Mustapha Youcef Kafi, 2017, p.52)

As to the relationship between data, information and knowledge, it is worth mentioning that collecting data accurately and objectively and processing it on computer affords an opportunity to gather information on a specific problem and extract it via information communication technology tools, which provides opportunity to have access to knowledge (Abdulrahman Al Hachimi, 2007, p.40).

Besides, knowledge is categorized into two types:

Explicit knowledge: structured and usable information in solving a specific problem or accurate, processed and relevant information. (Pamela Vouney et al, p 184).

Tacit knowledge: the combination of skills, values, proactive information and professional visions which are used in the assessment of skills and new information. (Sever Linger, p 49). Tacit means that it is in the minds of individuals and depends on their experiences, skills and intellectual abilities.

1.2. Knowledge Management:

Knowledge management is the process of using information technology as a tool in collecting and storing skills and knowledge in order to share them as much as possible. Moreover, it is defined as the vital management of intellectual assets whether in form of tacit or explicit knowledge processed by individuals and communities (Snowden, 2000, p 52)**.** In addition, knowledge

management involves creating favorable environment in the organization, which facilitates innovation, spreads and shares knowledge in the presence of incentive management culture (Mustapha Youcef Kafi, 2017, p.34).

Concerning Knowledge Economy characteristics, knowledge management processes are important, and knowledge and experience sharing are the most important elements in knowledge management (Zack, 1998). However, the organization should adopt a clear engagement strategy which enables it to internalize cooperation, confidence and education (Starr, 1999).

1.3. Knowledge Economy:

Knowledge Economy, the essence of knowledge, requires a high level of ability of life-long learning, and put forward solutions for leadership. It is a competitive economy, which relies on the investment in intangible, intellectual and cognitive efforts in addition to its requirements. Therefore, not only should the organization make the information available, but it should also provide thinking.
Furthermore, Knowledge Economy is a new and special economy which depends on novel findings and conditions of improvement and innovation. Also, it was defined as information economy, internet economy, digital economy, e-economy, network economy, economy of intangible assets. All these terms are used interchangeably, which shows that researchers have not found yet a common ground for a standard definition of Knowledge Economy.
The economist Macklub, for instance, stated that the new economy is the one based on knowledge, in which the amount of labor in sectors producing knowledge is more than the amount of labor in the other economic sectors such as education, research and development, and communication and information.

Swanstorm concluded that: "Knowledge Economy is a branch of human sciences which aims to enhance welfare of individuals, organizations, and society through studying production systems, designing knowledge, and using the necessary procedures to develop those systems. Primarily, this kind of knowledge generates theoretical models via scientific research. Secondly, it develops scientific and technical tools, which can be applied, directly, to the real world" (Swanstrom, 2002, p.17). This means that the percentage of intellectual capital is higher than the percentage of physical capital.
According to the UN Program for Development and Knowledge-based economy: "Knowledge Economy is about spreading, producing knowledge, and investing it adequately in all fields of activities related to society, economy, especially civil society, politics and private life in order to improve individuals' life. It requires human capacity-building and a successful distribution of human capacities".

The World Bank defines it as: "the economy which achieves an efficient use of knowledge in order to achieve socio-economic development. In fact, this requires importing and applying foreign knowledge in addition to adapting and designing knowledge in order to meet its particular needs (Fatima Zahra Benzidan, 2019, p.278).
The World Bank asserted, furthermore, that a successful transition to Knowledge Economy involves, normally, many factors such as long-term investments in education, the developmnent of innovation capacity, the modernization of the information infrastructure, and the creation of an

environment conducive to market information. Also, the World Bank considered these factors as the cornerstones of Knowledge Economy since devising an effective innovation system for research centers and universities is the basis for utilizing, assimilating, and adapting the ever-increasing accumulation of knowledge to domestic needs.

1.4. Knowledge-based Economy:

It is an advanced stage in Knowledge Economy; it depends on applying Knowledge Economy in different economic and social activities. However, countries depending on innovation, acquisition, dissemination and storage in producing knowledge, are still in the era of Knowledge Economy. (Rabhi Mustapha Aliane, 2012, p.403).

Furthermore, Knowledge Economy pertains to the same knowledge processes, i.e. production and industry of knowledge in addition to research and development. It is an economy in which distances are not impediments to economic development, communication, education, or successful outcomes. In fact, knowledge, in Knowledge Economy, is increasingly available to all people given the fact that they are not only consumers of knowledge, but also play a major role in innovation. Thus, knowledge is a product in Knowledge Economy, however; it is a tool in knowledge-based economy.

1.5. Knowledge Economy Index:

Knowledge Economy is based on indexes which determine whether a specific economy depends essentially on Knowledge Economy. Indeed, Knowledge Economy attracted more attention after the World Bank adopted the standards of humanity related to access to Knowledge Economy and which are defined as follows:

- **Research and Development Index**:

Research and development data are the key indexes of Knowledge Economy among which two are used: the percentage of total expenditure on research and development of the Gross Domestic Product, and the number of researchers, i.e. the working group in research development to the number of inhabitants.

