The Relationship between the Curriculum and Content of Books & Using Educational Technology - A Meta-analysis

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ABSTRACT: The purpose of this study is to examine the relationship between the curriculum and contents of books and the use of Educational Technology by teachers and university professors in Iran through meta-analysis. An extensive search for relevant published and unpublished studies found 51 studies from 1993 to 2009, 8 research studies with inferential statistics were chosen. The results indicated that the curriculum and content of books had a lot of influences on not using Educational Technology and it was a big obstacle for using it.

Keywords: Meta-analysis, educational / instructional technology, curriculum, content of books, barrier/obstacle

INTRODUCTION

Educational Technology is defined as an array of tools that might prove helpful in advancing student learning. Educational Technology has a broad definition. Technology can refer to material objects of use to humanity, such as machines or hardware, and also encompass broader themes - systems, methods of organization, and techniques. It includes some modern tools like overhead projectors, laptop computers, and calculators. Technology can change or alter how people access, gather, analyze, present, transmit, and simulate information (See, 1994). As Volman & Van Eck (2001) indicated that the use of information and communication technology (ICT) creates a powerful learning environment and it transforms the learning - teaching process in which students deal with knowledge in an active, self directed and constructive way. Increasing self-initiation, self-motivation and self-reliance among students who are even prepared for self-assessment. Shift from ‘content learning’ to ‘learning how to learn’. Educational Technology improves education on different ways such as easy-to-access course materials, student motivation, wide participation, improved student writing, subjects made easier to learn, efficiently and effectively access digital information to assist with investigating issues, solving problems and decision making, produce creative solutions to support learning and develop new understandings, communicate, share and work collaboratively in local and global environments, understand the legal, ethical, health and safety implications of using ICT and their responsibilities as users and developers, develop new thinking and learning skills to support learning.

Teachers play an important role in the teaching-learning process. They should become effective agents to be able to make use of technology in the classroom. Along with a shift of curricula from “content-centered” to “competence-based”, the mode of curricula delivery has now shifted from “teacher-centered” forms of delivery to “student-centered” forms of delivery. The kind of role that the teacher plays will change and also the role of students has expanded according to constructivism. ICT-enhanced learning promotes a thematic, integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional classroom approach. There are four key elements in an ICT curriculum development project – Curriculum, Software, Teacher Training and Hardware. Successful curriculum integrates these four elements to teaching – learning process so that teachers know what they are doing, what educational outcomes are expected, have the skills to use the appropriate software and have access to hardware and communications resources. It is essential for educators to align their curricula to the needs of their disciplines. This is as true for instructional design and technology educators as it is for any other field. The goal of every program of study in instructional design and technology is to prepare students to become capable and competent field professionals (Orey, McClendon, & Branch, 2007). Earle and Persichitte's AECT curriculum standards (2005) production competencies and skills focus on the following areas:
Incorporate contemporary instructional technology processes in the development of interactive lessons that promote student learning.
Produce instructional materials which require the use of multiple media (e.g., computers, video, and projection)
Demonstrate personal skill development with at least one: computer authoring application, video tool, or electronic communication application.
Use appropriate analogue and digital productivity tools to develop instructional and professional products.
Develop instructional and professional products using a variety of technological tools to produce text for communicating information.
Design, produce, and use digital information with computer-based technologies.
Use authoring tools to create effective hypermedia/multimedia instructional materials or products.

Integrating technology into curricula with the intent of positively influencing teaching-learning has been in a state of evolution over the past 20 years. According to Flanagan and Jacobsen (2003), technology integration is meant to be cross curricular rather than become a separate course or topic in itself. Innovative use of ICT can facilitate student centered learning (Drent, 2005). Hence, every classroom teacher should use learning technologies to enhance their student learning in every subject because it can engage the thinking, decision making, problem solving and reasoning behaviors of students (Grabe & Grabe, 2001). The study by Ertmer, Addison, Lane, Ross, & Woods (1999) offers one useful framework for making this connection. They identified three levels of teachers’ computer use, varying in their relationship to the existing curricula. These involve using ICT as:
a supplement to the curriculum,
a reinforcement or enrichment of the curriculum, or
a facilitator for an emerging curriculum.

