

Original Article: Evaluating the Effectiveness of Virtual Information and Communication Technology-Based Platform in Teacher Professional Development



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ABSTRACT

Teacher training centers have an effective role in facilitating learning and the effectiveness of the teaching process by offering new curricula tailored to the human dimension. Educational systems, in the transition from quantitative issues and the generalization of education, have inevitably paid attention to the quality issues of educational phenomena and have improved the quality of education through the main factor in an educational system, namely the "teacher". The concept of teacher professional development has emerged since the middle of the twentieth century with the need to implement reforms in educational systems. In generalizing this concept, research findings and comparative study of educational systems have had a great impact. This main contribution of this study is reviewing and determining the desired criteria and characteristics of teachers in the field of information and communication technology with emphasis on e-learning environment in IRAN. ICT means the use of electronic devices such as cameras, video, audio devices, computers And the Internet. In this article, for philosophical, social and psychological reasons, the teacher education curriculum based on information technology (ICT) has been examined. Then, a proposed model of curriculum development based on ICT is discussed and the professional qualifications of teachers are examined.

Introduction

Today, education is one of the most difficult human affairs, the final fruit of which bears fruit late. The role of teachers in this sensitive and important matter is very effective and

constructive. By creating and expanding teacher training institutes and offering various and appropriate programs, it is possible to train teachers who acquire the necessary skills in human and perceptual dimensions and can grow from their art, science and experience in

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transforming raw human beings into creative human beings and benefit thoughtfully [1,2].

At the beginning of the third millennium, information and communication technology and knowledge will play a major role in increasing productivity and information growth, followed by economic growth, which is referred to as knowledge-based economy, which leads to changes, skills, capabilities, new insights and habits in people in the age of knowledge-based economy and information-based citizen will be in an information society. Information and communication technology provides the necessary tools for a knowledge-based economy and information society [3,4]. The rapid emergence of innovations in the information society of today is increasing so much that the stages of development and generalization of an information and technological innovation have not yet evolved that new information products with better and easier facilities and technologies are offered at a lower cost [5,6]. One of the areas that has been considered in recent years with the help of information and communication technology developments in information and communication technology, has been the subject of amazing and fast e-learning and learning [7-9]. It should be noted that in the age of knowledge, where everything is measured on the basis of knowledge and awareness, traditional learning methods no longer meet the huge volume of demand for teaching and learning, and e-learning has been introduced for the target community (teachers) [10,11]. Therefore, on the one hand, the development of emerging information and communication technology and on the other hand, the acceptance of constructivist (transformational) views in educational environments based on e-learning, it seems necessary to study the criteria and characteristics desired by teachers in such a matter. This research examines this issue.

Method

The research method is review-analytical and the library source and articles have been used.

Results

Proper use of information and communication technology in educational systems requires the existence of reputable centers and authorities to monitor the accuracy of the content and its methods. In addition, emphasis on profit-to-cost ratio, adaptation to local and situational needs, and optimal management of information and communication technology knowledge are required. In studying the history of information and communication technology generations in educational systems, 5 courses can be named. The first generation were textbooks and textbooks based on the beliefs of Behavioral Psychology. 2 The second generation, mass media, radio and television were produced, which was in line with theories of cognitive learning. 3 The third generation, attention to simultaneous and asynchronous human communication and interactions was emphasized. In this generation, problem-based knowledge and curricula were created. Fourth generation, in this generation, content information retrieval, interactive capacity, computer information and communication, and systems processing power were expanded. 5. 5th generation, in this generation, issues such as: intelligent learning, artificial intelligence, information network management, e-learning, e-citizen and technological automated factors about information and communication technology were created.

In examining the practical features of information and communication technology in the field of e-learning of educational systems, we can mention such things as: comprehensive and fair view, flexibility, grouping, training and mastery. Benefits such as: increasing the general motivation of teachers, enrichment, professional development of teachers, improving methods, prioritization, centralized understanding, continuity, increase the speed and transfer of learning, increase the accuracy of learning, reduce the physical size of information repositories, Prevention of tastes, telecommunications, cost reduction, quality of curricula, easy and public access to information resources, up-to-date educational systems, curriculum innovation, use of international experiences, Professional retraining of teachers,

familiarity with the advantages and capabilities of various software and hardware and the ability to select and use media based on educational goals. Acquiring skills in designing and producing educational software, flourishing innovation, initiative and invention in teachers. Compensating for the lack of educational equipment and teaching aids more quickly, the internalization of technology for the production of educational software in the country, which will lead to the development of science and culture and the development of educational industries in society [12].

