

Applying digital education in the faculties of language and literature in Algeria

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Abstract :

The Ministry of Higher Education and Scientific Research has adopted **hybrid education**, which is a cross-fertilization between in-person and distance education, as distance e-learning is one of the most important technologies, and this type of teaching needs pillars, which are educational platforms such as E-Learning,(Edex) , and Moodle in order to achieve the objectives set.

What is the importance of e-learning in the Institute of Language and Literature? Why is this important?

Does e-learning provide facilities for students and teachers during the educational process?

What are the obstacles and difficulties facing our educational reality at the university, especially the electronic one?

Our universities are in the first steps to embody such projects, unlike many universities in the world, and this study came in order to know the reality of the application of "e-learning " in the Higher School for Professors, through educational platforms, and the goal of the research is to know the pros to benefit from them, and the obstacles to overcome them.

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Our model in the research paper was the **Department of Arabic Language and Literature at the Higher School for Teachers**, which seeks to implement e-learning through **educational** platforms and integrate modern technology into the educational process.

We have developed a plan through which we try to answer the problems, which is first to identify e-learning, its importance and types, then we move to the field part in putting questionnaires in the hands of teachers and students, and conducting interviews to support the results, to finally come up with the negative and positive aspects of this educational style, supported by recommendations that contribute to improving the educational reality in the Higher School for Teachers.

Keywords: educational, e-learning, distance education, types of e-learning.

1. Introduction:

Education is one of the basic indicators and important components on which we measure the progress and development of societies, and the innovation of modern methods is a qualitative boost in the educational process, as the development of the latter is primarily based on what the educational process itself produces, whether from people and competencies capable of advancing their societies or through devices and technologies that provide an effective role in the development of activities and services and thus contribute to the progress of countries.

From my point of view, I see that from here was the need to develop education, especially since traditional methods no longer meet the purpose in a changing and accelerating world, especially after the adoption of the Ministry of Higher Education and Scientific Research of the hybrid system, which is a combination of F2F and distance education through educational platforms. Supporting traditional education with electronic programs is one of the means and devices that raise its efficiency and eliminate the number of contradictions and negatives that hinder the learning process. It has become an inevitable

necessity in the modern era and we can ask a set of questions that have occupied the mind in this research paper. What is e-learning? What are its types?

What are its negatives and positives? This is what we will know through the research paper in order to raise the quality of educational courses, resources and references, improve the quality of teaching and learning, achieve equality and parity of educational opportunities for all, and free learners from the limitations of the in-person lecture.

2.The concept of digital education: It is everything that the teacher teaches and the learner receives through the computer. "It is education based on the use of electronic media in order to communicate between the teacher and the learner under the supervision of the educational institution. Media are used in the transfer and communication of information between the teacher and the learner for clear learning objectives. Digital education is a natural response to the new information revolution based on modern technologies in order to provide good content in order to achieve lofty goals. " 1

From this, we conclude that e-learning is considered an educational organization to provide educational programs and can be a method of education in providing educational content.

Personally, I see it as the most used technique, especially among students, due to its positives that facilitated educational work.

From this, we conclude that the methods and methods of traditional education have become sufficient to deliver the necessary information to learners, so it has become necessary to address modern means.

3. Types of educational programs:

a. Instruction with instructional computer programs stored on disks:

- It is characterized by being local, placed on the computer or in CDs, which envisages interaction between learners and the computer, so that the latter plays the role of a teacher.
- Facilitates the process of self-education, which means "where learners can rely on themselves to continuously acquire knowledge and teach them the skills and abilities necessary to form their personality and positively adapt to the requirements of social life under technology",2where the student becomes an active member of the educational

process after being a recipient who records the information said by the professor or what looks like a recording device.

a. E-Learning:

This type "depends on the use of the Internet, and interaction between learners and teachers is more than necessary, with an immediate response in a dialogue between the computer and the learner in the form of questions and answers, depending on what is stored in the memories of the machine, or through educational programs stored in the computer.

