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THE REALITY OF THE GROWTH OF THE OUTPUTS OF THE UNIVERSITY OF BABYLON FROM THE EXPLICIT KNOWLEDGE: ANALYTICAL STATISTICAL STUDY OF THESES COMPLETED BY GRADUATED STUDENTS IN THE PERIOD (1992-2015)

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Abstract

The study aims to study the growth of the outputs of the University of Babylon from the Masters and PhD degrees to the colleges of science and technology for the period (1992-2015) through an analytical statistical method and using the law of growth (rate of change). The main conclusions of the study are the following: Master's and doctoral studies at the University of Babylon passed through continuous development processes in the faculties of the university according to the need and the available human, material resources and for most of the university life (1992-2015). Particularly in (2012) and (2015). The period of time (2004-2015) has been much more grown and developed than the period of time (1992-2004) due to the relatively recent age of the university. The most important recommendations were: Establishing the infrastructure of graduated studies at the University of Babylon to be the level of ambition to produce advanced knowledge capital. Activate the knowledge management and knowledge capital at the University of Babylon to be a starting point for access to the knowledge-based economy.

Keywords

Explicit knowledge – Scientific studies – Postgraduate – Master's – Doctorate – Hgher education

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Introduction

The study problem and the following research questions can be identified: What is the amount of explicit knowledge growth (Master and PhD) at the University of Babylon. What are the growth differences between the period (1992-2003) and the period (2004-2015). What are the growth differences between the outputs of the Masters and the doctorate outputs at the University of Babylon. Is there a discrepancy between the output of explicit knowledge in the selected colleges within the researcher's study?

The importance of studying

The importance of the study is of the benefits expected from it and in the following aspects:

1-The study shows the possibilities of the University of Babylon in the opening of many studies of master's and doctorate in its scientific sections during the school year.

2. The study sheds light on the actual reality of the growth of knowledge of master's and Ph.D. outputs.

Objectives of the study

The study aims to achieve the following objectives

1-Determine the extent of explicit knowledge growth (Master and PhD) at the University of Babylon.

2- Determine the growth differences between the period (1992-2003) and the period (2004-2015).

3- Determine the differences in growth between the outputs of the Masters and the doctorate outputs at the University of Babylon.

4-Statement of variation in the output of explicit knowledge among the selected colleges within the researcher's study.

Methodology

The researcher chose the analytical statistical method in his study to find out the growth of the outputs of the University of Babylon from the explicit knowledge represented by the letters of masters and doctoral degrees.

Study boundaries

1. Objective boundaries:

The growth of explicit knowledge (Masters and Doctoral dissertations) in universities.

2. Formal boundaries: The study dealt with the following forms:

A-Master's Thesis.

B-Doctoral dissertations.

3-Spatial boundaries: The faculties of science and technology at the University of Babylon included:

A- Engineering Group: College of Engineering and Faculty of Materials Engineering.

B-Scientific group: includes the Faculty of Science and Girls Science and College of Information Technology.

C-Medical group: includes the Faculty of Medicine, College of Dentistry, College of Pharmacy and College of Nursing.

4. Time limits: the period between (1992 - 2015).

Society and Sample Study

The society of the study included the graduates of the University of Babylon from the Masters and Ph.D., the sample was the whole society.

Data collection tools

Data collection tools included:

1-Annual statistics for the graduates of the University of Babylon for the colleges under study from the Masters and Ph.D.

2- The guide of central library of university letters directory for the academic year (2012).

Statistical methods

The study used the law of growth as follows

Law of growth (rate of change)[1]. = (subsequent year – base year) / base year × 100%. To measure the growth of the out puts of the University of Babylon's from the masters and Ph. D.

Introduction

The importance of universities in countries has the responsibility of managing their knowledge effectively because they are of great importance in raising them and pushing them to excel at the rest of the universities, where they give them the knowledge-based superiority and knowledge capital, Therefore, it must directly attach importance to its knowledge outputs in material and moral support in order to grow exponentially towards achieving the best and attracting creative minds and preserving its knowledge capital. This research is intended to highlight the growth of the outputs of the University of Babylon from the Masters and Ph.D. The research included the first theoretical and the second practical.