However, these three categories help us to distinguish the positions of whole schools as well as individual teachers. This enables us to speculate about what the implications might be of various kinds of match and mismatch between a schools’ position and that of an individual teacher within it. The position is different again in schools where both teacher and school favor using ICT to promote an emerging curriculum. Evans (2002) and Richardson (2000) show such schools as learning organizations that are continually looking for ways of improving teaching and learning. A teacher functions within the framework of the school education system – its goals, curricula, materials, methods and expectations from the teacher. A teacher education curriculum framework needs to be in consonance with the curriculum framework for school education, and a teacher needs to be prepared in relation to the needs and demands arising in the school context. It needs to engage with the questions of the learner, the learning process and the content and pedagogy of educating teachers.

The main mission of the UNESCO Institute for Information Technologies in Education (IITE) is to reinforce national capacities in UNESCO Member States in ICT application in their education systems, to assist them in designing policies for integrating ICTs into education, improving national action plans, elaborating methodological materials, training and re-training of educational personnel on ICT application in education. In this regard, in Iran, there are several organizations that are responsible for ICT:

Development of Human Resources and Education Program- The National ICT Agency (NICTA) was established and is supervising and managing ICT developed to support and enhance the educational processes in governmental organizations, schools, universities, higher education, health, treatment and medical education and planning for expansion of ICT application to assess, classify IT enterprises and supervise software development activities and expansion of digital skills of Iran’s manpower (Kousha & Abdoll, 2004).

The Iranian Management and Planning Organization launch the ICT application development plan (TAKFA), to support the objectives (Karimian & Hosseini, 2004 cited in Fathi Vajargah, Jahani & Azadmanesh, 2010).

High Council of Informatics established to systemize information technologies (IT) and ICT activities. Its primary role is to assess and to classify IT enterprises and supervise software development activities.

In most of the countries technological activities take place during craft lessons. For example, in Austria technical education, in Estonia, craft and technology education, in Finland technical work is studied. In France, technological studies take place during science lessons at primary level and in the secondary schools science and technology is studied between ages 11 to 15. In Germany technology is studied in primary (first four years) during social studies and handicrafts lessons and in secondary (mainly in secondary general schools and comprehensive schools by boys, less at intermediate and grammar schools) during physics, chemistry, handicrafts, technical drawing, and computer science and work theory lessons. In some countries technology education takes place during primary education and in some others takes place at later stages of basic education. In Austria and Germany the secondary education differentiates to two or three parallel school systems, whereas, in Estonia, Finland and France the basic school system is comprehensive to all pupils. Also in Estonia and Finland craft is divided to technical and textile craft and all pupils are not always entitled to study
both. In the Finnish curriculum human being and technology and is one of the cross-curricular themes which should be considered in all subjects (Rasinen, Virtanen & Miyakawa, 2009).

A lot of studies revealed that how curriculum can affect on learning or lack of it is an obstacle in using Educational Technology in the classroom. For example Dadpour (2004) criticized the barriers in using Educational Technology in the teaching-learning process in view of high school teachers. The results demonstrated some obstacles such as the disproportion between the curriculum, content of books, devoted time and the lack of in-service, pre-service classes for it. Hendricson et al. (2004) evaluated electronic curriculum implementation at North American dental schools. The survey found that E-curriculum implementation among North American dental schools was following the classic innovation pattern in which a few early adopting institutions proceed rapidly while the majority of potential adopters made modifications slowly. Various faculty-related issues were reported as implementation barriers including lack of time, skill, and incentive to develop educational software. Soleimani (2003) observed the obstacles in using Educational Technology in the teaching-learning process in view of guidance school teachers. The lack of suitable curriculum and the content of books for using Educational Technology was one of obstacles. Baradan (2002) criticized the barriers of using Educational Technology in perspective of girl high school principals in Tehran. The lack of educational curriculum, structural planning, the disproportion between the curriculums, the content of books & devoted time were named as barriers in using Educational Technology. Roschelle, Pea, Hoadley, Gordin, and Means (2000) indicated that the use of technology was more effective as a learning tool when embedded in a broader education reform movement that included improvements in teacher training, curriculum, student assessment, and a school’s capacity for change schools today face ever-increasing demands in their attempts to ensure that students were well equipped to enter the workforce and navigate a complex world. Mirheidari (1997) observed the barriers in using Educational Technology in the teaching-learning process from the perspective of high school teachers from 1996 to 1997 in Isfahan. Results showed the lack of proper curriculum planning as a barrier in using Educational Technology. Cavucci (2009) examined the barriers to integrating computer technology in middle school curriculum. The barriers which he found were lack of equipment, training, time, the students’ familiarity with computer technology and/or lack of computer technology in students’ homes, and the cost. Fathi Vajargah, Jahani & Azadmanesh (2010) studied Application of ICTs in teaching and learning at university Level: the case of Shahid Beheshti University. The main results can be noted that there are several challenges pertaining to ICT application in Iran such as lack of National Policy for using ICT in Higher Education, lack of adequate investments, cultural obstacles, financial challenges, lack of continuity in ICT use, and lack of systematic training and development programs, unfamiliarity of academics with software, which can be used in their teaching, lack of culture of working in web environment, and faculty and student disability in using ICT in teaching and learning refer to an important concept of "ICT competency" of faculty members in Iran.

