UNIVERSITY TEACHING AND PROMOTION OF INNOVATIVE THINKING FOR HUMAN RESOURCES FROM THE POINT OF VIEW OF PROFESSORS OF THE UNIVERSITY OF MASCARA

MEKKAOUI Mekki
University of Mascara
FSESCSG
ALGERIA
mekki.mekkaoui@univ-mascara.dz

BIDI AISSAOUI Soraya
University of Mascara
FSESCSG
ALGERIA
soraya_bidi@yahoo.fr

Author Correspondent: MEKKAOUI Mekki. **mekki.mekkaoui@univ-mascara.dz**

Received: 15/08/2020 ***Accepted: 24/10/2020*** ***Published:22/01/2021***

ABSTRACT

The purpose of this study is to show the nature of the relationship between the quality of lectures and the establishment of innovation among students from the point of view of the questioned teachers at the University of Mascara. To achieve the study objectives, we used a questionnaire composed of four main axes and a sample which included 120 teachers. The questionnaire data were analyzed by using the statistical package for the social sciences (SPSS) based on the calculation of the arithmetic means and the Pearson correlation coefficient. The study concluded that there is a strong relationship between the quality of lectures and the students' innovative abilities, but it is subject to the availability of encouraging research possibilities and administrative facilities.

Keywords: Innovation - Teaching innovation.

1. INTRODUCTION

The major challenge in the light of scientific and technological progress faced by economies and societies is actually the necessity to value human resources more, and the urgent need to develop and invest in individuals' abilities in order to be able to adapt and interact better and positively with the knowledge

renewal by giving more attention to innovative skills and promoting the pivotal role that can be played by the scientific research.

Actually, the university is one of the higher education institutions able to highlight and sponsor such innovative scientific energies, transfer the results of such research and knowledge and then generalize and incorporate them at the heart of economics and their industrial projects. Therefore, the introduction of new teaching methods should keep pace with the rapid transformations and develop innovation among university students. Hence, we will try through this study to shed light on the new methods to teach university-based innovation.

2. Theoretical framework of the study: Basics of innovation and university teaching innovation

Universities are the main axis of scientific and social progress because they are responsible for preparing specialized skills and supervising the training of the elite of society whom it will be relied upon to contribute to the country's economic and social development. Yet, they cannot fulfill their mission and develop innovation among their students under the traditional teaching methods, or rather based on researches without applied scientific research which negatively affects the quality of education and its outputs, and thus, their contributions to growth and development become less than ambitions and expectations because they are not based on innovative scientific thinking and renewal.

2.1 Definition of innovation:

Innovation is an ongoing process that has the benefits of enabling its author to solve problems flexibly and faster in changing environments. Therefore, an innovator is constantly adapting and changing as dictated by the situation[1], so he interacts with it in order to find opportunities in new practices. Actually, innovation is defined as "The ability to produce new ideas or new methods to solve problems"[2].

Innovation is one of the most important priorities because it has a great impact on the countries' economies and their societies due to its importance in progress, and for the reason that it is a tool for solving problems by giving

1 Olivier Rey, Annie Feyfant "Vers une éducation plus innovante et créative". Institut français d'éducation. Janvier 2012.

2 Alter (2002) "Les logiques d'innovation: approches pluridisciplinaires". Paris. La découverte.

and investing in opportunities for creative and inventive energies. Peter Drucker defined it in 1954 as "One of the basic functions of a business"[3]. I.e. it is actually the essence of the industry in all its forms by innovating new models and the possession by these businesses of the ability to change, renew and strengthen control of competitiveness in the future.

In another definition of Mayrhofer and Urban 2011 "Innovation is a style of thinking in which the individual seeks to discover new relationships to reach new solutions to his problems or to create other methods and ways"[4].

Thus, increasing the technological progress of information and communication in the field of higher education has brought with it the need to develop innovative teaching methods aimed at stimulating the educational process, and making the student more focused on scientific thinking which develops his abilities to analyze information and employ knowledge to find solutions[5]; which means creating a new learning environment in which the role of the student and the teacher will change together for innovative and intellectual generation.