Theoretical subject: Higher Education

The educational system is efficient in one condition, if its outputs are of the high quality and at the lowest possible cost, or when it determines the efficiency of the education system in its ability to employ its human and material resources with the maximum energy that required to obtain the highest social and economic return for both the individual and society[2]. From an important aspect of visions for the development in

[1] A. Badr, Research Methods in Library and Information Science (Riyadh: Dar Al-Marikh, 1988).

[2] A. Ismail; B. Gideon & N. Gamrawi, The Arab Conference on the Development and Modernization of Plans and Programs for Ministers Responsible for Higher Education and Scientific Research in the Arab World. Beirut: Arab Organization for Education, Culture and Science. 2009.

higher education is the academic evaluation process which seeks to raise the internal efficiency of the institutions of higher education in terms of programs, methods of education, the quality of inputs and increasing the diversity in different disciplines in line with development plans and labor market requirements[3]. We believe the important things that should be pursued by any university that wants quality in its educational and research outputs.

Therefore the average years of education in industrialized countries such as Japan and the United States are almost double that of (Turkey and Malaysia) for example, then the increasing in R & D expenditure has contributed to a steady increase in the number of scientists and engineers to more than six times the number of developing countries[4].

Scientific Research (Definition)

An organized and serious attempt somehow to solve the problems of society in a variety of areas It is also a scientific method of programmed and accurate investigation[5]. We can also define scientific research as a method designed according to precise scientific methods seeking to solve a certain problem in the community with the availability of material and moral support for its success.

Types of scientific research: There are many types of scientific research divided by researchers, some of them divided according to their curricula to (documentary, field, experimental), the others are dividing according to their nature to (theory, applied) others according to their implementing agencies to (academic, non-academic)[6]. Some of them were divided by academic stages to the following[7]:

First: Preliminary studies stage: include (reports, graduate research).

Second: Higher studies stage: It is an advanced stage that comes after a bachelor's degree assigned to the student in one of the following researches (diploma, master, doctorate). It is a large specialized research to be determined by one or more supervisors within a certain period of time that can be extended for more than once, and to stop the scientific methodology studied.

Third: the stage of research scientific promotions for faculty members.

Fourth: Other research: It is non-academic research of other institutions or not related to a specific area and classified into (professional research, free research).

Master's Thesis

It is a research that comes up in the concept of the article or research project, it is a major step to achieve a high degree which is often a master's degree, the main goal is to

[3] M. A. Manbaa, International Symposium on the Requirements of Higher Education Institutions to Develop Human Resources in the Kingdom of Saudi Arabia: A Future Perspective (Riyadh: Ministry of Planning, 2002).

[4] H. Shammari & N. Al-Leithi, The Knowledge Economy. T 1 (Amman: Dar Safa, 2008).

[5] M. A. Rabhi & O. M. Ghoneim, Methods and Methods of Scientific Research: Theory and Practice (Oman: Safaa House, 2000) y M. M. Abu Bakr & A. Al-Lahlah, Methodology of scientific research (Abrahamia: University House, 2007).

[6] A. Qandilji, Scientific Research and the Use of Information Sources (Amman University: Dar Al-Yazuri, 1999).

[7] I. A. Al-Ramahi, “Projects of the students of the stages ending in Babylon University: An evaluation study”, University of Babylon, Vol: 17 num 1-2 (2011).

get the student experiences in the research under the supervision of a professors to be able to prepare for the doctoral study because it shows the validity of them. As well as a degree obtained by a particular student from a university by taking courses and tests and to conduct research and submit it as a master thesis[8]. Also Collins and O'Brien show in their educational dictionary that the Master's degree is granted to the beneficiary after completion of one or two years of scientific or human study recognized over a wide range for a period of four years, it usually granted previously to the technical and humanitarian specializations. It was then awarded to the scientific and technological sciences, where it is required to possess this certificate as a basic requirement of faculty members who study materials that do not graduate[9].