In present paper, theoretical framework is constructivism. Constructivism is a philosophical view on how we come to understand or know (Rorty, 1991). This paper gets main information of lots of studies and believes that learning of other studies is constructing knowledge from one’s experiences rather than directly receiving information from the outside world (Resnick, 1989).

In spite of research studies in the past decades that have shown Educational Technology is an effective means for increasing educational opportunities and lots of affairs that different organizations in Iran do but there are many studies on not-using Educational Technology that they announced the improper curriculum and the content of books as obstacles in using Educational Technology by most of teachers in Iran. This research intends to arrive at a conclusion from the results of these studies through meta-analysis to find the relationship between the curriculum and the content of books and using Educational Technology by school and university teachers in their classes.

**Objective Of The Study**

To analyze the relationship between the Curriculum and Content of Books and the non-use of Educational Technology by Teachers of Schools and Universities.

**Hypothesis**

There is no significant relationship between the Curriculum and Content of Books and the non-use of Educational Technology by Teachers of Schools and Universities.

**Population And Sampling**

The population of the present study is all theses, articles and research works available during 1993-2009 on Obstacles in Using Educational Technology in Educational Systems in Iran. After reviewing about 51 articles, researches, and theses, 8 research studies with inferential statistics were chosen because they were suitable according to methodological issues. This constitutes statistical population of the study. This statistical population itself was considered as the sample of the study.
DESIGN AND METHODOLOGY

The present study is a quantitative review study (providing a report of primary research using statistical methodology) which is analytical in nature and involved the method of meta-analysis. As in primary research, a meta-analysis begins with a well-formulated question and design; meta-analysis is the statistical analysis of a large collection of analysis results of different studies for the purpose of integrating the findings (Glass, 1976) and draw conclusions.

The basic purpose of meta-analysis is to provide the same methodological rigor to a literature review that we require for an experimental research. By far, the most common use of meta-analysis has been in quantitative literature reviews. These are review articles or studies where the authors select a research finding or an effect that has been investigated in primary research under a large number of different circumstances. They then use meta-analysis to help them describe the overall strength of the effect, and under what circumstances it is stronger and weaker.

Methodology used in this research is based on the steps and process of Howitt and Cramer’s meta-analysis (2000):

**Define the variables of the study**

In this stage, the research variables were chosen in relation to the subject of the research. In the present research, after preliminary review of studies in the field of Educational Technology and discussion with certain experts as well as experienced teachers in the field, based on the common observation of the investigator as a teacher, the present variable was identified Curriculum and Content of Books, which is assumed to be influencing teachers of Schools and Universities not to use Educational Technology in teaching-learning process was identified as independent variable and the non-use of Educational Technology was considered as dependent variable, which is major focus of the research.

**Plan the database search**

The researcher planned the database search and prepared preliminary list of studies related to the topic through the available resources. The researcher planned the search for more number of relevant studies involving the chosen variables. In order to collect data and suitable studies for this research, the researcher went to the following sources* and prepared the preliminary list of 51 studies reported during 1993-2009 related to the selected topic: The Obstacles in Using Educational Technology in the Education Systems of Iran

**Sources**

visited Research Centers like the Institute of Education Ministry of Education and National Libraries.

visited a number of universities including Tehran, Isfahan, Allameh Tabatabai, Tarbiat Modarres, Khorasgan Islamic Azad University, Najaf Abad Islamic Azad University, Teacher Training centers, etc.


referred the list of studies conducted in other province research centers.


used the site of Training Institute, databases, indexed list and CDs like database of university of Mysore, database of different countries.