2.2 Definition of teaching innovation and the quality of university teaching:

According to Savall, the University of the Future is an innovation of knowledge based on the system of cooperation and the vision of a university outside the walls that has its own interests and moves toward integration[6]. I.e. teaching method is not less important than the scientific material or the learner, but it is an integral part of the educational process, and the role of the university is now forced to use modern and innovative methods that help to communicate and interact between the students[7], which made a lot of actors of higher education institutions call for the need to search means to raise the level of higher education to a position that makes it capable of achieving the development goals, and thus the student will be transformed from a mere

3 Cantwell (2010) " Innovation an information technology in the MNE". In a pugman et coll. eds the Oxford handbook of international business. 2 edition Oxford University Press.

4 Mayrhofer Urban (2011) "Management international des pratiques en mutation". Paris. Pearson Edition. France.

5 Isabelle Capron Paozzo 2016. "la creativite en education et formation perspectives theoriques et pratiques". Préfaces de Jean Remi Lopaire. deBOOCK supérieur.

6 ADprima (2001) "Instructional methods information-advantage and disadvantages" July, P 2.

7 Monica Boldea "A theoritical approch of the concept of innovation". West University of Timisoara.

recipient of information to a participant and a researcher of information by all possible means.

The traditional lecture is no longer able to meet the requirements of the knowledge economy, nor to invest in the students' minds[8] to give useful benefits to the university and scientific knowledge through the ability to raise their interest and guide them properly, and make students able to develop their abilities and innovative energies, and have the entire desire to contribute to the movement of scientific and technical progress. Actually, stimulating competition between students improves the quality of university training and the quality of its outputs. Accordingly, the university professor's effectiveness and skill are demonstrated as well as the creation of a teaching atmosphere to the student, and positive communication with them taking into account and understanding differences in opinions and innovative ideas[9].

A study by Rookey (1972) and Barry (1974) suggested that flexible and understanding methods of treatment by teachers increase the ability of their students to think innovatively and thus encourage social relationships and positive interactions between them[10].

3. Practical framework of the study:

The university is considered as an effective institution for the preparation of specialized human resources and innovative potentials and is also committed to providing an atmosphere conducive to education and innovative thinking because innovation does not grow under frustrating conditions and factors that make it unable to ask more questions and make new discoveries.

However, the availability of the right atmosphere also requires professors skilled in teaching to provide activities that can stimulate innovative thinking and convinced that university is the source of knowledge in the broadest sense under cooperation and integration to serve the economy and society. Therefore, strengthening the means of research, observation, and knowledge is the basis of the answers that we aim to reach through the field study.

8 Maha Ibrahim Al-Ktham "Creative Lecture in Higher Education". The faculty first international conference. Future Prospects 12-15 April 2015.

9 Hatem Jabir Aziz, Khalil Khaled Mahdi "Common teaching methods among university faculty members" Al-Fath journal, September 2012.

10 Fadel Khalil Ibrahim "Role of teaching methods in the development of innovative thinking among university students". Research journal of the Basic Education Faculty, Volume 4, No. 2, 2017.

3.1 Method and tools used in the field study:

Method and study sample:

In this study, we used the descriptive-analytical method by examining the theoretical and field researches and studies. In the field study, we adopted the survey method using samples to design the questionnaire that was given to a sample of 120 university teachers in the Faculty of Economic, Commercial and Management Sciences, Faculty of Exact Sciences, Faculty of Social and Human Sciences, then we analyzed the data collected using the program of statistical packages for the social sciences (SPSS).

Personal information of the study sample:

Academic rank:

The figure below shows that **53.3%** of the teachers are lecturers, **41.7%** are assistant professors and **5%** are associate professors.

Years of experience:

The results showed that the teaching experience of 65.0% of the questioned teachers ranged from 5 to 10 years, followed by 20% regarding teachers with less than 5 years' experience and 15% with more than 10 years.

The tool used in the study:

We used in the study a questionnaire based on the theoretical framework. It consisted of four axes. The first axis of the general quality of the lecture included nine questions. The second axis of the personal assessment of the students included eight questions. The third axis was related to the learning resources and contained seven questions. The fourth axis included the questions of administrative transactions and the professor's performance and contained eight questions, knowing that the answers of the sample will be subject to the 5-point Likert scale in order to show the degree of approval.

