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**بناء نظام تكنولوجي لإعداد معلم المستقبل وفقاً لعصر العولمة**

**Building a technological system to prepare  
a future teacher in accordance with the era of globalization**

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**ملخص البحث :**

يعد إعداد و تطوير المعلم من المواضيع الاساسية التي تهدف الى تحسين و تطوير الأداء التعليمي الذي يعتبر مفتاح للمهارات المهنية والأكاديمية التي يكتسبها المعلم و المتعلم على حد سواء. والذي يتم تنفيذه من خلال الأنشطة المباشرة في برامج التدريب الرسمية او باستخدام تقنيات التعلم الذاتي عن طريق بناء نظم تكنولوجيا التعليم التي تلي متطلبات العصر الحديث. يهدف البحث الحالي إلى تحديد أهم الخصائص التي يجب ان تتوفر في معلم المستقبل. من اجل إيجاد السبل و الوسائل التعليمية التي تساعد على تدريبه و تطويره من اجل تعزيز المناهج الدراسية في المستقبل وان يكون على استعداد نفسي وفكري لهذه المتغيرات . ويتم ذلك من خلال تحديد الخصائص والمهارات التي يمتاز بها ، ومن اجل اجراء هذه التغييرات في إعداد و تكوينه يجب التعامل مع المتغيرات السريعة في إنتاج المعرفة ، بالإضافة إلى مواكبة التقدم العلمي والتكنولوجي غير المسبوق في مجالات المعلومات والاتصالات. بالإضافة إلى ذلك ، سيكون تركيز المعلم في المستقبل على أساليب التعليم الحديثة أكثر منه على المعرفة نفسها. وبالتالي ، فإن مهمة المعلم هي مزيج من مهام المعلم ، القائد ، الباحث ، الناقد والمستشار و من جانب اخر تطوير مهارات الاتصال ، وتشجيع طلابه على الدخول في التفكير الإبداعي والتفكير النقدي والعمل الجماعي والتعلم الذاتي والحوار وقبول الآخر والمساهمة في بناء المجتمع التعليمي وابداء الراي في طريقة التعليم التي تتلائم معه .

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**ABSTRACT:**

The teacher plays a major role in building civilizations. And is considered as one of the factors affecting the educational process. We find the learner interact with him and acquire expertise and knowledge, trends and values directly. The issue of preparing the teacher and his training occupied a large area of interest by scientists and researchers in the field of education and education. As a result of its important and vital role in the implementation of educational policies. The teacher's preparation and professional development are fundamental to the improvement of education because they are very important in the development of teaching performance. This professional development is the key to the professional and academic skills of the teacher. They are carried out through direct activities in formal training programs, using self-learning techniques or by building an education technology system that meets the requirements of the modern age. The current research aims to identify the most important characteristics that must be met in the future teacher. On the other hand , Its connect with the educational aids that help to strengthen the curriculum, as it has a direct link to many aspects of human life in the present era. Which directly affect the variables (cognitive, technical, emotional) for the teacher. By building a system that seeks to facilitate human education through a curriculum and method that demonstrates how to identify, use and develop learning resources.

**Keywords: Education Technology System, Educational Experiences, Learning Technology, Learning and Instruction.**

**1- Introduction:**

Education technology has become a basic necessity for the development of educational systems. The explosion of population, the level of education between countries, the communications revolution, the emergence of new and advanced media, and the scientific and technological progress in various fields <sup>[1]</sup>. Called for the need to pay attention to the introduction of education technology into the educational process. In order to employ them in improving the process of teaching and learning. In light of the theory of systems that care about the part and its interaction with the other part in order to show everything better. The concept of education technology has differed in some, and it seems to many to be just about the technology of electrically powered tools and devices. Which fall under audio or video equipment or both together such as televisions, video, computer and so on<sup>[2]</sup>. In view of the educational technology within the limits of that specific view, leads to misuse and thus to under employment in the field of education found:

1. The main objective is to search for the means by which the learner can agree, and the educational material appropriate to his actual level. And the relationship of the teacher, being responsible for choosing the best possible organization and more effective use of educational media. Taking into consideration that they are appropriate to these factors and to find the most appropriate methods of effective educational situation<sup>[3]</sup>.

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1- Bates, Anthony W. Managing Technological Change: Strategies for College and University Leaders. The Jossey-Bass Higher and Adult Education Series. Jossey-Bass Publishers, 350 Sansome St., San Francisco, CA 94104, 2000

2 -Association for the education of teacher in science (AETS) (1997). Journal of science Teacher Education, V.8,pp.233-240.