**Obtain research reports and select the studies for analysis**

The researcher obtained copies of research reports of all the listed 51 studies, reviewed them in detail and selected 8 studies with inferential statistics for analyses of data (required condition for meta-analysis). The list of all the studies selected was prepared with name of the researcher, year of research and title of the research.

**Subject to statistical analysis**

Then the selected 8 studies were subjected of statistical analysis, which again is based on the steps of Howitt and Cramer’ meta-analysis (2000). In order to get supported for the consolidated finding of meta-analysis and also to know the details about the variable regarding it influence the non-use of Educational Technology by teachers, an informal interview was.

**Calculation of Effect Sizes And Comparison**

A standard measure of Effect Size in terms of Pearson correlation coefficient (r) was calculated using appropriate formula for each of the relationship between the variables for each of the studies selected for this research. The list of all the 8 studies with the details of the year of research, name of researcher, sample size,
Effect Size formula, Calculated of Effect Size and z fisher was prepared in chronological order and is presented in table 1. The Effect Sizes of all the 8 studies were combined to get a Composite Effect Size. For this purpose, each effect size (r) was converted into a z – fisher (z, r) for the correlation coefficient using table 32.5 (Howitt & Cramer, 2000, p. 387) and the average of all the 8 z-fisher was found out. This average (0.699) was then turned back into Combined Effect Size by using same table 32.5 in the reverse mode, and it was found to be r = 0.82 (r).

Table1. Details of the studies (8) considered for the research along with their effect sizes and z(fisher)value

| Research code | Name of researcher | The title of research                                                                 | The year of research | The sample size | Effect size formula | Effect size  
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<tbody>
<tr>
<td>1</td>
<td>Ashraf Mirheidari</td>
<td>Obstacles in using Educational technology in the learning - teaching process from the perspective of teachers of Educational new system of high school in Isfahan in the year 1996-97</td>
<td>1997</td>
<td>300</td>
<td>r = \frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.08</td>
<td>0.080</td>
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<td>2</td>
<td>Ghodrate Hajhosseinlo</td>
<td>The survey of obstacles for using educational technology in teaching - learning process from the perspective of Khoy city Elementary teachers</td>
<td>1999</td>
<td>170</td>
<td>r = \frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.54</td>
<td>0.600</td>
<td></td>
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<tr>
<td>3</td>
<td>Reihaneh Baradaran</td>
<td>The survey and identify obstacles for using educational technology aids from the perspective of principals in the Girl high schools in Tehran</td>
<td>2002</td>
<td>100</td>
<td>r = \frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.86</td>
<td>1.290</td>
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<td>4</td>
<td>Toran Soleimanani</td>
<td>The survey of obstacles in the use of educational technology in teaching and learning process from the perspective of guidance school teachers in Ardebil city</td>
<td>2003</td>
<td>165</td>
<td>r = \frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.78</td>
<td>1.045</td>
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<tr>
<td>5</td>
<td>Fatemeh Soghra Dadpour</td>
<td>The survey of obstacles in the use of educational technology in teaching and learning process from the perspective of high school teachers in Ghaemshahr city</td>
<td>2004</td>
<td>240</td>
<td>r = \frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.78</td>
<td>1.045</td>
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<td>6</td>
<td>Yazden Moradi</td>
<td>The survey of obstacles of entrepreneurial attitudes of computer students in Tehran applications University</td>
<td>2007</td>
<td>319</td>
<td>\frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.23</td>
<td>0.230</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>Ayat Anbaj Chamani</td>
<td>The survey of obstacles in the use of educational technology in teaching – learning process from the perspective of high school teachers in district 8 -Tehran city</td>
<td>2008</td>
<td>285</td>
<td>\frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.74</td>
<td>0.950</td>
<td></td>
<td></td>
<td></td>
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<td>8</td>
<td>Daryosh Bahadori</td>
<td>The survey of obstacles in using educational technology in teaching and learning process from the perspective of the professors of Rodhen Azad university</td>
<td>Not reported</td>
<td>285</td>
<td>\frac{\chi^2}{n} \sqrt{n+df}</td>
<td>0.35</td>
<td>0.360</td>
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<td>Average</td>
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<td></td>
<td>0.82</td>
<td>0.699</td>
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</tbody>
</table>

Table 2. Calculation of the significance level of all the 8 studies considered for the research