Accuracy and stability of the study tool:

In order to verify the accuracy of the questionnaire, it was given, after it was finally formulated, to a group of experienced and specialized professors. The Vac cronbach coefficient was calculated for the questionnaires clauses and their axes and it was high. Vac cronbach was also calculated for the total questionnaire clauses and it reached 80%, which is a high value of internal consistency and adequacy for the study and analysis purposes.

Table No. 1: Vac cronbach coefficient for the questionnaire axis

Axis	Clauses	Vac cronbach coefficient
Quality of the lecture general atmosphere	9-1	0.63
Personal assessment of the student	17-10	0.71
Learning resources	24-18	0.81
Administrative transactions and the	32-25	0.63

professor's performance		
The tool as a whole	32-1	0.80

Source: Prepared by the research team based on the SPSS program

Examination and discussion of the study results:

To examine and discuss the study hypothesis which states that "quality of the teaching lectures general atmosphere at the questioned faculties is high", we made the field study and the results listed in the table below were obtained.

As for the interpretation of the phrases results, we used the values of the arithmetic mean and the degree of approval based on the 5-point Likert scale. The answers were divided into five categories on the basis of which we found out the degrees of approval as follows:

Table No. 2: Degrees of approval of the sample members' perceptions

Scale	**1**	**2**	**3**	**4**	5
Answer	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Degree of approval	Very low	Low	Average	High	Very high
Categories of means	(1.80-1)	-1.80) (2.60	-2.60) (3.40	-3.40) (4.20	(5-4.20)

Source: Prepared by the research team

Table No. 3: Degrees of approval of the sample members' perceptions

Clauses	**Sort by importance**	**Arithmetic mean**	**Degree of approval**
Quality of the lecture general atmosphere	**First place**	**4.00**	
Students are prepared for the lesson by telling them the objectives of the lecture	**8**	**4.14**	**Very high**
Starting a lesson depends on asking questions	**14**	**3.68**	**High**
Introduction to the lesson raises questions about the previous lesson	**1 7**	**3.53**	**High**
The professor keeps the attention of students during the lecture	**5**	**4.27**	**Very high**
The teacher should rely on the course content only	**30**	**2.98**	**Medium**
Discussion inside the classroom encourages students to discuss	**4**	**4.32**	**Very high**
Let them brainstorm about the lesson	**2**	**4.47**	**Very high**

Give illustrative examples as many as possible	**1**	**4,48**	**Very high**
Personal assessment of the student	**Second place**	**3.82**	**High**
Ask them to make more researches about the subject	**10**	**3.97**	**High**
Explain the student evaluation procedures at the beginning of teaching the module	**6**	**4.25**	**Very high**
Continuous verification through certain procedures of the credibility of the students' work (i.e. that it is the work of the students themselves)	**9**	**3.99**	**High**
When the student misses the answer to the question, I answer the question.	**3 5**	**2.83**	**Medium**
Re-ask the question to the same student in another formulation	**9**	**3.99**	**High**
Ask other students to answer	**11**	**3.92**	**High**
Ensure the consolidation of the areas of agreement, cooperation and integration between students (teamwork)	**1**	**4,48**	**Very high**
Exam questions measure the student's ability to interpret and analyze	**7**	**4.15**	**High**
Involve all students in the discussion without relying on a particular category	**4**	**4.32**	**Very high**
Give students time to answer questions during the lecture	**16**	**3,63**	**High**
When the right answer is given to the question, I encourage the student	**3**	**4.35**	**Very high**
When answering the question correctly, ask another question	**1 3**	**3.83**	**High**
Students have full freedom to comment on their colleague's answers	**21**	**3.44**	**High**
Assessment of the level of success of teaching is by answering all the questions raised	**22**	**3.38**	**Medium**
Assessment of the level of success of teaching is through the richness of discussion among students	**12**	**3.86**	**High**
Learning Resources	**Third place**	**3.30**	**Medium**
Books and references used are recent and include the latest developments in the field of study	**15th**	**3.65**	**High**
Books and references are available and sufficient before starting the study	**19**	**3.48**	**High**
Professors have easy access to electronic databases	**3 2**	**2.93**	**Medium**