According to the above, "the rapid spread of information, the terrible development, and the multiplicity of knowledge has increased at a rapid rate, which resulted from the information revolution and the invasion of the machine that we are currently living, so the world has become in a huge technological revolution, and the teacher has been forced to search for new educational methods to meet global challenges, and after a hard effort, the e-learning model has emerged to help learning in the right place and time for the learner without the need to move around in order to obtain information through interactive content containing multimedia (texts, sound, image, movement, and presented through electronic media by computer and the Internet). Therefore, digital education is a new type imposed by the technological changes taking place in our world, and traditional methods are no longer able to cope with it, so the need to adopt digital education has become urgent." 3

From this, we conclude that the methods and methods of traditional education have become insufficient to deliver the necessary information to learners, so it has become necessary for us to address modern means.

Examples of this include: "Moodle, which is the means used in Algerian universities since the spread of COVID-19 in order to achieve social distancing, equal opportunities for learners and investment in digitization for the development of higher education4."

C- The third is the infinite education of the Mooc platform:

This type "is interested in distance education using the Internet as well, but in this type of platform, the number of those enrolled in the educational process is unlimited, meaning that its capacity for students is unlimited, and it is called Mooc, and it means the endless learning platform such as (Edex)"⁵

It is also an aid for the learner to learn Arabic in particular. We have a spelling and grammar checker program.

4- Spelling and Grammar Checker:

It corrects errors, whether spelling or grammar. It identifies "the Arabic word through the rules set by the linguist, not through the dictionary of stored words." It is a very important program as it corrects errors⁶, whether for beginners who learn the language, so it contributes to their acquisition of the language or those who are experienced in it when they make mistakes, so it alerts them to their lapses to correct the situation.

The computer corrects through the grammar and automatic spelling checker the Arabic text written at the level of spelling, grammar, and even the level of composition, depending on what the computer has stored of Arabic rules in its memory, and this is achieved only by combining the efforts of linguists and computer computing engineers side by side.

5. Characteristics of Distance Education:

Distance education differs from formal education by several characteristics:

- Distancing between the teacher and the student compared to face-to-face education systems.
- The possibility of multiple means of communication between the teacher and the student.
- Freedom of public institutions to choose programs and curricula.
- The student participates positively in the various stages of the learning process in light of the distance education systems.⁷

Open education and practices are the institution and programmed initiatives that seek access to the training provided by formal education systems.

Open Education

"It is a new learning formula that is launched on higher education institutions that were established to require a new educational system that contributes to the spread of education as a human right, bypassing

the limits of traditional education, taking advantage of technological progress in the light of modern means, to make the educational material accessible to the student wherever he is and whenever he wishes, through modern means of communication such as radio and television, and to make the method of self-education replace traditional education. Open education also refers to the opening of opportunities for the teacher and the learner by removing barriers represented in acceptance, status and style to bring about radical changes. " 8

We also conclude that education in general is no longer limited to lecturing and receiving or the issue and teaching, but rather it has varied and diversified and the student has access to many types of knowledge through the intranet, including open education.

7. Among the forms of digital education are:

E-learning is a form that relies on the use of information and communication technology to provide e-courses with the aim of providing a predominant educational service.

.A /Synchro nous E-Learning

.B /Asynchronous e-learning: A Synchro nous E-Learning
From my point of view, we find that forms of e-learning can be represented in the self-activity of the learner, that is, learner-centered education, where we also find what corresponds to knowledge behind a cognitive environment. We also find that e-learning is divided into synchronous and asynchronous.

One of the forms of e-learning is that it coincides with education at the time of lecturing or indirectly. For example, this type of education, which is direct with the teacher and the student, involves discussion, dialogue and asking questions.

(a) Synchronous e-learning:

"It is an education that needs the presence of learners at the same time live, in front of the computer for discussion between the teacher and the students, through chatting rooms. Lessons are also provided in the virtual class room or using other tools such as video, diagrams and drawings...

One of the advantages of this type of education is that the learner benefits immediately from feedback, the financial economy and

getting rid of the trouble of commuting to schools. It is considered the most sophisticated and complex form of digital education because it requires the presence of the professor and the student in front of the computer on the Internet at the same time, that is, 9simultaneously. It is the type of education that needs the presence of the teacher and the student at the same time and is through intranets.