<table>
<thead>
<tr>
<th>Research code</th>
<th>p</th>
<th>z</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0/01</td>
<td>2/32</td>
</tr>
<tr>
<td>2</td>
<td>0/03</td>
<td>1/88</td>
</tr>
<tr>
<td>3</td>
<td>0/03</td>
<td>1/88</td>
</tr>
<tr>
<td>4</td>
<td>0/01</td>
<td>2/32</td>
</tr>
<tr>
<td>5</td>
<td>0/01</td>
<td>2/32</td>
</tr>
<tr>
<td>6</td>
<td>0/05</td>
<td>1/64</td>
</tr>
<tr>
<td>7</td>
<td>0/01</td>
<td>2/32</td>
</tr>
<tr>
<td>8</td>
<td>0/01</td>
<td>2/32</td>
</tr>
<tr>
<td>Average</td>
<td>6/02</td>
<td></td>
</tr>
</tbody>
</table>

The Significance Of The Combined Studies

Hypothesis was tested by considering the probability value for the combined effect size for all the 8 studies considered for the research. For this purpose, the corresponding z score for the given probability (p) value of each study considered for the research was taken from the table 32.4 (Howitt & Cramer, 2000, p.386).
Then, the average of all the 8 z score was calculated using the formula $z = \frac{\sum x}{\sqrt{n}}$ and the corresponding p value for this average was noted as the significance level. The corresponding details are presented in Table 2. This table shows that the average of Z score is 6.02 that it's corresponding to $p = 0.00001$.

**Testing Of Hypothesis**

There is no significant relationship between the Curriculum and Content of Books and the non-use of Educational Technology by Teachers of Schools and Universities.

<table>
<thead>
<tr>
<th>Table 3. Analyzing the effect size of forth hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statistic indicator</strong></td>
</tr>
<tr>
<td>Independent hypothesis</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>There is no significant relationship between the Curriculum and Content of Books and the non-use of Educational Technology by Teachers of Schools and Universities.</td>
</tr>
</tbody>
</table>

According to Table 3, the hypothesis was rejected as the combined effect size (0.82) of all the 8 studies was found to be significant at 0.00001 level (Cohen's table). Hence, it was concluded that the non-use of Educational Technology in teaching-learning process is significantly related to the Curriculum and the Content of Books. In other words, it is said that, the lack of appropriate Curriculum and the Content of Books to Use Educational Technology in the classroom transaction had significantly influenced Teachers of Schools and Universities not to use Educational Technology in teaching-learning process.

**CONCLUSION**

The result of this study shows that there is a direct correlation between the curriculum and the content of books and the non-use of Educational Technology or ICT. Being appropriate curriculum and content of books in considering Educational Technology or ICT, the teachers use it in their classes and vice versa if they don't have curriculum, and the content of books are not be prepared for ICT, they don't or can't use it. This result is in the line with the results of studies of Mirheidari (1997), Hajhosseinio (1999), Ertmer et al. (1999). Roschelle et al. (2000), Baradaran (2002), Soleimani (2003), Dadpour (2004), Hendricson et al. (2004), Moradi (2007), Anbaj Chamani (2008), Fathi Vajargah, Jahani & Azadmanesh (2010) and Bahadori (n.d.).

In the process of teaching-learning, two factors that have the key roles are the Curriculum and the Content of Books suitable to the present day needs and demands of the society as well as recent development in the field of education. This being the era of computers and technology, there is a great demand for the use of Educational Technology / ICT in all walks of life and so also in the field of education. As such, the Curriculum and the Texts of Books are revised to make provision for the inclusion of ICT/ Educational Technology content (both theory and practice) in them. This is also supported by the opinion of certain experts and experienced teachers of schools and universities with whom an informal discussion was held by the investigator. They opined that the present Curriculum and Text Books do not lend much for the compulsory use of Educational Technology in classroom transaction and as such teachers also do not show much interest in using Educational Technology to promote effective learning among students.