3 -Anderson, C. (1998, May). The role of education in the academic disciplines in teacher preparation. Paper presented at the Rutgers Invitational Symposium on Education: The Graduate Preparation of Teachers, New Brunswick, NJ.

2. It also ignores the process of application or interaction that occurs between elements of the technology of education, "human, material and tool" <sup>[1]</sup> to achieve the objectives of education, as the task of basic education technology is to take care of everything related to educational application and the application of this application to develop the right frameworks for communication strategies In the light of the trigonometric relationship between man, material and instrument.

The human being in the technology of education is the teacher and learner together as the ends of educational communication "sender or source and the future," where the source can be human and human, perhaps the teacher and may be the computer software and other technical devices. Materials in educational technology are the verbal and nonverbal learning languages that are carefully chosen and formulated in a way that facilitates learning. The tools in the technology of education are devices and software used in the learning process such as computers, television, educational video, etc. While the software means a set of programs through which the conversion of educational material from its traditional form known to the format programmed, the process of preparation and organization of educational material in the form The program is divided into a set of frames based on "stimuli, responsiveness, and immediate reinforcement" <sup>[2]</sup> to lead the learner to walk through the program through the computer program, and this programmed form has a kind of advance numbers that we commit to implementation. Thus, a modern concept of learning technology emerged rather than a method, method or even the use of devices, tools or materials, or the presence of a group of individuals, but beyond that to become an integrated system that includes educational attitudes, teaching strategies, continuous evaluation, permanent feedback and a new role for the teacher and active participation of the learner.

## 2- Learning and Interactivity

The teacher is a basic pillar of the educational process, but is the nerve of the educational process and the cornerstone and the core and the active element in any educational process. Any reform, development or renewal in the educational process must begin with the teacher, since there is no good education without a good teacher <sup>[3]</sup>. However, the teacher in the age of information is no longer the only source of knowledge, as the sources of knowledge and methods of access to it, and became the role of teacher mediator and facilitator between students and sources of knowledge and became a guide and a guide for students rather than a teacher and a source of knowledge. Therefore, it is one of the basic tasks of the teacher to train students on ways of acquiring knowledge, not to teach them. Relying on their own effort, and using the various means and techniques necessary to do so. The good teacher is the one who works to develop students 'abilities and skills by organizing the educational learning process, controlling its interactive path, understanding the students' needs, abilities, attitudes, ways of thinking and learning, as it guides them to the sources of knowledge and self-learning methods that enable them to follow their learning and constantly renew their knowledge. Moreover, education of the information age, characterized by knowledge inflation, diversity of sources, modes of acquisition and learning medium, requires special preparation for the teacher, which develops his or her own learning tendency<sup>[4]</sup>. The teacher needs to develop his skills, abilities and knowledge, in addition to his knowledge of modern techniques, methods of thinking, basic knowledge theory, and mastery of classroom management, because he has lost the authority of

1 -Bruwelheide, J. H., Teacher competencies for microcomputer use in the classroom; a literature review. Educational Technology, 22(10): 29-31, 1992.

2 -Schacter, John. "The impact of education technology on student achievement: What the most current research has to say." (1999).

3 -Burbules, N. & Densmore, K. (1991). The limits of making teaching a profession. Educational Policy, V. 5, pp. 44-63.

4 -Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher, V.15,pp.4-14.

knowledge monopoly and changed his role from being a vector of knowledge to being a participant and mentor. The source of information, that is, the task of the teacher has become a combination of the functions of the educator, the leader, the manager, the critic and the consultant. Computer technology provides instructional designer with effective choices. For example, it has increased efficiency over the course of the lesson. The opportunities for implement diverse in computer presentations and different forms of feedback. This leads designers to devise alternative and diverse strategies. interactive is an important concept in the computer learning environment<sup>[1]</sup>. It is possible to push the teacher to find points that enable him to build his educational model. As result the hardware and software that She /He has. In order to create an environment that students help to think, infer and resolve any problem in any field. In this study, the teacher is prompted to use one of the following types of programs<sup>[2]</sup>:

First type: Educational programs have contained models for students, where the programs collect information about each student and then form a model according to its abilities, information, and path of thinking.

Second type: The so-called knowledge and experience systems are used in these programs to separate. Where the scientific material is in the database<sup>[3]</sup>. The knowledge database shall contain all information related to science.

