The advantages and disadvantages of using multimedia in education

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الملخص:

مع التطور السريع والواسع لاستخدام احدث التقنيات في الاتصالات, اصبح استخدام الوسائط المتعددة في التعليم والتعلم مهم جدا. الوسائط المتعددة تشمل استخدام الصور, الحركة, الفيديو والصوت في اعداد المناهج للطلاب لكافة المستويات في التعليم (الابتدائي, الثانوي والجامعات). هدف هذا البحث هو تسليط الضوء على بعض الفوائد والمساوئ استخدام الوسائط المتعددة في التعليم ومقارنته مع الطرق التقليدية. بالاعتماد عل مراجعة بعض الدراسات السابقة المتعلقة باستخدام الوسائط المتعددة , هذا البحث حدد مجموعة من الفوائد والمساوئ من وجهة نظر الطلاب والمدرسين. وبصورة عامة استخدام الوسائط المتعددة تطور وتحسن العملية التعليمية بشكل كبير جدا.

Abstract

With the fast development and wide use of the latest technologies in communication, multimedia has become very important technique used in teaching and learning in education process. Multimedia includes using text, images, animation, video and audio to prepare courses for students in various levels of education (primary school, secondary school and universities). The objective of this article is to point to some advantages and disadvantages of using multimedia in education and compare it with traditional methods. Depending on revising some of the previous studies regarding multimedia, the article highlighted bunch of advantages and disadvantages from the teachers and students point of view. In general using multimedia improves and enhanced the learning and teaching process dramatically.

1- Introduction

Since the last century, the computer technology has witnessed an enormous development. Due to this expositional development, the computer technologies became very important in all different fields such as accounting, scientific researches, social communications, medicine, sports, weather forecasting, fashions, engineering, can manufacturing, education and so on. This widespread use of the computer due to many reasons such as the making jobs easier, more accurate, more effective and faster in addition to many other advantages. The improvement of the computer technology leads to improve many other technologies like digital TV, Mobile phone, networks, internet, audio devices, video devices ..etc.

The noticeable matter that this technology became usable for all different ages. To cope with this raised wide spread of these technologies, it is very important to include computers in education.

Nowadays, the old traditional methods and aids of teaching are not effective any more. So using multimedia in education became a must these days to improve the teaching and learning process. There are various ways to define multimedia but the simplest well-known definition is

an integration of multiple media elements (audio, video, graphics, text, animation, etc.) into one synergetic and symbiotic whole that results in more benefits for the end user than any one of the media elements can provide individually. [1]

2- Educational technology

Educational Technology also called "Learning Technology", mainly comprise of the use of technology in the process of teaching and learning. the term Technology in education refers to the use of different modern tools and techniques like laptops, interactive whiteboards, and smart phones; internet, WiFi, and YouTube etc., but also includes efficient and enhanced learning management systems, schematic of information distribution, effective teaching

and management of students, feedback mechanisms and performance evaluation methodologies etc. [2].

2.1 The traditional teaching and learning approaches

In the old days, the teachers have to create many means to attract the student attention to stimulate learning. They were use almost three means for description the numbers, words and pictures. In some cases not all these means were used, could be only one of these means are appropriate for the current status and the others are not. Both the students and the teachers in the classroom depend on words, pictures and numbers to merge ideas.

The concept of multimedia captures these many ways video, still images, text and sound in which words, pictures and numbers can be delivered for the purpose of assigning meaning. Figure (1) shows the components of multimedia. The concept also captures the technologies used to store, edit, project, and transmit the data that are the raw material of meaning [3].
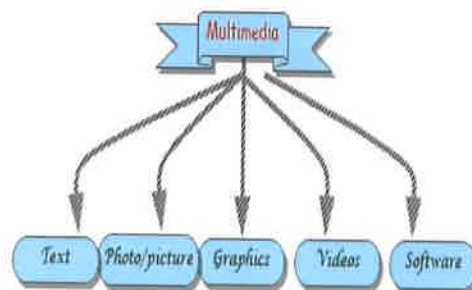

Figure 1 multimedia components. Source:(http://enestalmalambo.blogspot.com/)

2.2 Multimedia in education

The growth of information and communication technology (ICT) in society is reflected in policies to encourage the use of ICT in education and the development of educational multimedia. As the role of educational multimedia increases, it is increasingly important to have an idea of the potential it gives for teaching and learning [4].