Doctoral dissertation

Most researchers agree that the dissertation is a higher scientific research than the thesis, completing the degree of doctorate, so it is an original research, in addition of the task of knowledge which is deeper and more accurate than the master's thesis, where you need to be proficient in the analysis and organization of scientific material it is about three or four years graduation Work[10]. This degree is therefore called Doctor of Philosophy in Specific Practice (Ph.D.).

Universities Goals

Experts believe that universities have three important goals that can be summarized as follows[11]:

1- Knowledge support and dissemination.

2-Meeting the needs of the society and developing its economy from investing in human capital.

3. Striving for the stability and development of society and overcoming its dilemmas and social issues as follows:

1-Train students and practice other social activities.

2-Link the quality of research with the problems of the community.

3-Explain and disseminate research so that the members of the community benefit from it

4-Develop a conscious mind of the problems of society in all its forms.

5-Aligning the training of graduates with the needs of society and changing the professions of society.

The researcher[12] in his study recommends that universities if they want to achieve their mission according to the modern perspective, they must work and form their future vision through the following:

[8] Jawahar Mohammed Al Deboos, Educational Dictionary (Kuwait: University / Council of Scientific Publications, 2003).

[9] J. W. Collins & N. P. O'Brien, The Greenwood dictionary of education. ABC-CLIO. 2011.

[10] J. W. Collins & N. P. O'Brien, The Greenwood dictionary of education…

[11] Kingdom of Saudi Arabia. Ministry of Higher Education: Ministry of Planning and Information Agency - General Directorate of Planning and Statistics. The third position of the universities. 2013.

[12] S. Al-Sharqi, The role of universities in the development and development of society. Center of Kufa Studies. 2008.

1-Providing a distinct research environment that is related to the needs of productive institutions.

2-Providing a variety of graduate programs to contribute to the enrichment of knowledge, the rehabilitation of specialized scientific, professional competencies to keep pace with the rapid progress of technical sciences as well as to contribute the treatment of the problems of society and must be communicate with it.

3-Providing its research and advisory expertise to the community in a way that enhances its educational research capabilities.

4- To proceed with programs to develop cadres, such as rehabilitation programs, training in various courses.

5-Submitting its educational programs and curricula to periodic evaluation according to standard criteria due to the increasing accumulation of knowledge.

Today, the global trend of the universities' mission moves beyond the focusing of knowledge conservation and dissemination through teaching and academic research to a wider range of other opportunities, it is representing by the possibility of investing knowledge capital, participating in economic and social development, developing industry and advancing progress.

This close relationship requires universities to constantly change their structure, programs, functions and research in a way that suits the changes taking place in society[13].

But in accordance with a clear and comprehensive vision of all its internal requirements as well as external influences, so that it will move towards a high level of progress.

The role of the universities in the society

The role of universities is not only to provide knowledge, manufacture, transfer, research and development, but also to function as a guide for economic growth and as a key tool for transferring accumulated human and scientific experience. This is also being done in a world where resources of knowledge dominate material resources as agents of development. Therefore, the university assessment's scale is based on the ability to prepare a qualified graduation according to internationally accepted standards in different directions of knowledge, also the interaction with the immediate and future needs of the society, It's producing scientific research that reflects the reality of the society and its different needs to simulate the reality of public service production and the private labor market, It was needed for developing the economy and solving the development problems.

Therefore, the achievement of this requires the existence of a comprehensive visionary policy that starts from the actual reality and moves effectively in the tracks of the institutional structure of higher education, namely as an university professor, student, infrastructure, and effective managements[14].

[13] S. Al-Sharqi, The role of universities in the development…

[14] I. Ali & G. Norma, Developing and updating plans and programs for ministers responsible for higher education and scientific research in the Arab world: aligning the outputs of higher education with the needs of society in the Arab world (Beirut: Organization, 2009).