Synchronous e-learning * tools:

- "White board
- Virtual class room
- Audio Conferencing
- (vidéo Conferencing)
- (chatting rom) Chat Rooms

B- Asynchronous e-learning:

"Indirect education, which does not need the presence of both parties to education at the same time, is one of the advantages of this form that the student can access the lessons at any time that suits him, and he can review the lessons electronically whenever he needs to, and one of its disadvantages is the lack of immediate feedback from his teacher." 10

We also integrate e-learning through the use of e-books, which are generally printed and distributed electronically through the intranet, e-mail and direct transfer of files, as we mentioned earlier.

Accordingly, we conclude that there are two types of e-learning and both have one goal: the possibility for the learner to obtain information in more than one source, understand it better and exchange views more. The term e-learning has recently gained a wide distance in the field of technology, as it played an important role in supporting the learning process, which led to the emergence of the pros and cons of e-learning.

8. Pros of e-learning" 11:

There must be positives of e-learning on the learning process, so what are these positives? * A student acquires the ability to make optimal use of technology.

- * Using a computer motivates students.
- * Sense of trust and responsibility on the part of the student.
- * Increasing the scope of information dissemination and non-compliance with a specific number of students.
- * Teaches the student self-reliance.
- * Easy access to the professor and the educational material.

- * The multiplicity of teaching methods helps to get rid of individual differences.
- * It is a way for the student to acquire lifelong learning skills.
- * Continuity of communication between the college and its graduates through spreading the culture of continuous training for community members.
- * Access to electronic information sources, which are the largest ever.
- * Facilitating the possibility of communication between the two parties to the learning process.
- * Facilitate the exchange of views in chat rooms.
- * Reducing the burden on the professor and reducing the effort.¹²

Despite the advantages of e-learning, there are some aspects that limit the effectiveness of this type of education and its impact on the level of quality of e-learning, but there are some disadvantages :

9. Disadvantages of e-learning:

- * Weak real control on the part of the professor.
- * Absence of the humanitarian aspect.
- * Attention to communication at the expense of knowledge.
- * The professor becomes just a mentor as his role as the first educational influencer fades away.
- * Focus on the senses of hearing and vision without the rest of the senses.
- * Difficulty in implementing social educational activities.
- * Frequent physical damage, especially to the eyes and back, as a result of sitting too much in front of the screen.
- * The professor needs a high flow of Internet in order to publish content at a high level of quality because the competition is global.
- * Students' lack of commitment to the learning process as a result of the absence of actual follow-up.
- * Insufficient practice, and lack of technical and technological support.
- * Lack of computers compared to the number of students "
- * Weak Internet flow in Algeria " ¹³

From the above, we conclude that e-learning is not an excellent method that is free of negatives, but it is like other teaching methods that contain positives that we benefit from and enhance, and negatives that we are

trying to get rid of to make education in the best shape and more efficient and effective.

Then, at the beginning of the practical aspect of professors at the Higher School for Professors, we touch upon:

I. Analysis of the results of the teachers' questionnaire:

The **sample** : They are 20 professors from the Higher School of Teachers, and we randomly selected them from the Institute of Arabic Language and Literature, and the development of a questionnaire among the professors carried a set of questions accompanied by options, so it was necessary because the professor is the owner of the educational process, to know how to deal with the developments of distance education.

The first question:

The first question:

- **Does the teacher prefer F2F or distance learning through platforms? The answer was.**

Options	Frequency	Ratio
Distance Learning	35	% 70
In-Person Learning	15	%30
Total	50	%100

Most professors believe that teaching through the platform is the most appropriate, and their percentage is estimated at 70%, because they have computers and the skills necessary to deal with this type of technology and they love to interact with the computer and the Internet. They also believe that this type of education stimulates students and distances them from boredom, which contributes to their focus with scientific content. The other category is estimated at 30%, and they do not support education through the platform, because it is not necessary, as the health condition is what imposed it. They also believe that in-person lectures are in front of the professor to ask him their inquiries and feel safe with him, and they can dialogue with their professors

freely and it is difficult for them. The concept will be simplified by the professor and explained to them smoothly and without means because electronic media may be an obstacle to the student to access the information or interact with the professor via the Internet, including : viruses that infect computers , the weakness of the Internet, its interruption or lack of availability, in addition to some students who do not have a computer, they cannot access the education platform remotely.