The teacher has become a designer of educational programs, a planner and a guide to behavior, and an officer of the learning environment, specialized in teaching methods in terms of use and maintenance, familiar with sources, and re-researcher, and a source of educational results, and most importantly enabling him to deal with the data of contemporary technology and harnessing to serve the educational process. Hence, it was necessary to have a future teacher who wants to know his duties with learning skills necessary for his work, according to modern educational bases, so that the impact of this knowledge on the classroom<sup>[4]</sup>. Computer networks and information technology offer several opportunities for teacher training with programmed curricula. As well as exchange of experiences with their peers internally and externally through the panel discussions and direct e-dialogue, and the common interest groups of these networks. Figure(1) explain Explains the steps necessary to build a technological program to build a teacher capable of the requirements of modern times.

Figure (1) Flowchart of build a technological program

Through the above program, teachers will be prepared and qualified professionally, educationally and scientifically, as the core of the educational process and the tool of its success. And the quality of education and the extent to achieve educational goals and improve the level of performance of students, depending on the level of performance of the teacher and the effectiveness and efficiency that is characterized by the performance of his mission, which made countries different philosophies and objectives to raise the level of performance of the teacher's attention and attention<sup>[5]</sup>. To sum up, the teacher is required to play multiple roles, such as management of the classroom, and the presentation of educational content of its material well, and the search for knowledge, and diagnose

1 -Shulman, L. S. Reference already mentioned.

2 -Scott, John L., and Michelle Sarkees-Wircenski. Overview of Vocational and Applied Technology Education. American Technical Publishers, Inc., 1155 West 175th Street, Homewood, IL 60430., 1996.

3 -Anderson, C. (1998, May). Reference already mentioned.

4 -Bybee, Rodger W. "Advancing STEM education: A 2020 vision." Technology and engineering teacher 70.1 (2010): 30.

5 -Burbules, N. & Densmore, K. (1991). Reference already mentioned.

problems and develop solutions appropriate to them. With the diversity of these roles, the task of the teacher has become difficult and difficult, necessitating his continuous development and providing him with renewable skills and knowledge.

Based on the above, the problem of the current study is to know the characteristics of the teacher of the future and skills and competencies and procedures to improve the quality<sup>[1]</sup>.

### 3- The main objective

This study derives its importance from the following considerations:

- It deals with a key component of the educational learning process and is the teacher in terms of its characteristics, skills and competencies.
- This era, which is witnessing a series of changes and developments in knowledge, science, and technology as these developments dictated the teacher duties, responsibilities and new tasks that made the process of teacher preparation sustainable does not end only by retiring from this service.

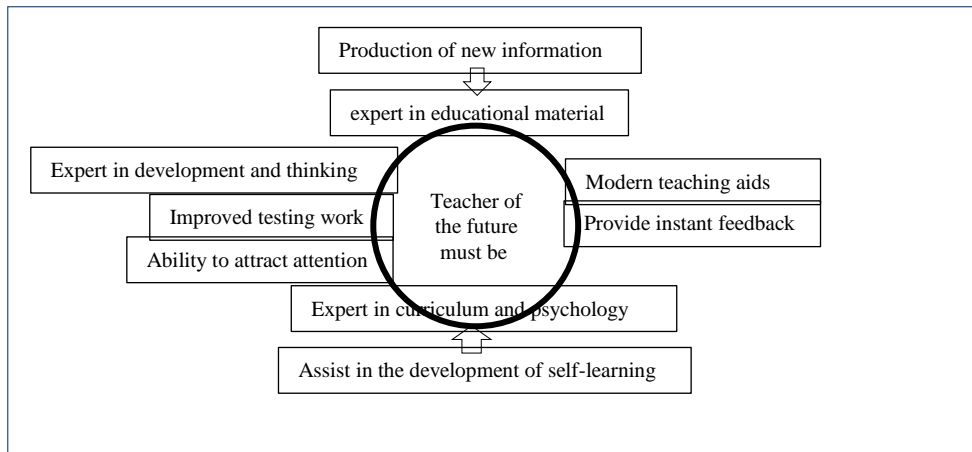


Figure (2) Characteristics of the future teacher based on the technology of education

1 -Linda Darling-Hammond, and John Bransford, Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do(John Wiley & Sons, 2007).