Students have easy access to electronic databases	**3 3**	**2.88**	**Medium**
Provide adequate facilities and equipment for scientific research of professors	**3 4**	**2,87**	**Medium**
Provide adequate facilities and equipment for students' scientific research	**2 7**	**3,05**	**Modified**
Provides research support means for excellent students	**3 6**	**2,81**	**Medium**
Availability of research materials and scientific journals related to the standards provided by the university	**26**	**3,22**	**Medium**
Provide adequate facilities for using personal computers	**2 6**	**3.11**	**Medium**
Administrative transactions and professor's performance	**Fourth place**	**3.19**	**Medium**
Faculty provides all the necessary means and equipment to perform the work	**2 3**	**3,23**	**Medium**
Administrative heads have executive competence	**20**	**3.46**	**Medium**
The administrative complications that the professor is exposed to affect his work performance	**1 8**	**3.50**	**High**
Justice in the distribution of modules by discipline	**2 8**	**3.03**	**Medium**
The faculty offers many desired majors	**2 3**	**3 , 23**	**Medium**
Open majors keep up with the labor market	**2 5**	**3.18**	**Medium**
The faculty policy is focused on excellence	**3 1**	**2.95**	**Medium**
Constant administration's attention to the professors' concerns	**2 9**	**2.99**	**Medium**

Source: Analysis of the questionnaire results by using the SPSS program

Based on the table above, we found that "Enriching the discussion inside the classroom by giving as many illustrative examples as possible" ranked first in terms of importance with an arithmetic mean of 4.48 and a very high degree of accompaniment.

The phrase "Ensure the consolidation of the areas of agreement, cooperation and integration between students, i.e. encouraging teamwork" received the same level of importance and the same arithmetic mean value.

As for "Raising the debate on the study by letting them brainstorm about the lesson" ranked second in terms of importance with an arithmetic mean of 4.47 and a very high degree of approval.

This demonstrates that encouraging students during the discussion to brainstorm, bring forward their ideas and provide solutions contributes to the improvement of the quality of teaching lectures, and helps the professor to evaluate the student through his constructive and effective contributions during the lecture.

Moreover, the variable of ensuring consolidation of cooperation between students, i.e. the involvement of everyone in the debate complements the positive aspects of the lecture and achieves it through the integration of views and ideas. This depends on the professor's skills in asking questions that challenge the student's thinking, time management skills and classroom management, information processing methods and coordination of teamwork without chaos, which creates fun for the recipients and strengthens their desire to research and observation.

The university is considered as the main contributor to the development of specialized human resources and the determinant of the future profession, highlighting the innovative energies will be then through their activation and encouragement, and the faculty member has an important role in stimulating innovative thinking and motivation, the reason why the phrase "When the correct answer is given, the student is encouraged" received a high degree of approval for the importance of such method among the questioned professors because the university environment must be suitable for innovation and it maintenance requires efforts to be made by the faculty members.

However, the availability of research support means and research facilities and equipment is also important for maintaining the research atmosphere improvement, and which unfortunately received the last ranks among the respondents with arithmetic means of 2.83 and 2.81 respectively. This is due

to the shortage of laboratories, classrooms and teaching materials because administrations are centralized and hence, the university's functions are impaired. Consequently, more flexibility and participation in quick decision-making are required to speed up the pedagogical process.

Test of the following hypotheses:

H_0: There is no statistically significant relationship (0.05αα) between the quality of the teaching lectures general atmosphere and the personal assessment of the students in the faculties in question.

H_1: There is a significant statistical relationship at a significant level (0.05αα) between the quality of the teaching lectures general atmosphere and the personal assessment of the students in the faculties in question.

H_0: There is no statistically significant relationship (0.05αα) between the quality of the teaching lectures general atmosphere and the learning resources in the faculties in question.

H_1: There is a statistical significance relationship at a significant level (0.05αα) between the quality of the teaching lectures general atmosphere and the learning resources in the faculties in question.

H_0: There is no statistically significant relationship (0.05αα) between the quality of the teaching lectures general atmosphere and the administrative transactions and the university professor's performance in the faculties in question.

H_1: There is a significant statistical relationship at a significant level (0.05αα) between the quality of the teaching lectures general atmosphere, the administrative transactions and the university professor's performance in the faculties in question.