Information and Communication Technology in the Fundamental Transformation Document of Education

Article 17 of the Fundamental Transformation Document of Education emphasizes on improving the quality of the education process by relying on the intelligent use of new information and communication technologies, and its most important solutions are: Prioritize filling the digital gap between educational areas and creating a suitable mechanism for optimal and intelligent exploitation by students and teachers within the framework of the Islamic standard system.

Production and use of electronic content tailored to the needs of students and schools with the participation of public and non-governmental sectors and electronic content of textbooks based on the national curriculum and emphasis on using multimedia capacity until the end of the Fifth Development Plan Education with emphasis on active, group and creative methods according to the role of the teacher model - 4 Expand the use of distance and virtual education capacities in special educational programs for teachers, students and Iranian families abroad Based on the Islamic standard system and observing the educational principles through the national information and communication network [13].

Prerequisites for information and communication technology in education with emphasis on the role of the teacher

Divergent Validity

Acquisition of information and communication technology is the main condition and necessity to reach the information society and the main necessity is the realization of one of the goals of the fourth development plan of the country, namely knowledge-based development. Therefore, examining the prerequisites regarding information and communication technology in the education system has played a vital role in achieving this goal. Establishment of an integrated national policy regarding the use of information and communication technology by teachers, development of information and communication infrastructures and infrastructure and generalization of public access to teachers, strengthening of support system and development of human resources for teachers, existence of appropriate information and communication resources, Required and up-to-date teachers, changes in goals, content, teaching methods and evaluation methods of educational programs and curricula and increasing the level of teacher involvement in these areas, the appropriateness of the physical space of schools in terms of establishing information and communication technology facilities, observance Defined standards and accurate and comprehensive needs assessment of information and communication technology with the opinion of teachers and finally cooperation, consensus and expansion of partner institutions and institutions in information and communication technology with education and teachers [14].

The four instrumental roles of ICT

Lyme and Ching have outlined the four instrumental roles of ICT as follows: 1. Information tools: Information and communication technology provides a wealth of information in a variety of text, audio, graphic, and video formats and encyclopedias. That exist on the internet are of this category. 2. Position-building tools are tools that place students in an environment for hands-on experience. Simulated learning environments, educational games, and virtual reality create situations that create many invisible things. Make visible; For example, chemical reactions that are impossible to observe in the laboratory are displayed to

knowledge Learners. 3. Construction tools: These tools are manifested in the use of computers to produce unique products, in the form of multimedia, and the production and construction of websites_4 Communication tools: These tools, beyond physical barriers, cause communication they become teachers and students. The World Wide Web, because it is a very rich medium in terms of the possibility of interacting and participating in real-world dreams, creates more motivation than other technologies [15, 16].

The purpose of the teacher training curriculum in Iran

For each curriculum of teacher training courses, the specific purpose of the course and consequently the expected competencies are defined. Positive attitudes should be prepared for engaging in educational activities in the elementary school. In general, it can be said that the purpose of the teacher training associate curriculum is to acquire theoretical knowledge, learn practical skills and create a positive attitude in student-teachers [17].

The process of teaching and learning in the teacher training curriculum in Iran

In the elementary course, most of the units are theoretical. In the specific courses, the study of the elementary school textbooks is practical and the units of the teaching method are practical and theoretical. The units of the educational courses are often theoretical. For undergraduate courses, most courses are theoretical

æ Practical as well as workshop have been developed. Research shows that the process of teaching-learning teacher-centered and one-way

æ Teachers use the lecture method more in class.

The need to use ICT in student-teacher curricula

All countries have made great efforts to use information and communication technology in the teacher education curriculum and have

provided units. These countries are working on a joint project in this field.

The three countries of the United Kingdom, France and Japan have also identified professional qualifications for the use of information and communication technology in the teacher education curriculum. How and to what extent the use of information and communication technology in different countries is somewhat different from each other. Considering that it is necessary to provide familiarity courses and application of information and communication technology in the student-teacher curriculum, in this regard, in Iran, the necessary competencies to use information and communication technology in the teacher training curriculum should be defined first. Based on this, teacher training centers should be structurally equipped with this technology and the possibility of using the Internet and intranet should be provided. Knowledge and skills of using technology should be provided to student-teachers in both general and specific sections. Specializing in providing e-learning units, revelatory learning (research using ICT and implementation of individual and group projects),

Interactive learning (acquisition of skills, communication between teacher and student and group discussions through ICT and using each other's experiences) is also recommended. In the classroom, get students with lessons [18].