- **Education and Training Index:**

Human resources are essential to the promotion and development of economic activities, especially in Knowledge Economy, which involves advanced technologies. However, due to the difficulty of carrying out an immediate assessment of individual competency, it becomes more difficult to identify the data related to education and training as well as the data related to competencies or workers. Furthermore, these indexes help in assessing stock and investments in human capital during the education process. For this reason, the Organization for Economic Cooperation and Development, UNESCO, and Statistical Office of the European Union (EUROSTAT) established an international database for learning statistics.

In addition, scientific publications are considered as reliable indexes, which might help researchers to develop their skills, and spread scientific and cultural awareness. The index is calculated on the basis of the number of years of education and training to the individual's age (Maral Tulelian, 2006, p. 21-22).

- **Technology Balance of Payments (TBP) Index**:

It is the international technology transactions. It registers the commercial transactions related to purchase and sale of technology in addition to licensees and technical assistance. Moreover, TBP is the fundamental mechanism used in transferring technology into products, concluding license agreements between research centers, universities and business enterprises to transfer intellectual properties and research findings, or to exploit them through foreign direct investment.

- **Information Society Index:**

It pertains to infrastructure indicators such as smartphones, computers, and networks, which include internet, digital content, and the progress made with regard to the implementation of ICT applications in commerce and education. It takes into account that Knowledge Economy requires adequate technology base, and global communication network characterized by quick access, and intensive utilization of communications traffic.

2. Fundamentals on Innovation and Educational Innovation at Universities:

Universities are the core of scientific and social progress since they are responsible for building specialized competence. Furthermore, universities participate in creating the social elites who can contribute to socio-economic development of the country. However, universities adopting traditional teaching methods neither achieve their goals nor succeed in fostering innovative thinking among students, i.e., universities rely on research without applied scientific research. This can have a negative impact on education quality and its outputs. Thus, universities contribution to development is below the level of expectations since they do not focus on innovative scientific thinking.

2.1 Innovation:

Innovation is an ongoing process with multiple benefits; it enables the person, in changing environments, to solve problems with flexibility and rapidity. Therefore, a person with innovative thinking can always adapt and cope with situations (Rey &Feyfant, 2012, p.2). In fact, he deals with these situations in order to find opportunities for new practices because he has, "the ability to come up with new ideas, or new approaches to solve problems". (Deshayes, 2012, p. 219).

Innovation is one of the main priorities because it has a great impact on countries' economies and societies; its importance lies in enhancing development and being a valuable tool in solving problems by providing opportunities to innovative and creative people, and investing in them. Innovation is one of the crucial functions that a company should carry out. (Drucker, 2018, p.6), which means that innovation is the essential core of industry including all its forms such as designing new models of production, and enabling companies to change, innovate, and increase competitiveness in the future. Also, innovation is a way of thinking, through which a person seeks to find new relations or work out new solutions for the problems he encounters, or develops a different approach or other methods. (Mothe, 2015, p.2).

Therefore, with the ICT development in higher education, devising innovative methods of teaching becomes an urgent need since innovation aims at stimulating the education process, and making

student focus on scientific thinking. Thus, the student will be able to increase his capacities in analyzing information, and use knowledge in order to find solutions, i.e., university creates a new educational environment in which both students and teachers perform a crucial role.
Slastenin studied the structure of innovative activity that the structure of innovative Activity is a creative approach, creative activity, technological and methodological preparation for innovation, innovative thinking, culture of communication (Kharatova, March 2022)

2.2 Educational Innovation and University Education Quality:

According to Savall, universities of the future will depend on innovation of knowledge, which is based on collaboration and the conception that university, outside the walls, has a particular interest and significant role in integration (A. Dprima, 2001, P2). Therefore, teaching methods are not less important than the educational material or the learner, but they are an integral part of the educational process. Moreover, universities have to adopt new and innovative methods that facilitate communication and interaction between students. For instance, many actors in higher education institutions call for the necessity of providing appropriate means in order to improve the quality of higher education in a way that education becomes a key factor in achieving the goals of development. Consequently, the student will not be satisfied with receiving information, but he will be a participant who looks for information by all available means.

In fact, the traditional academic way in delivering lectures can no longer meet the requirements of Knowledge Economy or invest in student capacities. Moreover, it cannot bring benefits to university, improve scientific knowledge, stimulates students' interest or provide them with a sound guidance. On the other hand, innovative teaching methods enable students to develop their capacities and innovative potential in addition to expressing their desire to contribute to scientific and technological progress. Indeed, rising competition between students improves higher education quality and its outputs, and thus professors will be able to demonstrate their effectiveness and skills. In addition, they will be able to create a favourable teaching environment for student and establish effective communication with them taking into account differences of opinions and innovative ideas. (Rebecca T. Sivarajah, 2018).