Practical research

The growth of knowledge capital at the University of Babylon

Theses (historical profile)

The master's and doctorate studies at the University of Babylon in the academic departments of the colleges under study have undergone continuous development at the university, according to the need, the available human and material resources. The following is a description of the development in which it occurred in the period specified in the study (1992-2015):

1-Before we begin we should mention the years of establishing the colleges concerned and studying as follows (Engineering / 1988, Materials Engineering / 2007, Science / 1988, Girls Science / 2002, Information Technology / 2009, Medicine / 1993, Dentistry / 2002)

It appears that the two founding years of the two collages (Engineering and Science) were in 1988, it was before the establishment of the University of Babylon in 1991 because they were affiliated with the University of Kufa at the time and it was joined with the University of Babylon at the time of its establishment.

2. The year (1992) was the first year of the beginning of graduate studies at the University of Babylon in the Faculty of Science / Master's Degree and the specialization of the number (1) is (life sciences).

3. The year (1993) was the beginning of the development the graduation of higher studies / Masters in the Faculty of Engineering and in the specialization of the number (2) are (civil engineering / water resources, engineering of mechanics / refractories), as well as the appearing of development and expansion of the Faculty of Science by opening a master's study of other specialties. The number (2)are (chemistry, physics).

4. The year (1994) saw another expansion in graduation higher studies in the Faculty of Science, it is the introduction of the PhD study number (1) and the specialization (Life Sciences).

5. The year (1995) witnessed the expansion of the Faculty of Engineering _ higher studies / Masters No. (1) and the specialization is in (Civil / Construction), as well as the same expansion happened in the Faculty of Science and in the specialization in (Computer Science).

6. The year 1996 witnessed another expansion in the Faculty of Engineering – Graduation higher Studies / Masters No. (2) also in the specialists (Civil / Environment, Materials / General) and was transferred to the Faculty of Materials Engineering after its development.

7. The years 1997 and 1998 have not seen any expansion.

8- The year 1999 witnessed an expansion in the Faculty of Engineering - higher Studies / Masters in the number of (2) in the specialists (civil / construction materials and civil / roads). While In the Faculty of Science, the doctoral study was opened for the first time with (1) Specialty (Chemistry).

9.The years (2000 and 2001) have not seen any expansion in the higher studies of all faculties.

10-The years (2000 and 2001) have not seen any expansion in the postgraduate studies of all faculties.

11-The year (2002) witnessed a further expansion in the postgraduate studies / Masters in the Faculty of Engineering number (1) in the specialization (Mechanical

Engineering / Applied Mechanics). As well as the beginning of the introduction of a master's degree in the Faculty of Medicine number (1) in the specialization (microbiology).

12- The year (2003) witnessed an expansion in the Faculty of Medicine - higher Studies / Masters (1) in the specialty (Clinical Life Chemistry).

13-The years 2004 and 2005 saw no expansion in postgraduate studies and for all colleges.

14-The year (2006) witnessed an expansion in the Faculty of Medicine - Graduate Studies / Masters in the number (1) in the specialty (Medical College).

15-The year (2007) has not seen any expansion of all faculties.

16-The year 2008 witnessed a further expansion in the Faculty of Engineering - higher Studies / Masters in the specialization of number (1) is (electrical / electronic engineering and communications). The Faculty of Science witnessed the opening of the Ph.D. study in (1) in the field of computer studies, The Faculty of Medicine witnessed another expansion in the number of (2) the first one was in the study of the master's degree (medicine and toxic) and the second one is the introduction of a doctoral study in the specialty (microbiology).

17-The year (2009) saw the development of a master's study in the Faculty of Science Girls (1) in the specialty (life sciences).

18- The year (2010) saw another expansion in the Faculty of Engineering, which is the introduction of the doctoral study with the number of competence (1) is (civil engineering / construction).