ICT integration strategies in the curriculum

Preparation of ICT professional standards for teachers

The main teacher is the success of the ICT integration program in the curriculum. If the teacher can easily and empowering use ICT tools in the classroom in the learning process and be confident that ICT can rise. The quality of students' learning helps, is certainly aroused, and there is little resistance to changing traditional teaching methods from will not show itself. Teachers should be prepared to enable students to take advantage of all the learning opportunities using ICT and to effectively integrate curriculum content into ICT in the student-teaching-learning process. Teachers should be able to enable students to apply

problem-solving strategies through appropriate tools.

Technology is to help. Therefore, it is necessary to prepare professional ICT standards for teachers in conjunction with the design of the curriculum with the ICT integration approach, and these standards should be included in pre-service and in-service teacher training programs. Teachers need to experience the new ICT-supported environment in their training programs at teacher training centers so that they can use it confidently in the classroom. The connection between teachers training to achieve the standards set by the teaching of students by the same teachers can not lead to the success of the integration program. Otherwise, even by designing a curriculum integrated with the ICT approach, the teacher will still run his / her classroom in the traditional way [19]. The following two suggestions are made in this regard:

1. This section should be implemented with the participation and coordination of school curriculum designers and curriculum designers of teacher training centers in the office of planning and writing textbooks of the Educational Research and Planning Organization.

2. The Office for the Development of Education Standards should be established as an independent office or affiliated to the Educational Research and Planning Organization with the aim of determining the standards of the education system in both the educational program and the curriculum planning [20].

Philosophical implications of an ICT-based teacher education curriculum

Provide the necessary opportunity for students and teachers to practice intellectual skills

The need for flexibility in teacher training programs in order to meet the goals of education

Providing opportunities in teacher training that the student-teacher can shape his knowledge.

The need to pay attention to creating the ability to evaluate and continuously review knowledge through scientific research at different levels in student teachers

Attention to critical and creative thinking

- The need to update the content and flexibility of teacher training programs due to continuous developments
- The need to create attitudes, knowledge and lifelong learning skills and update knowledge in students
- Paying attention to students' responsibility and encouraging independent learning
- The need to create knowledge and skills to work with information
- The need to pay attention to solving real and genuine problems of education as a criterion in decisions related to teacher training programs
- The need for a close connection between teacher training and the classroom and school
- The need to acquaint students with new research methods and create the necessary skills in it.
- Maintain and disseminate teacher training curricula in a way that is widely and freely available to other users, critique and modify.
- Necessity of matching teacher training programs with students' values and any special educational situation.
- Social Implications of an ICT-Based Teacher Training Curriculum

- Providing the necessary opportunities to practice and play the social role of teachers in the ICT era for student teachers
- Provide a clear picture of the citizen of the information society within the school
- Preparing student-teachers to play the role of a factor of social change outside of school
- Relationship between teacher training curricula and the needs of economics and the world of work
- Emphasis on teacher training on creativity and programs
- Improving the literacy and information skills of students, teachers and instructors
- Paying attention to the integration of knowledge fields and paying attention to multiple skills in the teacher training program
- The need to pay more attention to the population of programs and the variety of curricula

Theoretical framework of the teacher training curriculum in the ICT era

From the analysis of previous topics, the systematic framework of teacher education curricula in the ICT era is inferred as follows:

1. Educational ideals: The main goal of teacher education curricula in the ICT era should be to train teachers who can play a role as citizens of the information society and be able to train their students to play such a role. Playing this role in the job market Unstable and changing requires deep and extensive competencies. In this lesson, the curriculum should focus more than ever on the goal of how to learn and learn for life. It

should achieve the goal of rational reasoning by personalizing the curriculum and creating flexibility in the curriculum and address the superior capabilities of thinking such as creative thinking and critical thinking [21, 22].

2. Attitude towards learning: The ICT curriculum prepares learners more than ever to play the role of creativity, production and construction in the field of knowledge and information, and gives the learner an active role. In these curricula, learners are responsible for their own learning and invest in gaining knowledge and understanding; have high motivation to solve problems and build new answers and gain insight; make wise choices between tools And have strategies; They work in harmony with others and on the basis of "sharing ideas during the search for understanding". They know how to manage their learning and turn to research-based learning and fertile learning [23].