In the studies conducted by Rooket (1972) and Barry (1974), it was stated that the flexible and understanding methods of treatment by teachers increase the ability of their students to think creatively. they encourage social relations and positive interactions between them. (Fadel Khalil Ibrahim, 2017).

2.3 Literature Review:

Many researchers studied the relation between Knowledge Economy and higher education with special focus on the importance of investment in human capital such as investment in education, training, research and development to enhance the role of Knowledge Economy in promoting higher education.

- "Alternative Societal Models of Learning and Innovation in the Knowledge Economy "by **Alice Lam.** this study lam set out explain how knowledge, organisational forms and societal institutions interact to shape the learning and innovative capabilities of corporate entities. She argues that tacit knowledge, which is difficult near create and transfer in the absence of social interaction and labour mobility, constitutes a key source of learning and sustainable competitive advantage in the knowledge economy. Institutions that are able to harness tacit knowledge as a source of learning are more likely to produce strong innovative capabilities. The analysis suggests that there are two alternative models of competence building that are favourable to learning and innovation, namely, the 'organisational community' and 'occupational community' model. The paper looks at the cases of Japan, the high-technology clusters in the USA and UK, and Denmark as illustrative examples. It argues that societies with different institutional arrangements will continue to develop a variety of organisational forms and learning strategies that privilege some sectors and discourage others and that learning capability of Japanese firms is rooted in strong organisational integration and employee commitment. Social capital is built on long-term obligational relationships within and between firms; however Anglo-Saxon economies characterised by liberal market institutions and professional individualism, the creation of regional clusters appears to be critical for promoting collective learning rooted in professional and inter-firm innovation networks.

Learning and innovation are strongly embedded in societal institutions. Societal comparative advantage therefore resides in the 'strategic fit' between institutionalised patterns of organising and creating knowledge and the requirements arising from specific niches (Lam, 2020).

- "Measuring the Contribution of" Knowledge Economy" to Economic Growth Rate: Comparative Analysis" by Oleg Sukharev. The purpose of the research is to determine the size of "knowledge-based economy" in the European Union and some countries for comparison, as well as assess the contribution of this sector, using different measurement methods, in the rate of economic growth. The research found that it was possible to identify an overestimated estimate of "knowledge-based economy" according to the Eurostat methodology, which takes into account the types of activities by the number of employees with a certain level of education, and the extent of "knowledge-based economy" sector was comparable with the location of countries in terms of per capita income. discussion on the experience of institutional reforms of education systems in the european Union to the conclusion that competence-based approach (CBA) to basic education proves to be limited for solving the problem of training personnel with higher education. The reforms adjust education to the current tasks of the business, replacing the teacher with a computer, has a number of significant limitations that will not affect the measurement key, but can lead to a quality that will subsequently affect the rate of economic growth not upward. (Sukharev, 2021)
- This section forms part of a study by OECD entitled "Competencies for knowledge-based economy" attempts to elicit the following question: What kinds of competencies are required to ensure success in knowledge-based economy? The result of the research was that the development of knowledge-based economy is leading the labour market competencies and skills. evidence shows that upskilling has taken place throughout OECD economies, partly derived by an increase in

demand for skills and partly in response to rising educational attainments in populations. The drivers at play suggest that further improvements in the overall levels of education are needed. Higher levels of education are needed not only to better prepare knowledge workers. They also improve the likelihood of participation in further learning throughout adult life, and reduce the chances of long-term unemployment and marginalisation. They conclude that high levels of education (OCDE, 2001)

- "Lifelong Learning in the Knowledge Economy: Considerations on the Lifelong Learning System in Romania from a European *Perspective*, by Alina **Irina the study** measures the lifelong learning system in Romania. The most recent law of education act 1/2011 the premises for the desired lifelong learning system and aligned the Romanian educational system with the European vision on lifelong learning to facilitate the emergence of the knowledge economy.

The study aims to highlight the 'facets' of the lifelong learning concept, and its evolution to the achievement of the knowledge-based economy and the related challenges for education and training systems. Irina concluded that Romania is finding and following its way towards knowledge-based economy. Increasing the competitiveness of the Romanian labour force to match the needs of the knowledge economy and that can be sustained by providing lifelong learning schemes for specific workplace qualifications, qualifications update, and new qualifications for career change, improving the quality and relevance of curricula, the use of technologies in the educational activities targeting all age groups a major step forward was made with the coming into force of the Law of Education Act 1/2011 (Popescu, 2012).

- In another paper authored by **Jennifer Schranini** entited "Learning to Compete in A Knowledge Economy", the researcher looks how raise the levels of education and skills of the workforce in the United States. Emerging economy such as China and India integrated knowledge-based economy thanks to their competitiveness and innovation of their workforce. Therefore, education and training affected directly the capabilities of countries and their faster integration into the global economy.