19-The year (2011) witnessed an expansion in the Faculty of Engineering and in the doctoral study (1) in the field of (Mechanical / Capacity Engineering), as well as the beginning of the development of the master's study in the Faculty of Materials Engineering with a number of specialization (3) Polymer engineering, and ceramic engineering).

20. The year (2012) witnessed a significant expansion in many colleges and in the order of the Faculty of Engineering in the Master (1) in the field of (Electrochemical Engineering), as well as the Faculty of Science developed a doctoral study number (1) in the specialization (physics) College of Science for Girls in the study of the master's number (1) in the specialty (laser physics), the Faculty of Information Technology has witnessed the introduction of a master's degree in Computer Science. The computer department has a great history in the Faculty of Science since the beginning of the nineties before it expanded into the College of Information Technology in 2009, (1) in the same previous specialty. The Faculty of Medicine witnessed another expansion in the study of the master's degree (1) in the specialty (diseases).

21-The year (2013) saw the expansion of the master's study in the Faculty of Science with the number of (1) in the field of (Applied Land Science). In addition, this year saw the introduction of a master's study in the Faculty of Nursing with a number of specialization (1) is (Science in Nursing).

22. The year 2014 has witnessed no expansion and for all faculties.

23-The year 2015 witnessed a great expansion in the various faculties. The Faculty of Engineering witnessed the expansion of the number of (1) in the study of Master and the specialization of (environment / environment engineering), as well as the other expansion in the Faculty of Science in the PhD study (1) also number (1) in the field of Clinical Life Chemistry. The Faculty of Dentistry witnessed the introduction of the Master's study for the first time with a number of specialization (1) Microbiology).

The growth of knowledge capital

The researcher measured the growth of knowledge capital according to the following:

1-Master's and doctoral dissertations produced by higher studies students graduating from Babylon University during the period (1992-2015).

Through the statistics which obtained by the researcher from the Central Library and its guide for the academic year (2012-2013) also for the period (1992-2003) because they are not available in the databases of research and development in the presidency of the University of Babylon. The statistics of theses for the period (2004-2015) were obtained by the researcher from the research and development department in the presidency of the University of Babylon.

The researcher used the law of growth after dividing the previous period into two specific periods (1992-2003) and (2004-2015) according to the following tables:

First: The first period (number of holders of the master's degree) (1992-2003):

	group		**Engineering**	**Scientific**	**Medical**
	year / **Growth**	**Base year**	**1995**	**1994**	**----**
1	**1992**		**0**	**0**	**0**
	Growth (%)		**-**	**-**	**-**
2	**1993**		**0**	**0**	**0**
	Growth (%)		**-**	**-**	**-**
3	**1994**		**-**	**3**	**0**
	Growth (%)		**-**	**-**	**-**
4	**1995**		**5**	**9**	**0**
	Growth (%)		**-**	**200**	**-**
5	**1996**		**9**	**5**	**0**
	Growth (%)		**80**	**67**	**-**
6	**1997**		**2**	**13**	**0**
	Growth (%)		**-60**	**333**	**-**
7	**1998**		**33**	**28**	**0**
	Growth (%)		**560**	**833**	**-**
8	**1999**		**35**	**24**	**0**
	Growth (%)		**600**	**700**	**-**
9	**2000**		**16**	**31**	**0**
	Growth (%)		**220**	**900**	**-**
10	**2001**		**19**	**27**	**0**
	Growth (%)		**280**	**800**	**-**
11	**2002**		**24**	**30**	**0**
	Growth (%)		**380**	**900**	**-**
12	**2003**		**16**	**29**	**0**
	Growth (%)		**220**	**867**	**-**

Table 1
Growth of Master's Thesis (1992 - 2003)

Table (1) shows the following

1-The year 1999 was the most successful of the master's thesis in the Faculty of Engineering with (35) Master Thesis, also for the year 1998 was (33) Master's Thesis. However, The lowest year after the introduction of the Master's Degree in the academic year 1993-1994 was in (1997) (2) in the same college, the largest growth of the Masters graduations in the Engineering Group was in 1999 by (600) for the year (1998) by (560)

according to the growth scale for that year. The lowest year was (1997) (-60) compared to the base year (1995).

