

Using Multimedia Technologies as a Current Trends on Social Sciences Education

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Abstract: Last decade's mere technology that includes only writing, speaking skills and static graphics were used but this technique is simple and inadequate for social sciences and its education. However, multimedia technologies include high, advanced and sophisticated technology. Such technologies are used a lot of field in social sciences education. These are showing up in every walk of education and every aspect of community; architecture, business, education as social sciences. Now multimedia technologies which are including video, audio, animation, interactive map, graphic, table, and GIS, RS technologies are used for social sciences education. These new techniques, which are based commonly on computer, provide good education and better learning. Proponents of multimedia and modern techniques show that they can change the way we understand, think, learn, and work; they have heralded it brings the end of printed books and static graphics. Advocates of modern methodology and tools, both in their research and educational applications, see them better than mere technology. Modern and last systems are garnering to increase attention in cartography, history and geography, although there is a paucity of literature on the prospects of multimedia as a research or educational method in history, and geography. They are used a lot of sample area which occurs our study subject. Some of them allow us to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts. They help people answer questions and solve problems by looking at people's data in a way that is quickly understood and easily shared.

This presentation describes an educational application of multimedia and modern tools for geography and history education as social sciences based on the assumption that multimedia and high and advanced technology are better than mere skill. As a result, the aim of this study is presenting some multimedia technology based on examples and applications in social sciences.

Introduction

The technological advancements have made society take a leap towards success. Every technological reform is a small step towards advancement. Every new invention in technology is a step towards progress of mankind. Centuries ago, hardly anyone would have even dreamt of working on a computer. Generations of the yester years would have hardly imagined being able to communicate with people on the other side of the globe. But there were some intelligent minds to dared to dream of such revolutionary discoveries and they made the impossible possible. Since several years ago, education experts had been proposing a new style of education involving using multimedia, which differs radically from the traditional ways. Changing the education systems as a new ways is towards a new paradigm for teach (Rosenberg, 2001). The development of multimedia technologies for learning offers new ways in which learning can take place in education areas. In last decades, there has been a growing

interest in the creation and use of multimedia technologies throughout the education world. There have been many experiments and innovations in the field of education and training regarding knowledge delivery (Tally, 2002). From face to face to virtual education, different technologies have played great roles at different times. In the last decades, due to the advent of multimedia technologies has got new meaning (Del, 1998; Moreno, 2000). Development, access, and transfer of text, sound, and video data gave given a unique face to education centers, in the form of multimedia learning. The development of multimedia systems can be very rewarding. So interest and investment in this technology are increasing and multimedia technologies are the need of the day (Bransford, 1990; Mayer, 1990; www.zwire.com).

This study reviews the use of multimedia technologies and is to provide a panorama of the application of multimedia technologies in social sciences education. As such, this page is addresses pedagogical issues and applications. The aim of this page is to highlight the range of innovative use of multimedia technologies in social sciences education with reference to their relative pedagogical value. This study is also hoped to awaken critical enthusiasm for an effective and beneficial implementation of the multimedia technology in the social sciences education. Particular emphasis is put on the history and geography sciences as a social sciences use of multimedia technologies (Brown, 1993; Ferry, 1993; White, 2006).

Multimedia Technologies as an Educational Tool

Throughout the 1980s and 1990s, the concept of multimedia took on a new meaning, as the capabilities of satellites, computers, audio and video converged to create new media with enormous potential. Combined with the advances in hardware and software, these technologies were able to provide enhanced learning facility and with attention to the specific needs of individual users (Fenrich, 1997; Meyer, 2001; Mayer, 2003).

Multimedia is a term frequently heard and discussed among educational technologists today. Now multimedia technologies these called "new media," "hypermedia," "integrated media," or more commonly "multimedia" have been defined in a number of ways. Actually the term "multimedia" covers a lot of territory. "Multimedia", in its broadest sense, means graphics, music, sound effects, voice, video, and animation, in any combination, in the same program or presentation (Blumenfeld, 1991. Fensham,, 1990; www.aare.edu.au).

It can be defined as 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. Multimedia can be defined generically as any combination of two or more media such as sound, images, text, animation, and video. For educational technology purposes, multimedia refers to computer-based systems that use associative linkages to allow users to navigate and retrieve information stored in a combination of text, sounds, graphics, video, movies, music, lighting and other media as for education (Meyer, 2001; www.wps.prenhall.com; Sandholtz, 1997; Vanbuel, 2006).