3. Attitude towards the learning process: In teacher training curricula in the ICT era, changes in orientation in the learning process can be seen, such as the following: "From linear learning" to multimedia learning, "From education to Build and discover", from "teacher-centered learning to inclusive learning", "from material absorption, to learning how to lead and how to learn", "from learning limited to educational organization, to lifelong learning", "from learning "Same for all", to "Adapted learning for each learner", and "From learning like torture, to learning like fun and warmth" [24].

4. Consideration of the educational process: In curricula in the ICT era, education does not follow specific steps. In this age of curricula, the monopoly emphasis on the function of information transfer in various fields is removed. And by taking moderation, the development of theorems focuses on the appropriate mental fuel that enables the individual to interpret and understand phenomena or solve problems [25].

5. Consideration of the learning environment: The learning environment in teacher training

curricula in the ICT era is not a pre-determined environment; It is provided in it [24].

6. Teacher's role: In ICT teacher training curricula, there is an obvious change in the role of the teacher; the teacher changes from knowledge to the guidance scene in the margins; Learners, the teacher as the learners' helper for the learners to ask the right questions, and the teacher as the producer of the course material [25].

7. Consideration of evaluation of what has been learned: Evaluation in teacher training curricula in the ICT era does not rely on standardized tests. In this space, evaluation is used as a "source of change".

The learner-led assessment of the individual is diagnostic; it is the result of the joint efforts of the teacher and the learner, and is considered as an important flow.

Proposed model for developing teacher training curricula based on information technology

The proposed model for the development of ICT in teacher education curricula is formed in three layers:

The first layer, the outer space: the paradigm shift from traditional education to new education. In this layer, the environment or the prevailing situation of teacher training curricula can be explained in the form of the following three topics:

In the environment around teacher training curricula, there is a shift from traditional or conventional education to new or restructured education. Ideally, teacher training programs should be tailored to move activities from a traditional perspective to new perspectives.

2. The basics of ICT-based curricula in teacher training should be studied and the theoretical framework of these curricula should be explained accordingly.

The implications of philosophical, social and psychological foundations for teacher education and training should be extracted and explained in the form of assumptions and principles governing ICT-based curricula in teacher training [25].

Objectives and principles of ICT development in Iranian teacher training

Findings in the findings in the theoretical and comparative study, a set of goals and principles of Fava development in teacher education. Researchers to achieve the goals and principles of ICT development in teacher education in Iran, these findings from the study The situation in Iran has been analyzed according to the following criteria:

Compliance with philosophical, social and psychological principles

Benefiting from the experiences of other countries

- Compliance with the measures that have been taken in practice for the development of ICT in Iran.

Compliance with the complete character of theoretical foundations

- Utilizing all available facilities

Ability to overcome existing obstacles

The goals and principles of ICT development in Iranian teacher training explain the appropriateness of the proposed model to the situation in Iran.

The goals of ICT development in teacher training are as follows:

Familiarity and skills training of students, teachers, administrators and teacher training staff to work with ICT tools and use ICT in the teaching-learning process.

Increasing knowledge and awareness about the changes that have taken place in teaching-learning approaches.

Creating a positive attitude in students and teachers of teacher training centers to use ICT in daily work and teaching process. Learning.

Growth and development of knowledge and skills of working with information and communication skills.

- Production of educational programs and the required resource and in accordance with the curricula of the ICT era.

Development of ICT in all components of the teacher education system and creating coordination between the components of this system.

- Development of infrastructure and supply of required hardware and equipment.

The second layer, the process of planning, producing, implementing and evaluating ICT-based curricula in teacher training:

In this layer, the steps and process of ICT-based curriculum planning are explained. The components of this layer of this template can be placed in two general parts:

1. Influential factors: According to this model, the ICT-based curriculum planning process in Iranian teacher training is influenced by three main factors:

A) Teacher competencies: The introduction of ICT in the curriculum has introduced new competencies for teachers and the focus of these programs is on creating the necessary competencies for teachers to play a role in the ICT era. These competencies include technical, scientific, educational, and at beginner, intermediate and specialized levels.

B) Study of position or context: In this model, the role and impact of "position or context" is emphasized.