The researcher concluded that the globalization of innovative business, high skills and job specialization are the reasons for transition to a knowledge-based economy, as employers strive to develop higher skills and increase the workforce for its role in raising competition among workers including in managerial knowledge and human resource practices (Schramm, 2005).

- the same topic, entitled "What is the knowledge economy intensive industries and distributed knowledge based" by **Keith Smith** focused on modern economies and the extent of their reliance on knowledge, especially in new sectors such as ITC, where he considered that the innovation-based economy depends on complex and constantly evolving knowledge.

Smith also offered many suggestions for economies that want to grow for such sectors by increasing the internal transformational capacity, in innovation, and linking it to knowledge inputs and research with universities, research institutes, and knowledge -supplying companies (Smith, 2002)

- **Jaber Ramadan's** study: Article entitled: Availability of Knowledge Economy Skills among Students of Human Sciences Faculty at Imam Muhammad Ibn Saud Islamic University from the Perspective of Academic Staff and Students, 2015.The study examined the impact of some variables on identifying the availability of Knowledge Economy skills among students and academics. The analysis of the questionnaire revealed that the availability of Knowledge Economy skills is average among students and high among academics who have the experience of more than 5 years. Thus, the findings showed that the faculty adopts new methods in teaching and training in such a way that supports active participation. However, the faculty used less information technology applications and communication due to the fact that it is a faculty of human sciences and not a faculty of sciences, which needs more of these technologies.
- Article of **Najat Muhammed Saeed Al Saigh** entitled: The Role of Knowledge Economy in the Development of Saudi Universities and the
- Obstacles to its Implementation: *The* Points of View *of* Department Heads, 2014.Through a questionnaire consisting of two axes, the study aimed to shed lights on the role of Knowledge Economy in the development of Saudi Universities. The first axis highlighted the role of Knowledge Economy in the development of universities and the second one examined the obstacles to the implementation of Knowledge Economy.

The study concluded that Knowledge Economy played a significant role in the development of Saudi universities, and the Heads of Departments agreed on identifying the obstacles to the implementation of Knowledge Economy. The researcher concluded the study with a set of recommendations aiming at:

- Enhancing the role of Knowledge Economy in developing universities.
- Carrying out studies on the role of Knowledge Economy from the point of view of students and Heads of Departments.
- Conducting further studies on the role of Knowledge Economy in the development of other educational institutions such as faculties and schools.

- The study conducted by **Leila Benounissa** entitled: Knowledge Economy and the Quality of Higher Education in Algeria, 2016.The study aimed to address the impact of Knowledge Economy on the quality of higher education and the application of principles of quality based on the Data Panel in comparing a sample consisting in 10 countries from 2000 to 2014. The study demonstrated that the number of enrolled students, higher education overall enrolment rate and patents had a positive impact on the quality of higher education. On the other hand, the study revealed that student-teacher ratio and percentage of students enrolled in universities abroad had a negative impact.
- The effectiveness of Google Classroom among EFL Students in Jordan: An Innovative Teaching and Learning Online Platform**,** by Abeer **Hameed Albashtawi, Khaleel Bader Al Bataineh**, their study investigated the effect of using technologies for the purpose of reading and learning by students of higher education as Google Classroom on the reading and writing performance of diploma students in Jordan. It aimed to investigate the attitudes of students toward using Google Classroom as an innovative online platform the results showded a possitive attitude and affirmed the

liability of utilizing Google Classroom in terms of its ease of use, usefulness, and accessibility in wider contexts and it is inevitable to live without experiencing emergent teaching and learning online platforms they affirmed that Google Classroom application is effective in facilitating the process of teaching the English Business Writing class in a paperless environment. (Abeer Hameed Albashtawi, 2020)

- Use of innovative technologies in the educational process, by **Shakhlo Khakimovna Kharatova,Tohir Xushnudbek o'g'li Ismailov** ,this study clarified that Innovative activity is an important part of practice and theory, a system of action of social actors aimed at improving the quality of the socio-cultural object, which is based not only on the ability to solve certain problems, but also on motivational training to solve problems in any situation Innovative activity is a continuous work, which is formed and improved over a long period of time. Based on the views of pedagogical scientists who have studied the features of innovative activity of the teacher to be able to exchange ideas and provide methodological assistance by using of modern advances in science and technology. (Shakhlo Khakimovna Kharatova, 2022)
- Innovation in the teaching-learning process: the case of Kahoot! By **Juan José Guardia, José Luis Del Olmo, Iván Roa, Vanesa Berlanga**, Their working hypothesis is that the proposed innovative method better results in learning and basic skills than traditional educational methods ; The authors propose implementing a learning assessment process based on the idea of participatory evaluation, verifying the benefits of this method in the acquisition of crossdisciplinary skills, The results presented in this study confirm that the data obtained in the survey seems to indicate that the students generally positively valued the use of Kahoot he has an effect on the teaching-learning process and on the training skills and academic performance measured through the student's grades , , Kahoot! allowed them to learn in a different way, They saw Kahoot! as a new, dynamic and didactic method of evaluation in which students could explain their answers they considered it a positive experience. (Juan José Guardia, 2019)