2-The year (2000) was the most complete of the master's thesis in the Faculty of Science with (31) letters for the years (1998, 1999, 2001, 2002, 2003) by (28, 24, 27, 30 and 29). The lowest year was (1996) with (5) Master's Letters. The introduction of the Master's study was in the academic year (1992-1993) in the Faculty of Science.

3-There is no completion of the master's thesis in the period (1992-2003) in the remaining colleges because some colleges have not yet been established in this period (1992-2003), (Material engineering collage), the date of its establishment (2007), the Faculty of Pharmacy, the date of its establishment (2008), the year of nursing collage establishment was in (2006), the information technology was established (2009). The rest of the colleges were developed in this period but they did not develop the study of the master's degree, the date of the Faculty of Dentistry establishment was (2002), so it is the last period and has not yet graduated without any graduated course (bachelor), which is an important requirement to open a master's study, also the Faculty of Medicine was also established In 1993. In the beginning of this period when we calculate the time we need a graduation course, it needs time about (6) years (the duration of the Bachelor of Medicine) to open the master's study, so it was opened for the study in the academic year (2002-2003), after about (8) We can see the completion of Master's thesis in the next period which is (2004 - 2015).

4-In comparison of the years with the base year, its growth can be as follow: 1997 - 1996 - 2000 - 2003 - 2001 - 2002 - 1998 - 1999 - (60, 80, 220, 220, 280, 380, 560, 600) according to the order of previous years.

5-We can see that the growth of Masters in the period (1992 - 2003) fluctuated among the years of this period, this is the result of accumulation of achievement or a few covered by the graduation plans for some years.

Second: The Second time Period (Number of students who has Master degree) (2004 - 2015).

	group		**Engineering**	**Scientific**	**Medical**
	year	**Base year**	**2004**	**2004**	**2005**
	Growth				
1	**2004**		**13**	**15**	**0**
	Growth (%)		**-**	**-**	**-**
2	**2005**		**26**	**42**	**7**
	Growth (%)		**100**	**180**	**-**
3	**2006**		**36**	**30**	**11**
	Growth (%)		**177**	**100**	**57**
4	**2007**		**30**	**12**	**3**
	Growth (%)		**131**	**-20**	**-57**
5	**2008**		**34**	**21**	**13**
	Growth (%)		**162**	**40**	**86**
6	**2009**		**35**	**1**	**16**
	Growth (%)		**169**	**-93**	**129**
7	**2010**		**44**	**56**	**20**
	Growth (%)		**239**	**237**	**186**
8	**2011**		**44**	**80**	**42**
	Growth (%)		**239**	**433**	**500**
9	**2012**		**29**	**60**	**23**
	Growth (%)		**123**	**300**	**229**

10	**2013**	**35**	**35**	**16**
	Growth (%)	**169**	**133**	**129**
11	**2014**	**65**	**64**	**61**
	Growth (%)	**400**	**327**	**771**
12	**2015**	**44**	**83**	**61**
	Growth (%)	**239**	**453**	**771**

Table 2
Growth of Master Thesis (2004-2015)

Table (2) shows the following

1-The most successful year of completion of the master's thesis in the Faculty of Engineering which was in (2014) by (54) Master Thesis for the year (2010-2011) with (44) Master Thesis. The lowest year which was in(2004)by (13) Master Thesis. It is possible that the Masters are still in the process of being almost completed. The year in which the master's degree in the Engineering Group's colleges growing was in (2014) by (400%) which was appeared on the growth scale compared to the base year (2004). While the lowest year was (2005) by (100%) on the growth scale.

2-The year of completion of the master's thesis in the Faculty of Materials Engineering was in (2014) by (11) while the lowest year was in(2013) by two letters. These few number are due to the fact that the Master's study started in the Faculty of Materials Engineering in the academic was started in the year (2011-2012).