Iranian teacher training curricula in the ICT era pay full attention to the situation and requirements of the situation in which the curriculum is designed and implemented. The situation includes all the physical or environmental conditions that curriculum

planners must be aware of and Factors such as the economic situation of the country, the quality of communication infrastructure, cultural and linguistic factors that make a particular software appropriate or not, and cultural factors with the method of education, forms of communication, group work versus individual work and Perceptions of duty and responsibility are among the factors that are considered in the context or context.

C) Study of the audience: Having a clear picture of the characteristics of the audience such as their abilities, prior knowledge, experiences and interests is crucial to design a curriculum with appropriate use of technology.

Steps of program development

A) Curriculum development: In this action, the characteristics of the elements of the curriculum are decided.

The aim here is to determine to what extent each of the elements of the curriculum is compatible with the characteristics of the curriculum elements of new theories that are compatible with the ICT era.

B) Selection of solutions, in this stage, the solution of the curriculum is decided according to the type of competencies expected, the context or the context of the characteristics of the audience. Teaching is as follows: Web-based courses such as WebQuist, multimedia presentations, telecommunications projects, and online discussion.

C) Curriculum legitimacy: In ICT-based curricula, action is required to gain the approval of learners and other stakeholders during the optimal curriculum planning process. Emphasis on the learner, the focus of the program and adapting it to the situation legitimizes the program.

D) Program production: Program production for ICT-based programs should be done according to the specific requirements of these programs and the necessary forecasts should be made in terms of technical aspects.

E) Execution of the program: Execution of the program should be done according to educational and technical considerations. In this action, pilot performances should be considered in as many stages as the work requires.

F) Preservation and dissemination of curricula: Preservation and dissemination of curricula in the ICT era finds a new meaning and is associated with the concept of knowledge management. Teachers and teacher training centers are located internally and externally.

G) Evaluation and feedback: Evaluation and feedback in the planning and implementation of ICT-based curricula is an ongoing process that will be different from other curricula due to how to implement and use new methods and use ICT in this process. Was.

Third layer: curriculum design or characteristics of elements in different stages of ICT entry into the teacher curriculum:

Decisions about curriculum elements are made at the design stage. What distinguishes curricula is the characteristics of these elements. In this model, the path from traditional or conventional education to new education is It has influenced the elements of the curriculum [25]. The historical course of teacher professionalism in the West

(1 period before becoming a professional;

(2 periods of professional independence;

(3 courses of academic professionalism;

(4 standardization; as the fourth step in the process of professionalization of teachers.

The details of these four steps are as follows:

1 In the pre-professional period, which was the period of general education, the usual methods of teaching phrase were lecturing methods, along with taking notes, asking and answering questions, and memorizing material by learners. In this course, teaching was classy but tedious in terms of classroom management, and people

became teachers by gaining practical experience in this field and improving it through trial and error. During this period, a good teacher was someone who was interested in his job, who knew what he needed to do and where to get it from, as well as being able to maintain good order in his classroom. Teachers in this course learned how to teach by observing others, first as a student and then as a student teacher. During this period, teachers needed a small amount of training and professional preparation.

2 Pre-Professional Periods: In the early 1960s, the prestige of teachers in many countries improved dramatically compared to the pre-professional period. One of the outstanding features of teaching in this course was solitary confinement and having individual independence. Most teachers run their classrooms in isolation from their peers. In the 1970s and 1980s, individualism and isolation became widespread as a state of affairs and were widely accepted in the teaching culture.

Individual and practical independence of teachers in this period led to an increase in their status and their readiness to teach. On the other hand, this situation prevented the implementation of educational innovations and encouraged innovations in this field. The period of professional independence equipped teachers with limited preparation and ability to cope with the changes that befell them.

3. courses of academic professionalism; In the mid-1980s, with the increasing complexity of school education, the independence and professionalism of teachers became harmful and inefficient, as insistence on the individuality of teaching by teachers was met with unsatisfactory and unsuccessful responses. It was the efforts of their colleagues, which, of course, were also based on individual knowledge and skills. It was during this period that the explosion of knowledge and information increased expectations related to the school curriculum and the duties of teachers towards it, and rapidly progressing changes took place in the field of education.

It was at this time that vocational teaching became very difficult and complex, and efforts to create a culture of cooperation in the school education environment increased, and new requirements were introduced in the field of primary teacher training as well as their continuing professional learning, including:

- Teachers learn to teach with new methods;

Continuing professional learning should have two dimensions of individual and organizational responsibility and accountability;

Vocational learning should serve as a bridge between school and university education in an efficient and incremental manner.