➤ **Does the professor rely on technological devices when preparing and presenting lessons?** His answer is 1.

Options	Frequency	Ratio
Yes	45	% 90
No	5	%10
Total	50	%100

The adoption of professors in the use of technological means and devices when presenting the lesson was 90%, due to their knowledge of its importance and the support it provides when presenting the scientific material, in addition to the possibilities provided by the university to professors of means and devices that can be adopted in presenting the lesson and facilities to obtain it. However, 10% does not depend at all on the means and devices and this category of old and veteran professors with extensive experience, but they are accustomed to the way they work on paper copies and in-person lectures, as it is difficult for them to adapt to modern teaching methods.

As for directing students to the library, it seems appropriate because the professors of the Faculty of Arabic Language and Literature are responsible for choosing the library's collections, which gives them the opportunity to obtain the information, titles and topics they need, as well as their reliance on the Internet as a second source, in order to

speed access, in addition to the university's allocation of special spaces for professors equipped with the Internet, while participating in a group with specialized international banks and databases that enable direct access within the university, while the multimedia of information is not used much by professors because this service is not provided by any of the university libraries.

And the third question:

➤ **Is the use of technological means in the learning process necessary?** The answer was:

Options	Frequency	Ratio
Necessary	35	% 70
Not Necessary	15	%30
Total	50	%100

Most professors find that the use of technological means is necessary in the learning process by 70% , because of the support it provides in clarifying the problem and supporting the idea with pictures and supporting schemes, which helps to consolidate ideas, while the small percentage of 30% believes that it is not necessary and it is about veterans who did not have much contact with the computer.

The fourth question is:

➤ **What technological means does the professor use to deliver the lecture and display it in the runway?**

The answer was:

Options	Frequency	Ratio
Computers	20	% 40
Data Viewer	25	% 50

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Electronic whiteboard	5	% 10
Total	50	%100

It is good that most professors rely on technological means, and the means have varied, as 40% use the computer, and 50% of them rely on the optical data viewer, because the two means are available to professors and the university administration, and the small percentage of 10% use the electronic whiteboard because it is a rare means at the university and it is advisable to spread its use in the near future because it makes it easier for the professor to explain through fonts and color marking.

Then we move to the university students who are the basic building block for which the university was founded. They are the men of tomorrow and the future of the country is a heavy burden on their shoulders. Paying attention to the quality of their education will benefit, develop and benefit our dear country.

Then we move on to analyze the results of the students studying in the Faculty of Arts and Languages at the university :

II. Analysis of student results

Sample : It is a random number of students who are students who are experienced in the third-year university category.

The selection was from the 50 students of the Department of Arabic Language and Literature at the Higher School for Professors in Bouzareah.

We put in their hands a questionnaire, in which we asked a set of questions accompanied by a set of options, in order to reach the reality of e-learning at the university, in order to identify the positives to enhance them and the negatives to avoid them.

The first question is :

➤ Does the student prefer F2F or moodel?

Options	Frequency	Ratio
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Learning via educational platforms	10	% 20
In-Person Learning	40	% 80
Total	50	%100

Most of the students refused to study through the **educational platforms** and their percentage is 80% because in the lecture, the contact with the professor is because they are in front of them to ask them their inquiries and feel safe and can dialogue and discuss with their professors freely, and if it is difficult for them, they are a point that the professor will simplify and explain to them smoothly and without intermediary. The other group, estimated at 20%, believes that education through the **educational platforms** moodel is better because they are not forced to attend the university and avoid the trouble of moving to the campus, in addition to being passionate about technology and love contact with the computer and the Internet and interacting with it, which motivates them to prefer distance education.

Since university education focuses on the presence of students, the scientific material and the professor, including the latter's opinion on the educational process after the ministry adopted this style called hybrid education, and for this we highlight his extensive experience with students in university teaching, to express his opinion on the educational process in the light of distance education using **educational platforms**

The second question is as follows:

- **Does the university student face difficulties in using electronic means?**

Options	Frequency	Ratio
Yes	15	% 30
No	35	% 70

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Total	50	%100
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We note that students do not face any problem in the use of this computer by the majority of students with an estimate of 70%, as the majority found that educational programs were mostly available through websites, which motivates students to acquire computer skills, and challenge the difficulties they face when accessing moodle **educational platforms**. As for the few group that answered yes, estimated at 30%, due to the lack of devices and their high price, their capabilities do not allow them to be acquired.

