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The study of elements of curriculum in smart schools

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Abstract

The age of information is the result of the human transformation from the industrial age to its entrance to the third millennia and this change requires new methods of education which is not in sync with the present teaching methods. It is quite essential for the educational elements to keep up with the latest changes as well as curriculum. Smart school's new approach consists of a mixture of ICT with curriculum that bring about changes in teaching – learning process. There is an eclectic attitude in such schools along with using computer for teaching and learning. At the same time it activates the student's flexibility to be cooperative with the other learners to use ICT to be productive concerning the contents of teaching as well. This type of curriculum prepares a background for the learner to activate individual capabilities to increase their experience and expand their independence rather than indoctrinating them with a specific piece of knowledge. This article focuses mainly on describing the role of ICT and its effect on the curriculum concerning smart schools. The method employed for this research is based on library, documents, sites and E-magazines.

Keywords: smart school, ICT, curriculum

1. Introduction

The term ICT is used to cover a range of tools and equipment. ICT includes the hardware and software devices and programs that allow people to access, retrieve, store, organize, manipulate, and present information by electronic means (such as personal computers, assistive technology, scanners, digital cameras, multimedia programs, image editing software, database and spreadsheet programs). It also includes the communication equipment through which people seek and access information (including the internet, video conferencing, and the range of assistive technologies). ICTs provide a means for overcoming historically intractable problems of isolation and lack of access to information and knowledge, crucial impediments to educational development. ICTs have reshaped the educational landscape by transforming the content and modes of delivery/acquisition of learning as well as how the educational institutes operate (Tella, 2002). ICT changes teaching and learning through its potential as a source of knowledge, a medium to transmit content, a means of interaction and dialogue. Thus, ICT is both a cause of change and a means of achieving it (NCCA, 2004). The use of new technology has brought high potentiality in technology-based education which can be effective in the process of teaching-learning and also offer exciting new possibilities to promote the changes in education methodologies. We can observe constant usage of ICT in smart school education. Smart schools are types of schools that are flexible towards the students’ characteristics and abilities. In smart schools, learners are not expected to adapt themselves to the necessities of such schools. This issue indicates the importance of the modern pedagogy.
2. Curriculum

The term *curriculum* has numerous definitions. Some educators see the numerous and diverse definitions as a problem (confusion perpetuated, chaos within the field, etc.), while others suggest that when analyzed carefully, these definitions differ little (Kridel, 2010). The study of curriculum changes shows this fact that focus on curriculum as a special field and also as a curriculum planning started in the beginning of 20th century with a book written by Franklin Boobbitt. Since then, curriculum contents have seen many changes due to various development. However, different definitions have been applied to curriculum, but according to a simple definition: curriculum consists of issues and educational materials taught by the teacher (Yarmohammadian, 1998).

2.1 Characteristics of curriculum based on ICT:
1. It provides the use of combinational curriculum.
2. It enhances the importance and reliability of curriculum contents.
3. It increases the learner’s interest.
4. It provides knowledge with suitable structure.
5. It increases the efficiency of curriculum.
6. It enhances the students learning abilities.
7. It increases the flexibility of curriculum.

3. Curriculum elements in smart schools

Curriculum is made up of elements which their appropriate coordination would guarantee the success of a curriculum. There is no consensus between the experts on elements of curriculum, but the most four common points of view concerning this issue are: objective, content, method and evaluation.

3.1 Objective

The National Research Council of the U.S. defines learner-centred environments as those that “pay careful attention to the knowledge, skills, attitudes, and beliefs that learners bring with them to the classroom” (Founts, 2000). Since smart schools are learner-centred, students play more important roles in determining educational tasks and with the aid of their teachers form their objectives. Table 1 below shows the educational objectives in smart schools.