4. standardization; As the fourth stage of the process of professionalization of teachers in parallel with the entry into the twenty-first century, the world underwent profound socio-economic-political and cultural changes, and this created new conditions for teachers.

In this course, teaching frameworks are defined by professional standards that specify what good teachers should know and be able to do (knowledge, skills, and competencies that can communicate well with students. One of the basic requirements for teaching in this course was to learn how to work with different social groups, to consider parents as sources of learning and support instead of those who had inappropriate interference and unnecessary presence during the training. (Teachers' previous perceptions were violated in this regard.) Also, in this course, the content of teachers' professional learning was enriched in terms of depth and breadth.

Working with parents was about embracing them in a new way of evaluating and using them effectively during teaching and working in collaborative groups (teachers' community) to make continuous positive changes in education.

Conclusion

As mentioned, one of the necessities of today's information society is to pay attention to ICT and ICT-based curricula. This has been proven in the educational systems of developed countries and most of the research conducted in this field. Optimal planning and shaping of curricula requires comprehensive attention to its philosophical, psychological and social foundations, which should be considered by both planners. The learner is considered as the center of learning and teaching, and for this reason, planners should first of all obtain the necessary information about learners and be familiar with their various personality dimensions. Obtaining this information about the general characteristics of students is one of the actions that should be taken by the planner. This information can be obtained by using the findings and theories of psychological sciences. Followed by breeding. These developments have shifted from educational-oriented to construction-oriented, teacher-to-learner-centered approaches, cognitive-behavioral approaches, representations to production, and linear to non-linear networks.

Today we are facing new achievements in the applications of information and communication technology in the field of education. They follow in a lot of learning. While - countries around the world, different stages of the integration of information and communication technology in the teaching process that discuss the true value of approaches such as: distance learning, e-learning and virtual schools and universities against the traditional approach to face-to-face teaching and learning is extremely high. Perhaps, it is clear to everyone that information and communication technology is learning for teachers. In parallel with development - has a very high potential for fundamental changes in teaching methods and patterns of cyberspace in advanced societies, developing societies are also thinking of using the facilities of information and communication technology, especially cyberspace and networking space to provide Hardware and software facilities have taken action. Social requirements, including the need for more knowledge explosion, e-citizenship in

modern society in these countries has doubled the need for this work. Given Iran's power in the region in every way, it's appropriate that today's teachers in an information society based on a knowledge-based economy must be prepared at all times to face increasingly new changes, and teachers must learn how old-fashioned ideas work. Discard learning and how and when to replace new ideas with new and modern learning methods and they should learn. Undoubtedly, one of the most important solutions and further knowledge to achieve this goal is to study and recognize the characteristics of teachers in such an environment that by examining and recognizing these characteristics, accurate information needs can be assessed along with goal setting and planning. It has done better for the ICT sector and teachers, thus maximizing the chances of success. Therefore, this study reviewed and determined the desired criteria and characteristics of teachers in the field of information and communication technology with emphasis on e-learning environment in IRAN for the first time. Practical solutions and recommendations Now to the most important solutions and recommendations in the field of information technology and Communication and the role of the teacher are mentioned:

- In information and communication technology, it is recommended that teachers have a holistic view, not a mere technical uniformity and specific skills training. In this case, we should pay attention to issues such as: situational, social and cultural differences between regions, schools and educational centers, and the role of information and communication technology in increasing the spirit of creativity, critique and questioning in the minds of learners. It should be noted that information and communication technology in education requires the study of scientific, information, communication, social, cultural, historical, ethical and cosmological knowledge of teachers. In using information and communication technology, in addition to paying attention to the technical, moral and

social standards of the world, teachers should pay attention to the local, value and cultural standards of the country.

- Due to the complexity and multidimensionality of the phenomenon of information and communication technology, it is necessary for teachers to avoid one-dimensional and wise study of issues and to pay attention to unconscious and variable educational, social and cultural issues. In information and communication technology in education, such issues as: national self-confidence, reliance on teachers and indigenous forces,
- Creation of internet and national internet networks, development of school structures and infrastructures, public participation and cooperation. In particular, parents paid attention to creativity, skills training, motivation, empowerment, interactive and collaborative environment, facilitation, integrated and codified management, encouragement, and so on. Limitations and suggestions of this study are as follows:
- Investigating the challenges facing teachers due to the integration of information and communication technology in every aspect of education.
- Investigating the effect of local conditions and global components in the field of ICT on the professional development of teachers

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