The third question is :

- **How would you rate your internet search skills?** The answers were:

Options	Frequency	Ratio
Excellent	25	% 50
Very Good	15	% 30
Good	10	% 20
Not Good	00	% 00
Total	50	%100

This is very important in how to communicate electronically and enroll in programs provided by the professor in the moodle **educational platforms**. The student's knowledge of research strategies in the Internet facilitates his use of technology, and eliminates many of the obstacles that students face during their research, especially with multiple sites. The answers differed about their ability in electronic research and interaction across **platforms**, as the majority can keep up with lessons and use the Internet well by 50%, but most of them follow

their lessons over the phone because they do not have a personal computer and the reason is purely economic.

And the fourth question:

- **Do all students have a computer that enables them to follow lessons in moodel educational platforms?** The answers were:

Options	Frequency	Ratio
I don't have a computer	10	% 20
Computer shared with family	15	% 30
Private laptop	25	% 50
Total	50	%100

It seems that the presence of the computer among students permanently makes us overcome many of the problems caused by modern technology, and this is available to 50% of the students of the Department of Arabic Language and Literature. As for the second category, which is estimated at 30%, it has a shared device at home, and this means that they cannot access the **model educational platforms** whenever they want, and this constitutes confusion for the student, and the small percentage that does not have a computer is estimated at 20%, but it causes great problems, because this percentage of students cannot continue their university studies, and perhaps the reason is due to the inability to acquire this expensive device.

The fifth question is:

- **What is the benefit of using technology in university education?**

His answer is:

Options	Frequency	Ratio
Keeping up with technological	25	% 50
Facilitates understanding the educational	15	% 30

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Eliminates boredom	10	% 20
Total	50	%100

The students' opinion about the benefits of using a computer varied. Some of them believed that these means must be used in the educational process because they contribute in an effective way to understanding and absorbing scientific content, and their percentage is estimated at 30%. Some of them supported that thanks to these devices, it enables the student to keep pace with technological developments, which is the largest percentage of students, estimated at 50%. Some of them said that they help eliminate boredom in the form of indoctrinating educational content with photos, videos, etc., estimated at 20%. This does not conflict with the promotion of the educational process because it makes it entertaining and not boring. It will motivate students to seek education.

➤ **What is the role of the computer in absorbing the learning material?** His answer is :

Options	Frequency	Ratio
Highly effective and supportive	15	% 30
It helps them with the educational	25	% 50
It has no effect on comprehension	10	% 20
Total	50	%100

From the above, it appears to us that 50% of students believe that electronic devices help them to obtain the scientific material, and this seems logical because they help them and make it easier for them to recall and recall knowledge and photograph it in addition to making the

educational process amusing and enjoyable, but there are those who believe that it is effective and supported to a large extent and they represent 30%, and this supports the above. As for the remaining 20%, which is the weakest percentage, you see that it has no impact on understanding, and it seems that these students do not have computers that help them to pursue distance education, and this is another problem that needs solutions in itself.

Conclusion:

We conclude that e-learning or distance education is divided into two parts, which are synchronous and asynchronous and require tools for its application, namely devices and computers that are necessarily connected to the Internet, in addition to education platforms such as moodle at the University of Algeria. Of course, the professor must interact with a group of students through the platform to present or discuss a lesson.

We conclude from the above that the hybrid education adopted by the Ministry of Higher Education and Scientific Research is still in its first steps and therefore the students who studied in F2F education throughout his academic career through the three phases have not adapted to it, to suddenly collide with distance education through the moodle platform in their university education, which made him alienate from this new pattern in education, not to mention the inability of some of them to technology and their lack of training to deal with platforms, and the lack of some of them to have a computer at home for its high prices.

As for the professors, some of them have not adapted to the new type of education adopted by the ministry and called it **hybrid education**. This veteran group is accustomed to in-person lectures and dealing with paper copies, which makes them unable to access distance education technology, especially dealing with the platform, despite their long experience in education.