3-The most successful year of completion of the Master's Thesis in the Faculty of Science was in (2011) with (64) master's thesis, while the lowest year of completion was (2009) by (1) master's thesis, which is the result caused by the few messages were completed in this year.

4-The most successful year of completion of the master's thesis in the Faculty of Science Girls was (2015) by (41) thesis, while the lowest year of completion was (2014) (0) thesis.

5-The College of Information Technology has completed the completion of Master's Letters only for two years (2014-2015) by (3, 9) letters according to the previous order.

6-The largest year in which the master's degrees grew in the colleges of the scientific group was (453%) on the growth scale in the year (2015), while the lowest year in which the letters grew was (2008) by (40%), as well as the highest existence of negative growth as(-93%) and the lowest growth in (2007) as (-20%).

7-The year of completion of the master's thesis in the Faculty of Medicine was (2014) with (61) letters, while the lowest year of completion was (2007) with (3) messages.

8-The Faculty of Nursing has completed the completion of Master Thesis only in the year (2015) by (12) letters.

9-The year in which the master's degrees in the medical group colleges grew in the years (2014-2015) by (771%) on the growth scale. The lowest year in which the letters was grown by (57%) in (2006),as well as a negative growth indicator was appeared in (2007) by (-57%).

The Growth of Ph.D. dissertations

First: The first time period (number of PhD graduated students) (1992-2003):

	group		Engineering	Scientific	Medical
	year	Base year	----	1998	----
	Growth				
1	1992		0	0	0
	Growth (%)		-	-	-
2	1993		0	0	0
	Growth (%)		-	-	-
3	1994		0	0	0
	Growth (%)		-	-	-
4	1995		0	0	0
	Growth (%)		-	-	-
5	1996		0	0	0
	Growth (%)		-	-	-
6	1997		0	0	0
	Growth (%)		-	-	-
7	1998		0	4	0
	Growth (%)		-	-	-
8	1999		0	2	0
	Growth (%)		-	-50	-
9	2000		0	1	0
	Growth (%)		-	-75	-
10	2001		0	4	0
	Growth (%)		-	0	-
11	2002		0	5	0
	Growth (%)		-	25	-
12	2003		0	4	0
	Growth (%)		-	0	-

Table 3
Growth of Ph.D. degrees (1992-2003)

Table (3) shows the following

1-The highest number of PhD degrees in the Faculty of Science was (2002) by (5), with a total of (5)dissertations in the years (1998, 2001, 2003) by (4) dissertations for each year, the lowest year was (2000) with (1) dissertations. The doctoral study was introduced in the Faculty of Science in the academic year (1994 - 1995). Therefore, the year in which the Ph.D. degrees in the scientific group was grown(2002) by (25%) on the growth scale. In (2000), the growth rate was negative (-75%) as well as 1999 was also negative, by (-50%).

2-The rest of the faculties did not see any achievement for the doctoral dissertations in the period (1992-2003) due to the lack of a doctoral study in this period. Therefore, there is no growth for the PhD study in the engineering group and the medical group in the period (1992-2003) because they have not yet been developed PhD study in its affiliated colleges.

Second: Second time Period (number of PhD degrees) (2004 - 2015):

	group		Engineering	Scientific	Medical
	year	Base year	2006	2004	2011
	Growth				
1	2004		0	1	0
	Growth (%)		-	-	-
2	2005		0	6	0
	Growth (%)		-	500	-
3	2006		5	11	0
	Growth (%)		-	1000	-
4	2007		9	11	0
	Growth (%)		80	1000	-
5	2008		0	7	0
	Growth (%)		-100	600	-
6	2009		0	0	0
	Growth (%)		-100	-100	-
7	2010		0	0	0
	Growth (%)		-100	-100	-
8	2011		0	28	3
	Growth (%)		-100	2700	-
9	2012		0	23	9
	Growth (%)		-100	2200	200
10	2013		1	16	2
	Growth (%)		-80	1500	-33
11	2014		6	31	31
	Growth (%)		20	3000	933
12	2015		7	19	6
	Growth (%)		40	1800	100