Students who have access in their home to new methods and tools of education through computers, interactive learning, etc. may have also different and more potential to absorb those technologies while used in the school educational system. Teaching methods is the subject of many research papers in this field in trying to evaluate methods to improve students' ability to be interactively be involved in the class. This seems to be particularly necessary in the current Internet, wireless, etc. connectivity environment where students can be distracted through having or using those tools. Through providing the ability for students to use those tools in their education besides using them for entertainment or social activities, this may have positive impact on education.[5] Multimedia provides a technology based beneficial learning environment [6]. The students are capable of solving problems by depending on their self which is called self-explorations method, collaboration and active participation. Media materials like still and animated graphics, video and audio in addition to simulations and models are integrated in a designed manner. These tools assist the learning of new knowledge much more effectively. Some argue that multimedia and e-learning tools can be used as a supplement to traditional classes (and not as a replacement).[7] Using interactive multimedia in the teaching process is a growing phenomenon. It plays a very important role in assisting students in learning processes. Therefore, it can be concluded that the Multimedia enhance and enable students to learn in a more effective way.

On the other hand, using multimedia in the learning process enforces the researchers to put more efforts to create new programs using multimedia elements and multimedia authoring tools to fulfill a content-rich learning software. [5]

Many researchers study the impact of using multimedia in teaching different fields of education such as life sciences [11], mathematics [12], languages [10] , engineering.. etc. All these researches achieved almost the same result which is,

teaching with multimedia outcome the traditional methods. Here are 20 potential outcomes to consider [9]:

1. Grab students' attention; 2. Focus students' concentration; 3. Generate interest in class; 4. Create a sense of expectation; 5. Energize or relax students for learning exercise; 6. Draw on students' imagination; 7. Improve attitudes toward content and learning; 8. Build a connection with other students and instructor; 9. Increase memory of content; 10. Increase understanding; 11. Foster creativity; 12. Stimulate the flow of ideas; 13. Foster deeper learning; 14. Provide an opportunity for freedom of expression; 15. Serve as a vehicle for collaboration; 16. Inspire and motivate students; 17. Make learning fun; 18. Set an appropriate mood or tone; 19. Decrease anxiety and tension on scary topics; and 20. Create memorable visual images.

2.3 multimedia characteristics

The characteristics of multimedia can be described as follows [2]:

1- Multimedia facilitates mastering basic skills of a student by means of drill and practice.

2- It helps in problem solving by means of learning by doing, understanding abstract concepts,

3- Provides an enhanced access for teachers and students in remote locations.

4- Facilitates individualized and cooperative learning.

5- Helps in management and administration of classroom.

6- Activities and learning content.

7- Simulates real life problem handling environments.

2.4- Online multimedia education

For remote areas, online electronic education is now being widely accepted as a major viable component of higher education. This is powered by the emergence of worldwide information and computer communications technologies. The acceptance of online electronic education in colleges, universities and corporate organizations is now pervasive. This is made possible largely by the emergence

and rapid development in worldwide information and computer communications technologies (networks). The initial disbelief with which online electronic education was greeted is now vanishing away. We are now witnessing not only the offering of a course or two online in traditional universities but the establishment of complete degree programs online and online universities [8].

2.4.1 The advantages of online education.

There are many advantages that online learning can offer to students and staff. It has provided the opportunity of Higher Education to those people which has difficulties with gaining education. Examples of those are: the disabled, living in rural locations, with work and family commitments, shy students who were previously intimidated by the traditional classroom, and often too nervous to voice their opinions, online chat-rooms have provided them with the confidence to do this [13]. In addition to many other advantages suggested by [14] such as 1. enhancing student-to-student and faculty-to-student communication. 2. Enabling student-centered teaching approaches. 3. Providing 24/7 accessibility to course materials. 4. Providing just-in-time methods to assess and evaluate student progress. 5. Reducing "administrivia" around course management.

2.4.2 The disadvantages of online education.

On the other hand, the disadvantages of online education from the educator point view. These are :-

1- Limited Social Interaction

A common disadvantage of online education is limited social interaction. While online students often engage peers in online discussions and interact with teachers via e-mail, this doesn't replicate the face-to-face experiences in a traditional classroom.

2- Lack of Structure

Self-disciplined students can benefit from the flexibility and convenience of online classes, but the lack of formal structure can be a pitfall for undisciplined or unmotivated students.

2.5 Multimedia Education: Universities Approach

In order to apply multimedia in education, the student must have enough knowledge of using multimedia tools. There are two ways in which multimedia education is taught to the students by various universities and institutions [2]:

a) Teaching methodologies of multimedia content creation, which include imparting hands-on skills of software packages used for creation and authoring of multimedia content.

b) Employing interactive multimedia content and technology for effective teaching, which include the various methods of engaged learning like multimodal interactive information delivery, personalized and enhanced access to the content anytime-anywhere.

Discussion

From the above sections, it is very clear that using multimedia in education plays an extraordinary role in improving the teaching and learning process in comparison with the traditional way. But there is a very important question should be asked here, which is, does using multimedia replaces teachers? In my humble opinion, no it does not. Because the teacher have to prepare the subjects materials and information then put them in a suitable multimedia presentation then upload it to the student online if necessary. In addition to guiding the student through the presentations if it is offline. So, teachers are not replaceable.

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