However, to improve the situation, we must make efforts in this area by applying a set of recommendations, namely:

- ❖ Using learning aids and devices in an optimal way, to achieve benefit on a large scale.
- ❖ Providing computers for students and professors.

- ❖ Programming education strategies according to the latest effective learning methods at the present time.
- ❖ Design learning programs in a way that matches the student's abilities and preferences.
- ❖ Give the student the opportunity to control the educational software and view the material.
- ❖ Grab the student's attention, using pictures, graphs and curves.
- ❖ Provide a computer for all students and teachers, so that they can communicate and interact through a platform.
- ❖ Diagnose the problem and provide solutions.
- ❖ Providing a strong Internet network free of interference, interruptions, etc.

After all of the above, it seems that distance e-learning through the platform is a new step towards a modern educational style, and it is still young at the beginning of the road and needs diligence and motivation until it reaches the required level that simulates international universities, and our last prayer is that praise be to Allah, Lord of the worlds.

Bibliography :

- Mahmoud Ahmed Elsayed, Linguistics and Language Teaching. Dar Al-Maarifa for Printing and Publishing, Tunis, 1998.
- Mohammed Abdul Karim, E-School and the Role of the Intranet in Education – Educational Vision – Amman, House of Culture, 2010.
- The platform of the University of the Brothers Mantore Constantine for distance education. E-Learning
- The platform of the University of the Brothers Mantore Constantine for distance education. Mooc
- Lahnash, Mohamed: Lecture on the topic: Arabic language and computer, (a quick reading in Arabic linguistic engineering), or an approach to simulating the Arab brain linguistically, October, United Arab Emirates University, Faculty of Humanities and Social Sciences, Department of Arabic Language and Literature, Al-Irfan Foundation for Educational Consultancy and Professional Development, 2002.

- Abdelali Hassan, E-learning "New University Publishing House," 2009.
- Zaid Mounir Abboui , Modern Trends, in Training, Development and Learning Management, First Edition, Al-Mu 'taz Publishing and Distribution House, 2015,
- Tarek Abdel Raouf , (E-learning) Contemporary Global Trends ", Arab Group for Training and Publishing , First Edition, 2015.
- Zaid Munir Abdi, Modern Trends in Administrative Organizations, Dar Al-Shorouk Publishing and Distribution, 2006.

Marginalisation :

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- ¹ Tarek Abdel Raouf , (E-learning) Contemporary Global Trends "First Edition" Arab Group for Training and Publishing, 2015 , p 42
 - ²Mr. Mahmoud Ahmed: Linguistics and Language Education, op. Cit., P 139-140.
 - ³Mohammed Abdul Karim, E-School and the Role of the Intranet in Education – Educational Vision – Amman, Dar Al-Thaqafa, 2010, p. 112
 - ⁴The platform of the University of the Brethren Manturi Constantine for distance education. [E-Learning](#)
 - ⁵The platform of the University of the Brethren Manturi Constantine for distance education. Mooc
 - ⁶Al-Hanash, Muhammad: Lecture on the topic: Arabic Language and Computer, (Quick Reading in Arabic Linguistic Engineering), or an Approach to Simulating the Arab Brain Linguistically, October, United Arab Emirates University, Faculty of Humanities and Social Sciences, Department of Arabic Language and Literature, Al-Irfan Foundation for Educational Consultancy and Professional Development, 2002, p. 19.
 - ⁷Abdul Aali Hassan, E-learning "New University Publishing House," 2009, p. 23
 - ⁸Abdelali Hassan, op. Cit., by disposition . UNTRANSLATED_ CONTENT_START P 25
 - ⁹Mohamed Abdel Karim : op. Cit., P. 113
 - ¹⁰ E-School and the Role of the Teacher, op. Cit., P.113
 - ¹¹Zaid Mounir Abboui , Modern Trends, in Training, Development and Learning Management, First Edition, Al-Mu 'taz Publishing and Distribution House, 2015, p. 247
 - ¹²Tarek Abdel Raouf , (E-learning) Contemporary Global Trends ", Arab Group for Training and Publishing , First Edition, 2015, p. 162
 - ¹³Zaid Munir Abdi, Recent Trends in Administrative Organizations, Dar Al-Shorouk Publishing and Distribution, 2006, p. 223