Table 4
Growth of Doctoral Degrees (2004-2015)

Table (4) shows the following

1-The beginning of the completion of doctoral degrees in the Faculty of Engineering in (2006) by (5)dissertations and then (6) for the following year, after which a large pause for the following years (2008 - 2012) may be due to the weakness of human requirements of the teaching staff, while the subsequent years were weak in the graduation groups of post graduate studies which is began from (1) for the year (2013) ending in (2015) by (7). Therefore, the colleges affiliated to the engineering group had the highest rate of growth in (2007) by (80%). The lowest growth was in (2014) by (20%), while in (2015) the growth was by (40%). While the rest of the years (2004 - 2015) were negative growth (-100%) for those years.

2-The most important year for the doctoral dissertation in the Faculty of Science was (2014) with (31) dissertation for the years (2011, 2012) with (28, 23) dissertation for each of them respectively. The lowest year in which the completion of the doctoral dissertation was (2004) by (1) dissertation, either the years (2009, 2010) did not indicate the completion of any dissertation, which it was (0). Therefore, the year in which the growth and the colleges of the scientific group was (2014) growth rate of (3000) which is a large growth as well as a significant growth in the years (2011 - 2012) growth of (2200 and 2700) for each, In (2005) the lowest growth by (500%), while the years (2009 - 2010) the growth was negative by (-100) for both.

3-The year of completion of the doctoral dissertation in the Faculty of Medicine was in (2014) by (31) dissertation while the lowest year was (2013) two dissertation, the lack of achievement due to the recent study of the PhD in the Faculty of Medicine as it was in the

academic year (2008 - 2009). Therefore, the highest year of growth was (2014) in the medical group by (933%), the lowest growth was (100%) for the year (2015), as well as a negative growth in 2013 (-33%).

4-The rest of the colleges did not indicate any achievement for the doctorate dissertations. This is due to the lack of development of its PhD study which are:(Materials Engineering, Girls Science, Information Technology, Dentistry, Pharmacy, Nursing).

Conclusions

1-Master's and doctoral studies at the University of Babylon passed through continuous development in the faculties of the university according to the need and the available human and material resources also for most of the university life (1992-2015). Particularly in (2012 and 2015).

2-The master's and doctorate studies at the University of Babylon have been passed through a high level of development, especially in the years (1997-1998, 2000-2001, 2004-2005, 2007, 2014). This may be due to the insufficient or lack of scientific competencies for some specialties.

3-The growth of Master's thesis in the period (1992-2003) fluctuated among the years of this period and this is the result of the accumulation of achievement or the few specializations which covered by the graduate plans for some years.

4-The period of time (2004-2015) has been stronger with the completion of master's and doctorate dissertations from the period (1992-2003), which is the result of the opening of many postgraduate studies in the faculties of the university.

5-The period of time (1992-2003) was more developed than the period of time (2004-2015) for the study of the Masters, which is perhaps the result of the first period which was due to the scientific and economic siege (1990-2003) imposed on Iraq, so students go to study within the country compared to the second period, which was seen many missions and fellowships and opportunities outside the country.

6-The period of time (2004-2015) has been much more developed and developed than the period of time (1992-2004) due to the relatively recent age of the university.

Recommendations

1- Establishing the infrastructure of higher studies at the University of Babylon to be the level of ambition to produce advanced knowledge capital.

2-Activate the knowledge management and knowledge capital at the University of Babylon to be a starting point for access to the knowledge-based economy.

3-Increase the number of admissions in postgraduate studies at the University of Babylon and support them with the material and human resources they need.

4-Improve the internal efficiency of universities and other higher education institutions, as required by technical, administrative, material and human requirements.

5-Encourage the private sector to support postgraduate studies at Babylon University financially and morally.

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