In Iran, because there is no inclusion of ICT in Curriculum, the teachers teach based on their experiences and there is no sign of using Educational Technology in the Content of Books. So Many Studies reveal that the Curriculum and the Content of Books as an obstacle to Use Educational Technology in educational settings. At first, changing the Content of Books and Curriculum based on Educational Technology is a must for using Educational Technology at classes for the progress of education level. Then, it is necessary for teachers to know how one could implement ICT in the Curriculum. Teachers of today should realize the significance and need for presenting different learning experiences so as to overcome the individual differences among pupils and make attempts to effectively use media and methods generated by Educational Technology. They must be given opportunities for acquisition of new knowledge. This can be made possible by promoting ICT based training programs introduced in their Curriculum. There needs to be a shift in pedagogical approaches and reform of teacher education programs. Necessary skills and the level of future teachers' readiness are key factors in implementing new ICTs. Therefore, schools of teacher education play a crucial role in preparing future teachers to become proficient in the integration of ICTs into the Curriculum. It is important to recognize the different types of teacher education Curriculum and associated differences of purpose, impact and in this line, leaders should be aware of those needs.
As it has been seen in research findings, it can be noted that there are several challenges pertaining to ICT application in Iran such as lack of proper National Policy for using ICT in education, lack of continuity in ICT use, and lack of systematic training and development programs and lack of writing and editing the school books according to ICT and so on. Also, it should be considered that the education system of Iran is centralized and, all general decisions are making at central level. Among different programs assigned to education system, ICT application is an important one. The teacher has an important role to play in the teaching-learning paradigm shift, with ICT facilitating the development of a higher level of cognitive skills in evaluating arguments, analyzing problems and applying what is learnt. Hence, it is important and need of the time for teachers to have practice and learning in ICT during their pre-service experience. While the curricula and teaching methods are important, it is necessary to know how one could implement ICT in the curriculum. Teachers should realize the significance and need for presenting different learning experiences so as to overcome the individual differences among pupils and make attempts to effectively use media and methods generated by Educational Technology. They must be given opportunities for acquisition of new knowledge. There needs to be a shift in pedagogical approaches and reform of teacher education programs. According to Spillane (1999), teachers who have a strong engagement towards their own professional development are more motivated to undertake activities, which lead to a better understanding of the goals of an innovation. Hence, having a recognition system for innovative and effective use of ICT integration in schools will motivate teachers to use ICT in teaching. Increasing the quality of teaching and learning has been an important concern for education. Integration of ICTs enhances the quality of education by helping teachers to do their job and by helping students to learn more effectively. Necessary skills and the level of future teachers’ readiness are key factors in implementing new ICTs. Therefore, schools of teacher education play a crucial role in preparing future teachers to become proficient in the integration of ICTs into the curriculum. They need to help prospective teachers understand how ICTs can be used to teach content in rich and meaningful ways (Keating & Evans, 2001). It is important to recognize the different types of teacher education curriculum and associated differences of purpose and impact and in this line, leaders should be aware of those needs.

Suggestions

To enhance the utilization of Educational Technology for educational purposes, the government needs to plan this process step by step. In the curriculum, enough time scheduled should be considered for teaching a subject integrated with Educational Technology and the content of books integrated with it. National or state curricula guidelines are planned in the university and school curricula, the written university or school curriculum is implemented during lessons, craft education and technological contents developed towards modern technology in different subject areas and it should be tried to integrate different subjects from this point of view. The most effective way to guarantee technology teaching would be to develop a new school subject. For using and applying ICT in Curriculum, each education system can have digital libraries and internet-based information for enrichment of curriculum content and process, share and interchange learnings and experiences among education systems -university, school,...., pay attention to students' interests and needs in curriculum decision-making through ICT needs assessment, have ICT presentation of curriculum before and during the semester, use email in teaching - learning activities, exert different assessments like Web-based diagnostic, formative and summative assessments, apply supplementary soft ware for effective teaching - learning, have a feedback system, provide digital leaning materials (e-books, handouts ...) , design books according to ICT and provide soft wares according to them.

By employing university and school teachers, the government should set pre-service classes to familiarize them with new knowledge, theories, skills related to Educational Technology and computer, internet, etc. and proper curriculum according to it and their usefulness in teaching-learning process. At the beginning of employment, they are enough young to accept the new knowledge. During the in-service classes the government should update them according to new knowledge and inform them that for professional development they must integrate Educational Technology with teaching process and curriculum and the content of books. This must be re-organization of teacher education (pre- and in-service), development of learning materials and careful analysis of learning contents should take place and emphasize more on knowledge and skills related to Educational Technology.

The government should provide the funds and needed facilities, technical support for this purpose and administrator's support is a very important factor for teachers to use Educational Technology. He/she should support them in different aspects as possible.

More researches are needed in the developing countries to assess their integration of digital technologies into the curriculum implementation process and the content of books.

If Educational Technology is to improve institutional effectiveness and efficiency, therefore their application in support of teaching—learning should be seriously considered in every aspect.
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