<table>
<thead>
<tr>
<th>System Approach</th>
<th>Smart System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational</td>
<td>Providing all-out</td>
</tr>
<tr>
<td>Objectives</td>
<td>student development</td>
</tr>
<tr>
<td>In all aspects</td>
<td>With the help of teachers</td>
</tr>
</tbody>
</table>

3.2 Content

ICTs such as videos, television and multimedia computer software that combine text, sound, and colourful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process. In smart schools, learners have easy access to school resources and networks. The learner can use both electronic contents and teacher’s own created materials. Content material is planned according to the learner capabilities. Equal consideration of learners ability by the teacher could be an obstacle in learner creativity, which leads to learners frustration. For example, in a class of 40 students, there could be 40 different educational environments so that every learner acquires more material by interacting with each other. Through this method, weaker students have a better chance of improving themselves. Table 2 blow shoes the curriculum content in smart schools.
Table 2. Curriculum Content

<table>
<thead>
<tr>
<th>System Approach</th>
<th>Smart System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of material</td>
<td>Unlimited and assorted</td>
</tr>
<tr>
<td>Student participation in creating subject materials</td>
<td>Group activity and interaction</td>
</tr>
<tr>
<td>Subject material resources</td>
<td>Various sources for Individuals (e-books, internet,…)</td>
</tr>
</tbody>
</table>

3.3 Methods (teaching – learning activities)

With the aid of multimedia technology, students will be encouraged to gain access to learning materials by themselves and be independent from their teachers (self-accessed), to learn according to their own pace and capability (self-paced), and to explore topics of interests without being tied down to a rigid syllabus (self-directed learning) (MMoE, 2003). Through this method of learning which is audio-visual the learner can remember the material for a much longer period of time. All the traditional concepts have been replaced by student-centred learning, active knowledge construction and critical and creative thinking (yen, 2005). Research by Young (2003) revealed that the new technology was very useful in providing a less stressful environment for the students to express their opinions and thoughts freely. Therefore, the use of ICT in teaching-learning has the following advantages:

1. It will remove the obstacles for the teachers and learners and facilitates the interaction between them.
2. It could be a motivation for new teaching methods.
3. It will create an environment in which cooperation surpasses competition.

Table 3 below shows the teaching-learning activities in smart schools.

Table 3. Teaching – Learning Activities

<table>
<thead>
<tr>
<th>System Approach</th>
<th>Smart System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method used in teaching-learning process</td>
<td>Audio – Visual</td>
</tr>
<tr>
<td>Student participation in teaching – learning process</td>
<td>Group work (student-centred)</td>
</tr>
<tr>
<td>Teaching – learning environment</td>
<td>Unlimited (student-centred)</td>
</tr>
<tr>
<td>Teacher role</td>
<td>Managing educational environment</td>
</tr>
</tbody>
</table>

3.4 Evaluation

Curriculum evaluation refers to the process of placing value on a curriculum. Evaluation may focus on a curriculum’s design, including content and process; its implementation; or outcomes. Evaluation in smart schools is not limited to any particular subject, and is done on a daily basis. Learners are constantly responsible for their own evaluation in order to construct learning methods which are suitable to their interest. The purpose of evaluation in these kind of schools is to help learners by providing:

1. Feedback on their own performance.
2. Recognition of strengths and weaknesses.
3. Enough information for decision-making.

The outcome of the evaluation in smart schools are facts and figures and precise information to help learners to achieve their educational goals.
Table 4 below shows the evaluation in smart schools.

<table>
<thead>
<tr>
<th>System Approach</th>
<th>Smart System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of evaluation</td>
<td>Tool to show to what degree they have achieved their educational goals</td>
</tr>
<tr>
<td>Date of evaluation</td>
<td>Continual and without time limitation</td>
</tr>
<tr>
<td>Result of evaluation</td>
<td>Facts and figures to achieve their educational goals for the whole class</td>
</tr>
</tbody>
</table>

4. Conclusion

It seems essential that pedagogy and its elements such as curriculum changes according to technological development. Despite the many difficulties in implementing ICT in schools, research also shows that students and teachers welcome ICT policies in schools and believe the technology could be useful in raising standards in teaching and learning (BECTA, 2001; Kington, 2003). Using ICT in smart schools enables students to produce creative solutions to support learning and develop new understanding in areas of learning (Curriculum Corporation, 2006). For integrating curriculum elements with ICT characteristic, you should consider establishing smart schools. In smart schools teachers are not mere educators, group works are encouraged, students learn according to their own pace and capability, students can gain access to learning materials through the Internet. Integration of curriculum with ICT has brought us a lot of advantages such as the increase of the importance and reliability of curriculum contents, making the curriculum content more flexible, promoting learners interest, and enhancing curriculum usefulness with the possibility of exploiting a combinational curriculum to teach the learners. ICTs allow learners to explore and discover rather than merely listen and remember.

References

In the Irish Context: A discussion paper