When the term is used with computer technology, multimedia refers to a variety of applications that combine media and that use CD-ROM, video, audio, DVD, and other media equipment. As it seen multimedia is the combined use of media, such as images, video, audio, CD/DVD-ROMs, the internet and interactive applications such as applets and flash for education and entertainment (Chang, 2004; Finn, 2002).

Multimedia hardware requirements include a basic computer system with the standard input devices, central processor, and output devices, CD-ROMs or DVDs, sound boards or cards, speakers, video boards, high-speed central processors, extensive secondary storage or hard disk (Lieshout, 2001; Millar, 2005).

Multimedia's basic technologies include text, maps, graphic images, electronic presentations, animation, videoconferencing, digital audio and video, web learning environment, videoconferencing systems (Lieshout and etc, 2001; Phillips, 1997; Behrens, 1996, 1997; Bijmens 2004, 2005; Cleveland, 1998).

As a result this study is used the term 'multimedia' quite loosely, referring to anything interactive or with visuals, audio, video. Multimedia combines five basic types of media into the learning environment; text, video, sound, graphics and animation, thus providing a powerful new tool for education (Duke, 1993). These are to demonstrate abstract concepts, to accommodate students with a variety of learning styles, to engage students, to enable active learning, by incorporating multimedia into learning, activities, students can manipulate, create and interact with material rather than just absorb representations created by others (Kearsley, 1998; Person, 2003).

Multimedia technologies have a lot of advantages such as; widely available, reusable, multimedia, and decrease pressure on lecturer, better individual student engagement, globality (Repman, 1993; West, 2006). These are fun and interesting, provide a pre question, and make description a narration, no need to include an image or video of the narrator, unless there's some demonstration. Do not include explanation in both text and narration styles, Give students chance to pause the video/audio and ask questions, Make the multimedia interactive, Provide pre training on key components, concepts in the multimedia to enhance students' understanding of the multimedia resource, Presenting more materials may result in less understanding (Mayer, Heiser, and Lonn, 2001; Mayer, Dow and Mayer, 2003; Wallace, 2006; www.clickandgovideo.ac.uk; www.buzzle.com).

Advantages and Benefits of Using Multimedia Technologies in Social Sciences Education

The pedagogical strength of multimedia is that it uses the natural information processing abilities that we already possess as humans. Our eyes and ears, in conjunction with our brain, form a formidable system for transforming meaningless sense data into information. The old saying that "a picture is worth a thousand words" often understates the case especially with regard to moving images, as our eyes are highly adapted by evolution to detecting and interpreting movement. For example, a photograph of Ganges in Varanasi, apart from being aesthetically pleasing, can contain a wealth of information relating to the culture, religion, geography, geology, climate, history, and economics of the area. Similarly, a recording of a politician's speech can allow us to discern significant semantic features not obvious in a written transcript (Sherin, 2002). For the student, one advantage of multimedia courseware over the text-based variety is that the application looks better. If the courseware includes only a few images at least it gives relief from screens of text and stimulates the eye, even if the images have little pedagogical value (Yadav, 2006). More often than not, the inclusion of non-textual media into courseware adds pedagogical value to the application. For example, a piece of courseware describing a dig at an archeological site would be more valuable to the student, if it included images of the site, such as enhanced aerial images showing features like old field boundaries, or diagrams illustrating where the digging and scanning took place. In this respect, using the text only, even in a creative way, has obvious limitations as compared to the use of both text and pictures (Jonassen, 1995; Kameyama, 2001; www.athensacademy.org).

Benefits to learners; work at own pace and control their learning path, learn from an infinitely patient tutor, actively pursue learning and receive, feedback. Provide students with opportunities to represent and express their prior knowledge. Allow students to function as designers, using tools for analyzing the world, accessing and interpreting information, organizing their personal knowledge, and representing what they know to others (Smith, 1993). Multimedia applications engage students and provide valuable learning opportunities. Empower students to Produce and design rather than absorbing representations created by others. Produce personally meaningful learning opportunities (www.tech4learning.com). Benefits to teachers; allows for creative work, saves time for more challenging topics, replaces ineffective learning activities, increases student contact time for discussion (Moursund, 1999).

Educational benefits of multimedia tools; giving students an opportunity to produce documents of their own provides several educational advantages. Students that experience the technical steps needed to produce effective multimedia documents become better consumers of multimedia documents produced by others. Students indicate they learn the material included in their presentation at a much greater depth than in traditional writing projects. There is another aspect to developing multimedia documents that empowers students. Students quickly recognize that their electronic documents can be easily shared. Because of this, students place a greater value on producing a product that is of high standard (Ambrose, -1991; Kinnear, 2002).