Second Axis: **The role of Knowledge Economy in Achieving Innovative Teaching at Universities: Some Faculties of Mascara University as a case study**

Teaching is considered, under the new requirements of Knowledge Economy, as the key factor for success and development. In fact, the modern teaching system lays emphasis on the role of education, the teacher, the curriculum and the teaching methods in addition to integrating technology in education and research since it meets all quality requirements at all stages. Moreover, innovative education contributes to creating knowledge-based jobs through an effective system from primary school to university and higher education in particular. Furthermore, Arab Human Development Report states that the lack of resources is the main reason of the deterioration of education (Arab Human Development Report, 2003, p 98).

1. Labor Force Characteristics in Knowledge Economy:

In Knowledge Economy era, labor force contribution to labor market expectations is different according to a company, a business and a specialty. However, it is worth noting that labor force shares some common characteristics under Knowledge Economy:

- The ability to grasp information and transform it into usable knowledge.
- The ability to adapt, learn quickly and acquiring the necessary requirements.
- The ability to master information technology and computer technology and their application in business.
- The ability to collaborate and to work as part of a team.
- The ability to master verbal, written and virtual communication skills.
- The ability to master more than one language in order to be able to work in a global environment.

1.1 The Practical Part of the Study:

The university, as one of the effective institutions in developing specialized human resources and creative and distinctive capacities, has an obligation to create conducive conditions for learning and innovative thinking. Indeed, innovation cannot develop within surrounding factors that are not encouraging to ask more questions and present novel findings. However, providing conducive environment requires skillful teachers who undertake activities that stimulate innovative thinking. Also, they should have the conviction that university is broadly the source of knowledge within a framework based on cooperation and integration to serve economy and society.

Hence, the field study aimed to provide answers based on enhancing research methods, observation and knowledge, in other words, providing the Knowledge Economy requirements which encourage the improvement of the quality of education in the interviewed faculties.

1.2 Methodology and Tools of the Field Study:

Method and Study Sample:

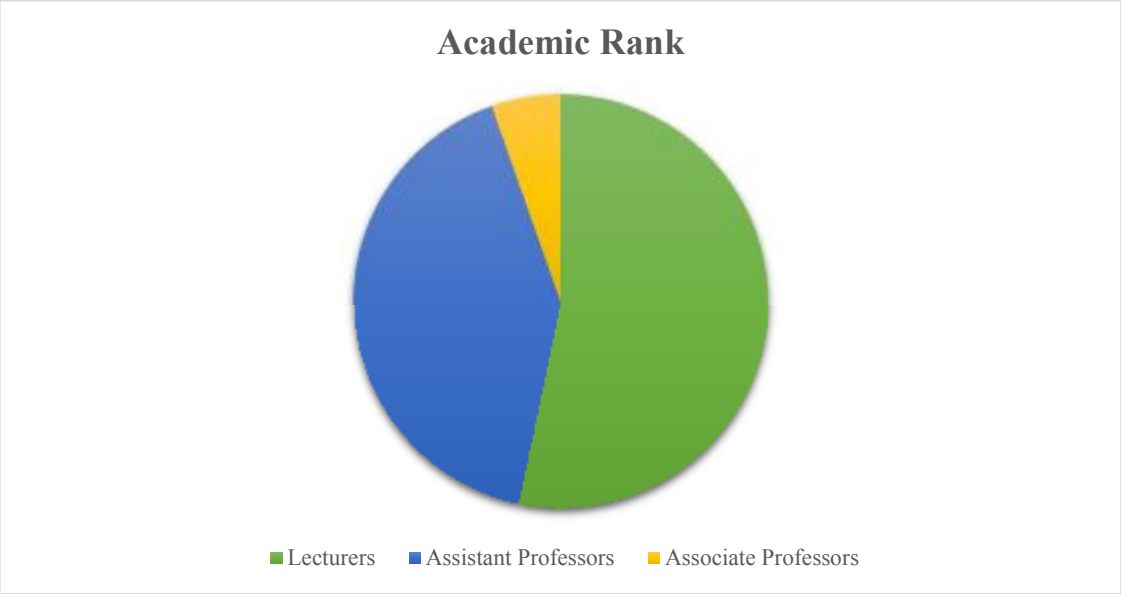
The current study employed the descriptive analytical method which examined the theoretical and field studies and researches. Thus, the field study was based on a survey using samples to design the questionnaire responded to by 120 academics at Mascara University. The teachers belonged to the Faculty of Economics, Commerce and Management Sciences, Faculty of Exact Sciences and the Faculty of Social and Human Sciences. Then, data was analyzed by using the Statistical Package for the Social Sciences (SPSS).