#### 4- Learning Techniques For Building The Future Teacher

1. Knowledge of content: Knowledge of content includes knowledge of the facts, concepts, principles and theories in a particular subject or knowledge area, and knowledge of the relationships between these components<sup>[1]</sup>. They also include the principles of inquiry and the inherent values of the material or sphere and methods in which new knowledge is added and the ideas that produce knowledge in that area are replaced by deficient ideas<sup>[2]</sup>. Another dimension to a knowledge of the content, specifically the function of knowledge branch because of the need teachers to link school knowledge to everyday life.
2. General educational knowledge: General educational knowledge includes knowledge of the theories of learning and teaching and their principles, and strategies for classroom management, an organization that exceeds the subject matter<sup>[3]</sup>.
3. Systematic knowledge: The methodological knowledge includes knowledge of the various topics that are taught in a given class and a specific year, and what is taught and what will be taught in the same subject in previous or later years<sup>[4]</sup>.
4. Knowledge of learners: knowledge of the characteristics of the learners, their knowledge, motives, and development are necessary because of the relationship between these characteristics and design and implementation of the curriculum.
5. Knowledge of educational frameworks: This includes knowledge of the classroom environment, school governance, and funding, knowledge of the school community and culture, but not limited to them.
6. Knowledge of the purposes, goals and educational goals: This category includes knowledge of the philosophical and historical backgrounds of education in general and science education in particular<sup>[5]</sup>.
7. Knowledge of educational content: Knowledge of educational content is defined as mixing content and education in understanding how to organize topics, problems or issues, and to represent and adapt them to the diverse needs of learners and their abilities, and to provide them for education. Knowledge of educational<sup>[6]</sup> content is the category most likely to distinguish a particular subject from education to prepare students for the 21st century. Teachers should use their professional knowledge to plan survey-based programs, guide and facilitate student learning, assess their learning and student learning, Which provide students with the time, place and resources to learn and develop learners' communities that reflect the intellectual rigor of the survey, attitudes and social values conducive to learning, and actively participate in the ongoing planning and development of the school program. Teachers should use ICT in a meaningful way and involve their students in discussions of issues of interest to society .

During this study, a proposal will be submitted for these criteria, including:

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1 -Bates, Anthony W,2000. Reference already mentioned.

2 -Schacter, John,1999. Reference already mentioned.

3 -Anderson, C. (1998, May). Reference already mentioned.

4 -Burbules, N. & Densmore, K. (1991). Reference already mentioned

5 -Mark G Gillingham, and Andrew Topper, 'Technology in Teacher Preparation: Preparing Teachers for the Future', Journal of Technology and teacher Education, 7 (1999), 303-321.

6 -Robert Walter Lawler, and Masoud Yazdani, Artificial Intelligence and Education: Learning Environments and Tutoring Systems. Vol. 1Intellect Books, 1987).

- ❖ Have a strong knowledge and strong skills in the subject, and have experience in the survey / research within their specialization.
- ❖ Have a high level of knowledge and skills in educational specialization, especially in the knowledge of the educational content of their specialization.
- ❖ Have documented experience in curriculum development, application and experience in educational materials in different school environments and in the use of information technology.
- ❖ Have experience that includes many assessment methods including "traditional" and alternative assessment.
- ❖ Have a deep functional knowledge of the relationship between specific learning outcomes, teaching methods, evaluation methods and evaluation.
- ❖ Have the necessary skills to apply appropriately to different research approaches to answer important questions in teacher education.
- ❖ Have experience in product development / educational materials and professional development programs.
- ❖ Have strong knowledge and experience in teacher development, including designing and implementing workshops.

## 5- Conclusion

The aim of this study is to identify the teacher of the future in terms of its characteristics, skills and competencies, and the procedures necessary to prepare it, and it shows that the teacher of the future has its characteristics, skills and competencies that necessitate significant changes in its preparation and composition to cope with the rapid changes in the production of knowledge, in addition to keeping pace with unprecedented scientific and technological progress. In the areas of information and communications. In order to make the expected changes in the role of the future teacher effective and effective, the educational systems in the era of information technology and the knowledge economy must make a change in its educational philosophy and procedural policies in order to provide the teacher with suitable conditions to carry out his expected roles teacher and learner and researcher, Knowledge and information, and multiple learning opportunities available online. In addition, the future teacher's focus will be more on modern teaching methods than on knowledge itself. Thus, the task of the teacher is a combination of the tasks of the educator, the leader, the researcher, the critic and the counselor.

In summary, the transformations and changes in the world have dictated the teacher of the future to develop in his students intellectual skills such as reasoning, extrapolation, induction, analysis and synthesis, as well as communication skills, encouraging his students to enter into creative thinking, critical thinking, teamwork, self-learning, dialogue, acceptance of the other and contribution to community building rather than information. Save and retrieve them.

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- [2] Association for the education of teacher in science (AETS) (1997). Journal of science Teacher Education, V.8,pp.233-240.
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