Applications and Case Studies Based Multimedia for Effective Social Sciences Education

Human knowledge and the study of the world and everything in it have developed over thousands of years. More recently, over only the last two centuries or so, accompanying the rise of industrialization and imperialism in the world, new methods, claims, assumptions, theories, and practices of knowledge production have emerged through the rise of specialized fields, usually referred to as disciplines. These disciplines can be further grouped together under broad umbrella categories: Math and Sciences, Engineering, Business, and Social Sciences, etc.

The Social Sciences can be said to be the study of human systems. There are various disciplines within this broad classification, all of which have developed their unique approaches over time, though with significant overlap (www.instruction.greenriver.edu). History, geography, anthropology, political science, psychology, sociology are main social sciences disciplines or Social science Sub-branches. Two sub-disciplines of social sciences (history and geography) are selected for the effective use of multimedia in social sciences education as a case study. History and geography described briefly below and their a few subjects are explained using multimedia as a key study. As mentioned earlier, multimedia learning integrates five types of media to provide flexibility in expressing the creativity of a student and in exchanging ideas. Out of all of the elements, text has the most impact on the quality of the multimedia interaction. Generally, text provides the important information. Text acts as the keystone tying all of the other media elements together. It is well written text that makes a multimedia communication wonderful. Sound is used to provide emphasis or highlight a transition from one page to another. Sound synchronized to screen display, enables teachers to present lots of information at once. A great advantage is that the sound file can be stopped and started very easily. The representation of information by using the visualization capabilities of video can be immediate and powerful. While this is not in doubt, it is the ability to choose how we view, and interact, with the content of digital video that provides new and exciting possibilities for the use of digital video in education (Young, 2002). Animation is used to show changes in state

over time, or to present information slowly to students so they have time to assimilate it in smaller chunks. Animations, when combined with user input, enable students to view different versions of change over time depending on different variables. Animations are primarily used to demonstrate an idea or illustrate a concept. Graphics provide the most creative possibilities for a learning session. Some of the prototype multimedia lessons are also given below as features of multimedia examples from two science branch.

History is the continuous, systematic narrative and research of past events as relating to the human species; as well as the study of all events in time, in relation to humanity. It is classified History as a Social science. History can be seen as the sum total of many things taken together and the spectrum of events occurring in action following in order leading from the past to the present and into the future (<http://en.wikipedia.org>). Historians are to interpretation of the past, how it affects our views of the present, understanding trends or the lack thereof in the past. The subject in the history lesson was selected Canakkale wars into Turkey in the 20 century. To deeply understand it, the teacher thought that remembering the names of famous historical people, events and their activities was not sufficient and that it was important to provide multimodal information through images and moving ships, pictures, including sound and speech. For the student, graphics, animations, a replica of war equipments were prepared. Famous ships and geographical locations in Gelibolu (Gallipoli) were illustrated and presented (Figure 1-6). These videos consist of high degree of reality and visualization.



Figure 1: April 25th 1915 04.00, Sector Seddülbahir.



Figure 2: April 27th 1915 Turks and Anglo-French troops' position.



Figure 3: August 6th -10th 1915 Anafartalar Battles.