1.3 Personal Information of the Study Sample:

Academic Rank:

The figure bellow shows that **53.3%** of the interviewed academics are Lecturers, **41.7%** are Assistant Professors and **5%** are Associate Professors.

Figure1: Distribution of the study sample according to the Academic Rank Variable

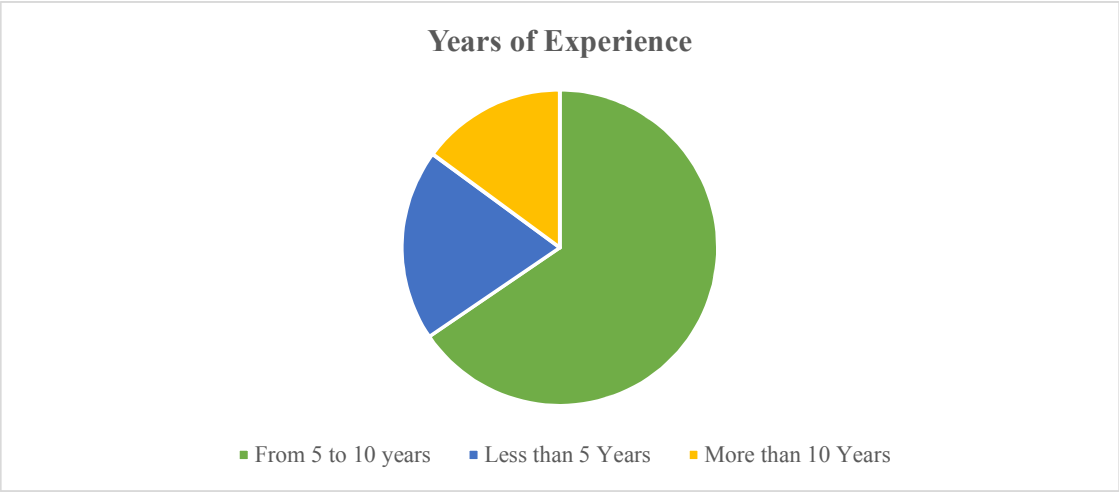


Source: *Prepared by the researchers based of the SPSS software.*

Years of Experience:

The figure below shows that **65%** of the interviewed academics have from **5** to **10** years of experience, then **20%** academics with less than **5** years, and finally **15%** members with more than **10** years of experience.

Figure 2: Distribution of Individuals in the Study Sample according to the Years of Experience Variable.



Source*: Prepared by the researchers based on the SPSS software.*

1.4 Study Tool:

The study was carried out through a questionnaire based on the theoretical framework; it consisted of four axes. The first axis was dedicated to the overall circumstances of a lecture and included nine questions. The second axis was devoted to the assessment of students and included eight questions. The third axis was related to learning resources and Knowledge Economy, and was composed of seven questions. Finally, the fourth axis was about administrative procedures and the professor's performance and it included eight questions. It is worth noting that the responses were subject to the 5-point Likert Scale questionnaire in order to specify the level of agreement.

Validity and Reliability of the Study Tool:

After the final wording, the questionnaire was submitted to a group of reviewers and specialized professors in order to evaluate its reliability. Then, Cronbach's alpha of items and axes of the questionnaire was computed along with Cronbach's alpha of the total items. The average rate was **80%** which represents a high rate of internal consistency, and hence the questionnaire is reliable.

Table 1 : Cronbach's alpha for the questionnaire axes

Axes	Items	Cronbach's alpha
Quality of the general atmosphere of the lecture	01-09	0.63
Student self-assessment	10-17	0.71
Learning resources and Knowledge Economy	18-24	0.81
Modern administrative practices and teacher's performance	25-32	0.63
Entire tool	10-32	0.80

Source: *Prepared by the researchers based on the SPSS software.*

1.5 . Findings discussion:

The present research discusses the following hypotheses: "Quality of the general atmosphere of the lectures delivered in Faculties is high". The findings of the field study conducted to examine the aforementioned hypothesis are listed in the table below.