Table 4: Calculation of Pearson correlation coefficient

		Personal assessment	Sources and Learning	Administrative transactions	Quality of the lecture general atmosphere
Personal assessment	Pearson correlation	1	,212*	,172	,589**
	Sig. (bilateral)		,020	,060	,000
	N	120	120	120	120

Resources and learning	Pearson correlation	,212*	1	,432**	,431**
	Sig. (bilateral)	,020		,000	,000
	N	120	120	120	120
Administrative transactions	Pearson correlation	,172	,432**	1	,372**
	Sig. (bilateral)	,060	,000		,000
	N	120	120	120	120
Quality of the lecture general atmosphere	Pearson correlation	, 589**	,431**	,372**	1
	Sig. (bilateral)	,000	,000	, 000	
	N	120	120	120	120
*. Correlation is significant at the level of 0.05 (bilateral). **. Correlation is significant at the level of 0.01 (bilateral).					

Source: Prepared by the research team based on the SPSS program

The above table shows that there is a relationship between the quality of the lecture general atmosphere and the personal assessment of the student where the correlation coefficient is 0.58, that there is a relationship between the learning resources and the quality of the lecture general atmosphere with a correlation coefficient equal to 0.43, in addition to a relationship between the quality of the lecture general atmosphere, the administrative transactions and the university professor's performance where the correlation coefficient value is 0.37, and there is a statistical significance at the rate of 0.005 which indicates the quality and significance of the model of consideration.

The test results validated the alternative hypotheses H_1. This confirms that the adoption of innovative and encouraging teaching methods by the questioned teachers contributes to enriching discussion about the lesson by giving students the freedom to express their ideas on the subject and involve them collectively in the discussion which contributes to their ability to interpret, analyze and find solutions. Also, integrated teamwork between the students raise their confidence and increase their abilities to give innovative correct answers during the exams, but this depends on the availability of research support means for both students and professors, such as books, magazines, scientific facilities and the use of personal computers in the faculty.

Moreover, what makes teaching quality higher in the faculties is the consensus between the administrators and the professors; because the administrative complications can reduce the teachers' will and reduce the

work value. Therefore, the constant attention to their concerns should be one of the faculties' administrative priorities. This is related to the creation of the right atmosphere for students to innovate, which contributes to the quality of the provided educational service, and thus the labor market will receive high-efficiency outputs from higher education.

4. CONCLUSION

Through the theoretical and field study of the importance of teaching lectures quality in stimulating innovation among university students, we found out that the professor's teaching skills and the students desire to excel and highlight the energies and skills are the basic and the first pillars to improve the education and scientific research quality, which encourages the most educated students to brainstorm and analyze ideas by developing the competitive and initiative spirit between them and the different higher education institutions.

Besides, higher education quality is one of the measures that are still urgently requested by specialists for their benefits to the university, knowledge, and society.

However, the achievement of such integrated option requires control and mastery of the basic pillars of the higher education quality; and linking it to the development plan, i.e. the presence of an effective strategy for the scientific research and research policy to link university research and innovation to the economic and social requirements.

5. REFERENCES

ADprima (2001) "Instructional methods information-advantage and disadvantages" July.

Alter (2002) "Les logiques d'innovation: approches pluridisciplinaires". Paris. La découverte.

Cantwell (2010) " Innovation an information technology in the MNE". In a pugman et coll. eds the Oxford handbook of international business. 2 edition Oxford University Press.

Isabelle Capron Paozzo 2016. "la creativite en education et formation perspectives theoriques et pratiques". Prefaces de Jean Remi Lopaire. deBOOCK superieur.

Mayrhofer Urban (2011) "Management international des pratiques en mutation". Paris. Pearson Edition. France.

Monica Boldea "A theoritical approch of the concept of innovation". West University of Timisoara.

Olivier Rey, Annie Feyfant "Vers une éducation plus innovante et créative". Institut français d'éducation. Janvier 2012.

Maha Ibrahim Al-Ktham "Creative Lecture in Higher Education". The faculty first international conference. Future Prospects 12-15 April 2015.

Hatem Jabir Aziz, Khalil Khaled Mahdi "Common teaching methods among university faculty members" Al-Fath journal, September 2012.

Fadel Khalil Ibrahim "Role of teaching methods in the development of innovative thinking among university students". Research journal of the Basic Education Faculty, Volume 4, No. 2, 2017.