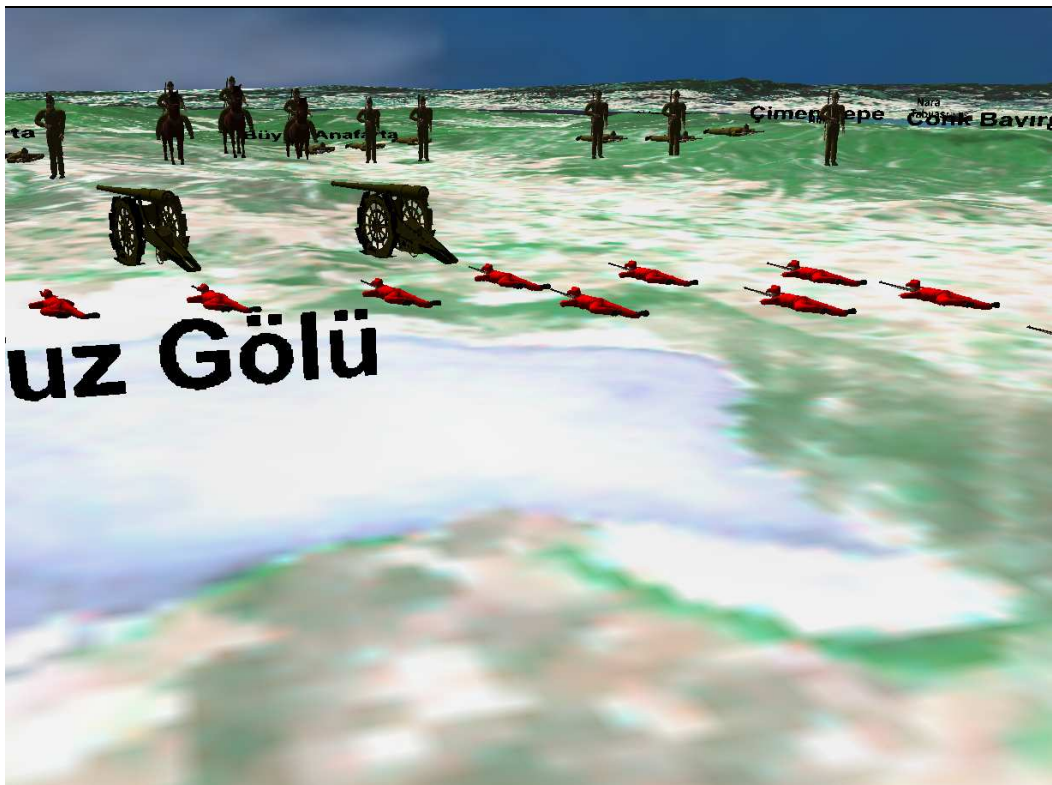


Figure 4: August 6th -10th 1915 Anafartalar Battles (Last Day).



Figure 5: February 1915, Limni, Allied Preparations for Gallipoli Landing.



Figure 6: March 1915, Turkish Preparations for Coastal Defense.

Geography as a discipline can be split broadly into two main sub fields: human geography and physical geography. The former focuses largely on the built environment and how space is created, viewed and managed by humans as well as the influence humans have on the space they occupy. Human geography focuses on fields as diverse as cultural geography, transportation, health, military operations, and cities. The latter examines the natural environment and how the climate, vegetation, soil, water and landforms are produced and interact. Geographers attempt to understand the earth in terms of physical and spatial relationships. The first geographers focused on the science of mapmaking and finding ways to precisely project the surface of the earth. In this sense, geography bridges some gaps between the natural sciences and social sciences. Modern geography is an all-encompassing discipline that seeks to understand how the world has changed in terms of human settlement and natural patterns. Practitioners of geography use many technologies and methods to collect data such as remote sensing, geographic information systems, aerial photography, statistics, and global positioning systems (GPS)

(www.hudtech.net). Geography lessons use many map, animation and video, etc... as a social sciences. One of them is enlargement European Union map according to years by years. Other animation examples are Pangea, earthquakes, faille, the Himalayas forming, chine earthquakes and, river morphology; tectonics is selected for video sample (Figure 7-19). Animations represent medium for simulation, can visualize abstract relations, to explain concepts and procedures that requires movement that cannot be filmed, movements in the universe or within a body, figurative movements such as ideas, economic tendencies can be clarified through moving graphs. Videos represent high degree of reality and visualization can show practices that take place over a long distance or period. Video and animation can be viewed on demand. The student himself has control over the material and can work on his own pace, by navigating through the subject matter. In multimedia information that is being presented both visual and in audio, is better understood and remembered. It is easier to learn through different channels. However, these channels cannot appear separate from each other. It is better to present video and text on the same subject together on the page than to put them in different folders. However, make sure you always think of the material's relevance in order not to overload the senses. The advance of digital television and the key word interactivity as the prerequisite for good educational practice came together in the demand for totally integrated use of videos in education. From the mid nineties, the web reinforced further the ideas of accessibility and interactivity, but added a new element, integration. This refers to interlinking with other web materials including communication and collaborative tools. This trend, in which several types of media in education are combined is called "Multimedia or hypermedia Learning". The streamed video is then part of a whole package of educational material, like for instance printed documents, websites, PowerPoint presentations etc. There are plenty of possibilities of elaborating a simple video by means of other tools and methods.