Concerning the explanation of items, we took the average score and identified the levels of agreement based on the 5-point Likert Scale. The responses were divided into five categories based on which the level of agreement was measured as follows:

Table 2: Levels of Agreement according to the Respondents' Perspectives

Scale	1	2	3	4	5
Response	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Level of agreement	Very weak	Low	Medium	High	Very high
Scores	(1 – 1.80)	(1.80 – 2.60)	(2.60 – 3.40)	(3.40 – 4.20)	(4.20 – 5)

Source: *Prepared by the researchers.*

Table 3: Average Qcores of Academics' Reponses to the Questionnaire**.**

Items	Rank as per importance	Average score	Level of agreement
Quality of the general atmosphere of the lecture	**Ranked first**	**4.00**	
Preparing students by informing them about the goals of the lecture	8	4.14	Very high
Starting the lecture based on asking questions	14	3.68	High
Introducing the lesson by asking questions about the previous lecture	17	3.53	High
The teacher keeps the students attentive during the lecture	5	4.27	Very High
Teacher should rely only on the syllabus	30	2.98	Medium
Discussions in class encourages the students to discuss	5	4.27	Very High
Allow students to brainstorm about the lesson	2	4.47	Very High
Providing more illustrative examples	1	4.48	Very High
Student self-assessment	**Ranked second**	**3.82**	**High**
Asking students to undertake research on the topic to be discussed during the lecture	10	3.97	High
Explaining the students' assessment process in the beginning of teaching the module	6	4.25	Very High
Making, through special procedures, students' work subject to continuing verification to check its authenticity (i.e. work of the students themselves)	9	3.99	High
When the student cannot answer the question, I will provide the answer	35	2.83	Medium
Ask the same student the same question but in another form	9	3.99	High
Ask the other students to answer	11	3.92	High
Work on consolidating agreement, collaboration, and complementarity among students (Teamwork)	1	4.48	Very High
Exams assess student's ability to explain and analyze	7	4.15	High
Involve all students in discussion without targeting a specific group of students	4	4.32	Very High
Giving students enough time to answer the questions asked during the lecture	16	3.63	High

Encourage the student who gives a correct answer	3	4.35	Very High
Ask another question once the student gives the right answer	13	3.83	High
Students are free to make comments on their classmates' answers	21	3.44	High
Assessment of the teaching success should be based on answering all the questions asked	22	3.38	Medium
Assessment of the teaching success should be based on rich discussion between the students	12	3.86	High
Learning resources and Knowledge Economy	**Ranked third**		
Books and references used are new and cover the latest developments pertaining to the field study	15	3.65	High
Books and references are available and sufficient before starting teaching	19	3.48	High
Easy access to the teachers' online database	32	2.93	Medium
Easy access to the students' online database	33	2.88	Medium
Make adequate facilities and equipment for scientific research available to the teachers	34	2.87	Medium
Make adequate facilities and equipment for scientific research available to the students	27	3.05	Medium
Availability of support means to outstanding students	36	2.81	Medium
Coordination, knowledge and experience sharing between universities	26	3.22	Medium
Availability of sufficient facilities to use personal laptops	26	3.11	Medium
Modern administrative practices and teachers' performance	**Ranked fourth**	**3.19**	**Medium**
The faculty I belong to provides all the adequate necessary means and equipment for teaching	23	3.23	Medium
Heads of departments have competence of management which complies with latest methods	20	3.46	Medium
Administrative complexities to which the teacher is subject affect his performance	18	3.50	High
Equity in using technology-based equipment available at the faculty	28	3.03	Medium
Centralized control over Knowledge Economy bases	23	3.23	Medium
University offer progammes that meet labor market needs	25	3.18	Medium
The faculty policy aims to achieve academic excellence	31	2.95	Medium
Administration devotes constant interest to academics' concerns to improve their cognitive abilities	29	2.99	Medium

Source: *Questionnaire analysis based on the SPSS software.*

The table above shows that, in terms of relevance, the item "Enriching discussion in the classroom is through providing more illustrative examples» along with the item "Consolidating agreement, collaboration, and complementarity among students (Teamwork)" ranked first with an

average score of **4.48** and a very high level of agreement. On the other hand, the item «Enriching discussion in the classroom by allowing students to express their ideas» ranked second with an average score of **4.47** and a very high level of agreement. This proves that encouraging students to brainstorm and suggest solutions contribute greatly to the improvement of the quality of lectures, and enable the teacher to assess the student according to his performance during the lecture. Moreover, the variable of consolidating collaboration by involving all students in discussions supports and activates the positive aspects of the lecture through the integration of opinions and ideas. However, it depends on the teacher's skills of asking questions that challenge the student thinking, time and class management skills, methods of processing information and teamwork coordination without disorder which generates pleasure among students and increases their motivation for research and observation.

Given that the university is the main contributor to the development of specialized human resources and the determinant of the future profession; highlighting the innovative energies will be through their activation and encouragement, and the faculty member has an important role in fostering innovative thinking and motivation, the reason why the answer "When the correct answer is given, the student is encouraged" received a high level of agreement for the importance of such method among the interviewed professors; because the university environment must be suitable for innovation and it maintenance requires the faculty members to make efforts.