Figure 7: Enlargement European Union map

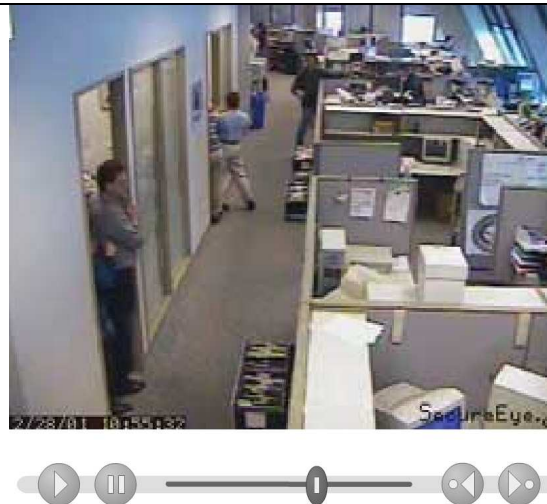


Figure 8: Inside during to earthquake

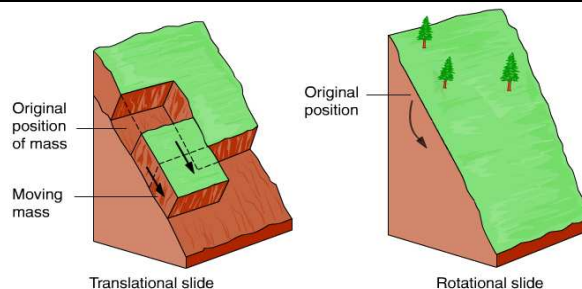


Figure 9: Land slide

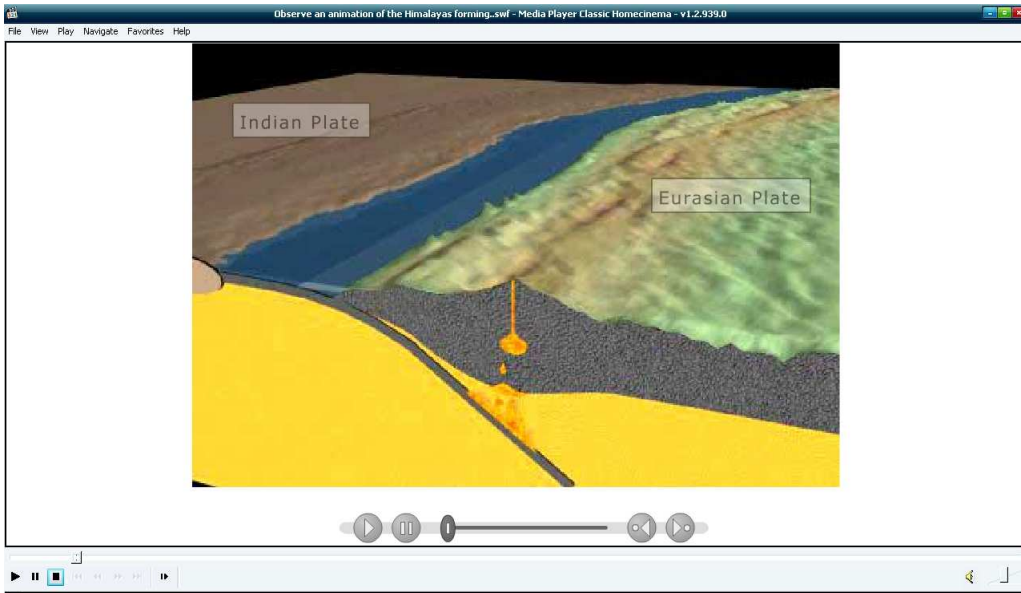


Figure 10: Convergent Plates, Subduction Zone

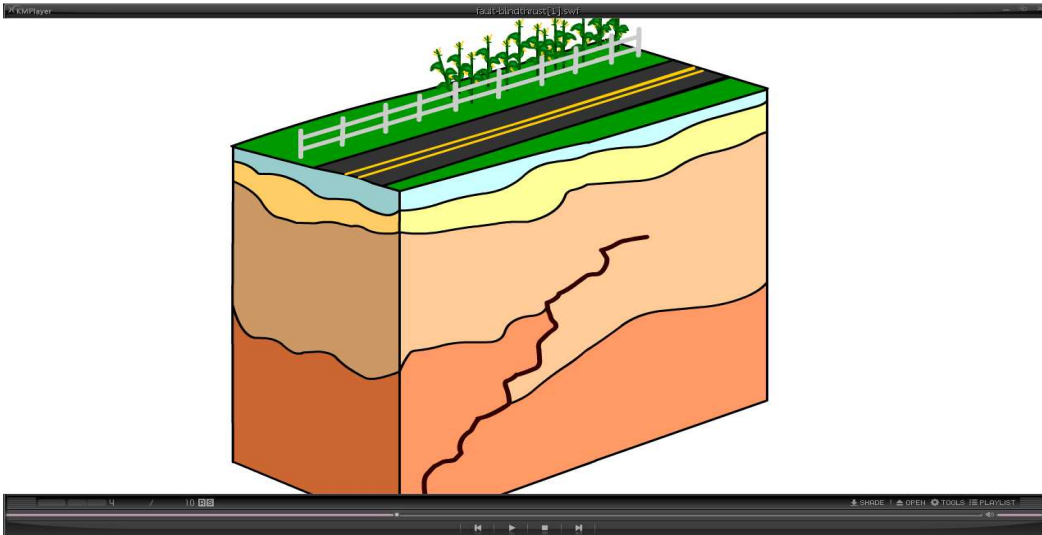


Figure 11: Fault and Earthquake

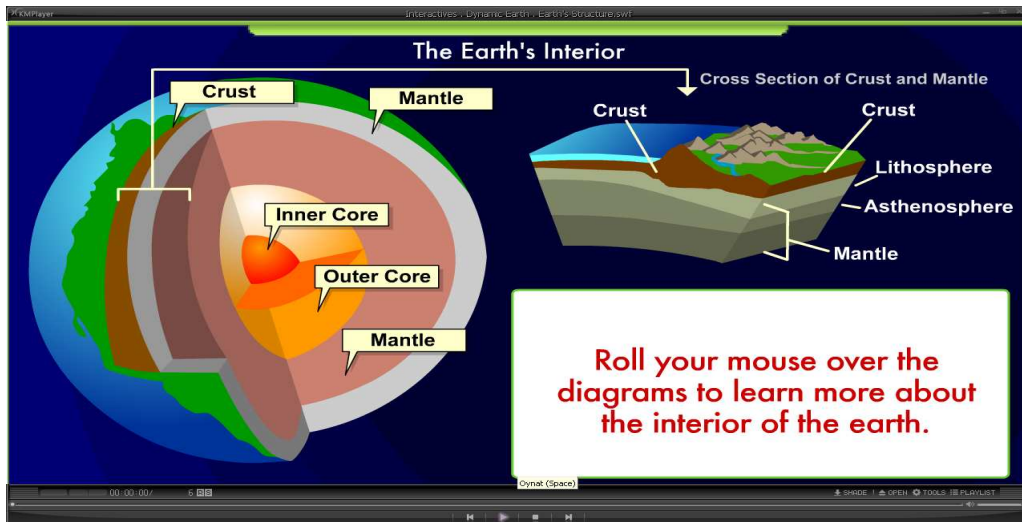


Figure 12: Inside the Earth

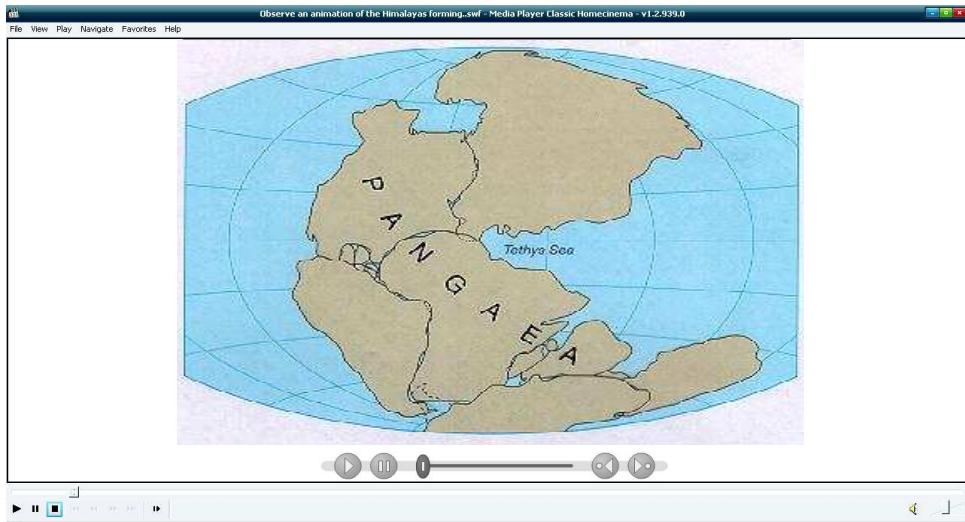
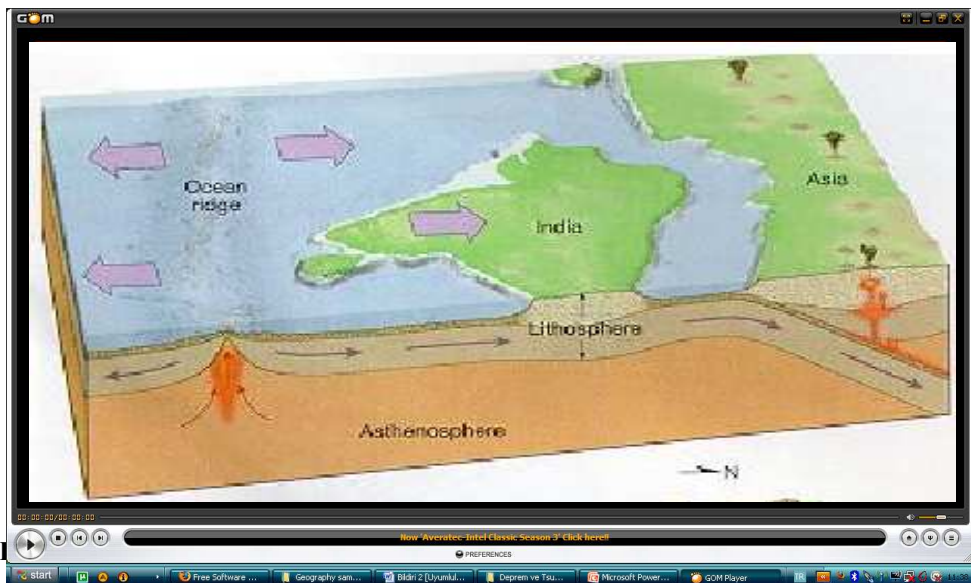