However, the availability of research support means, facilities and equipment is also important for maintaining the research environment improvement. They unfortunately received the last ranks among the respondents with average scores of (**2.83**) and (**2.81**) respectively. This is due to the lack of laboratories, classrooms and teaching materials because administrations are centralized and hence, the university functions are disrupted. Consequently, more flexibility and participation in quick decision-making are required to speed up the pedagogical process; in addition to the lack of serious interest in facilitating the modes of cognitive abilities improvement to the teachers due to the centralized use of Knowledge Economy. The average score of this item is medium and the average scores of the item "Equity in using technology-based equipment available at the faculty" are respectively (**2.99**) and (**3.03**).

1.6 Test of the following hypotheses:

H□: There is no statistically significant correlation ($0.05 \geq \alpha$) between the quality of the general atmosphere of the lecture and the student self-assessment in the faculties surveyed.

H□: There is a significant statistical correlation at a significant level ($0.05 \geq \alpha$) between the quality of the general atmosphere of the lecture and the student self-assessment in the faculties surveyed.

H□: There is no statistically significant correlation ($0.05 \geq \alpha$) between the quality of the general atmosphere of the lecture and the learning resources in the faculties surveyed.

H□: There is a statistical significance correlation at a significant level ($0.05 \geq \alpha$) between the quality of the general atmosphere of the lecture and the learning resources in the faculties surveyed.

H□: There is no statistically significant correlation (0.05≥α) between the quality of the general atmosphere of the lecture and the modern administrative practices and teachers' performance in the faculties surveyed.

H□: There is a significant statistical correlation at a significant level (0.05≥α) between the quality of the general atmosphere of the lecture and the modern administrative practices and teachers' performance in the faculties surveyed.

Table 4: Calculation of Pearson correlation coefficient

		Self-assessment	**Learning Sources and Knowledge Economy**	**Modern Administrative Practices**	**Quality of the general atmosphere of the lecture**
Self-assessment	Pearson correlation	1	,212*	,172	,589**
	Sig. (2-tailed)		,020	,060	,000
	N	120	120	120	120
Learning Sources and Knowledge Economy	Pearson Correlation	,212*	1	,432**	,431**
	Sig. (2-tailed)	,020		,000	,000
	N	120	120	120	120
Modern Administrative practices and teachers' performance	Pearson Correlation	,172	,432**	1	,372**
	Sig. (2-tailed)	,060	,000		,000
	N	120	120	120	120
Quality of the general atmosphere of the lecture	Pearson correlation	, 589**	,431**	,372**	1
	Sig. (2-tailed)	,000	,000	, 000	
	N	120	120	120	120

*. Correlation is significant at the level of 0.05 (2-tailed).
**. Correlation is significant at the level of 0.01 (2-tailed).

Source: *Prepared by the research team based on the SPSS software.*

The table above shows that there is a correlation between the quality of the general atmosphere of the lecture and the student self-assessment with a coefficient of **0.58**. Also, there is a correlation between learning resources and the quality of the general atmosphere of the lecture with a

coefficient of **0.43**, in addition to the correlation between the quality of the general atmosphere of the lecture and the administrative practices and teacher's performance with a coefficient of **0.37**. Thus, there is a statistical significance at the level of **0.005** which proves the quality and the significance of the sample.

The results show that there was enough evidence to accept the alternative hypothesis **H**. It proves that adopting encouraging and innovative methods by the interviewed academics contributes to generating useful discussions about the lecture, allows students to express their ideas on the topic and involves them in discussions enhancing hence their abilities in explaining, analyzing and finding solutions.

Moreover, teamwork and collaboration between students boost their self-confidence and increase their abilities to give innovative answers in exams. However, faculties should provide a encouraging research resources and tools such as books, scientific journals and facilities to use personal laptops to both students and teachers.

Another factor that improves the teaching quality in faculties is the harmony between the administrative staff and academics because administrative complexities might decrease the teacher's performance. Therefore, taking into account their concerns should be a priority for the faculty since it has an impact on creating a conductive environment for students which allows them to innovate, and thus higher education system provides labor market with highly qualified individuals.

Conclusion:

This theoretical and field study examined the importance of the quality of lectures in promoting innovation among students with particular emphasis on the role of Knowledge Economy. It concluded that academics' teaching skills in addition to the students' strong desire for success and showing their potential and skills are, in fact, the mainstays to improving the quality of teaching and scientific research. Thus, students might be able to discuss and analyze a flow of ideas which fosters a spirit of competition and initiative among students and between different institutions of higher education.

Furthermore, specialists and experts stress the importance of higher education quality due to their benefits to university, knowledge and society. However, this integrated option requires the acquisition of the mainstays of quality of higher education, and linking them to development plans. This depends on devising an effective strategy of scientific research, and adopting a research policy aimed at linking university research and innovation to economic and social requirements through the promotion of research and development at universities and research institutions, and encouraging close collaboration and coordination between them. Moreover, initiatives undertaken by a State to connect such institution to the internet are great achievements that facilitate the implementation of Knowledge Economy basic requisites.

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