Figure 14: Tectonic



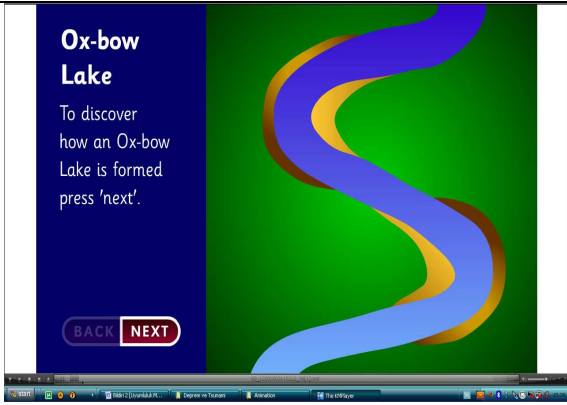


Figure 16: Meandering river and ox-bow lake

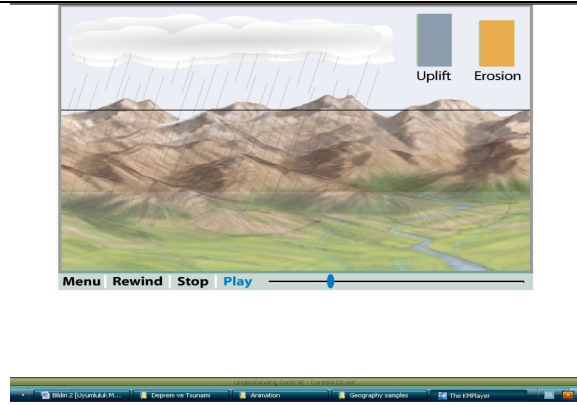


Figure 17: Fluvial processes and its relief



Figure 18: Earth Systems and Processes



Figure 19: Plates

Feedback Score

80 students have been given the new style of lectures in which “multimedia technologies” are mainly used. First of all, students were asked what they are thinking about the new style of lectures. As Figure 20 shows, quarter of the students find no change about the progress speed of the lectures, whereas 75% of them feel it increasing. Figure 21 shows that almost 15 percent of the students think there is no change in terms of intelligibility, while the rest of them are divided into both sides. The change in the amount of contents of the lectures that the students must learn is shown in Figure 22. Where 20% of the students think there is no difference, while the rest of them think it increased than those who think it decreased. Figure 23 shows how easy the students feel to ask teachers questions. 90% of them feel difference, but those who feel uneasiness exceed the opposite. Figure 24 shows that almost 90% of the students think there is good and enough in term of Pedagogy, while the rest of them is not enough. According to Figure 25, approximately 90% of the students think their attitudes to course have changed. This result might mean that the students much learn because of the implementation of multimedia equipments. As a result feedback is positive and appropriate to the intended student population. Feedback does not threaten or reward incorrect responses. Feedback is relevant to student responses, Feedback is corrective when appropriate, and Feedback remedies and explains when appropriate. Feedback employs a variety of responses. Feedback remains on the screen for the appropriate amount of time; branching is used effectively to remediate.

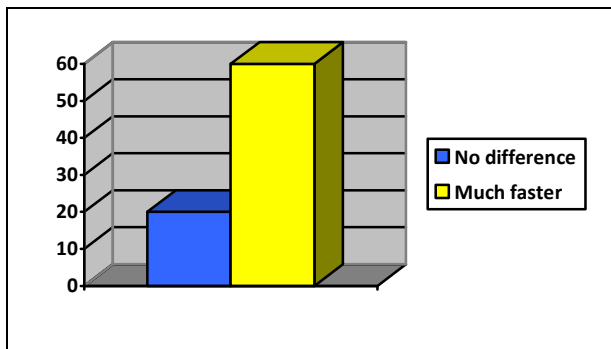


Figure 20: What do you think about the progress speed?

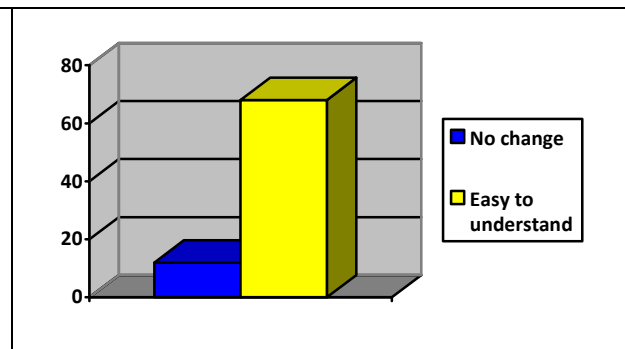


Figure 21: What do you think about the lectures using the devices?

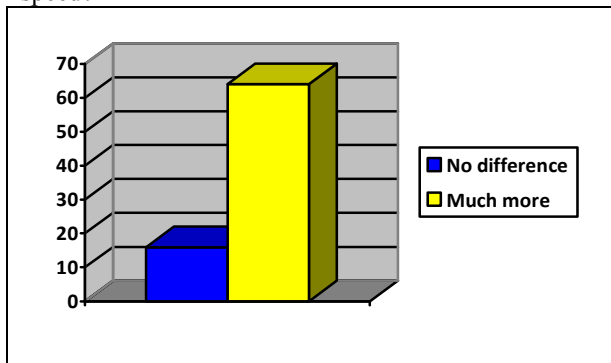


Figure 22: Do you think the contents of the lectures increased?

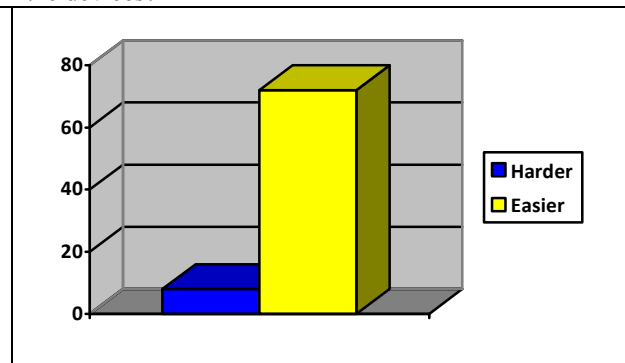


Figure 23: Do you think it's easy to ask teachers questions?

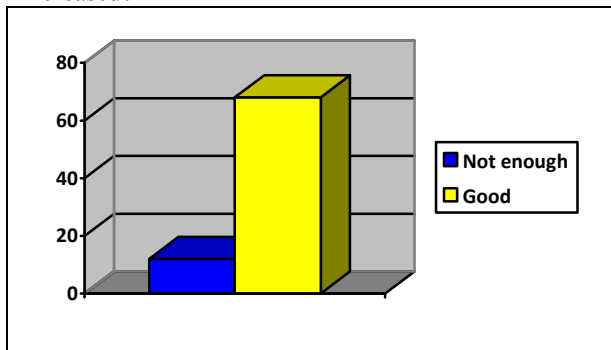


Figure 24: What do you think about the pedagogy?

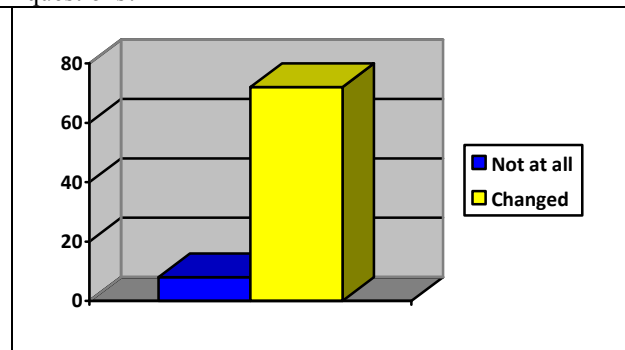


Figure 25: Do you think yours changed?

Results and Discussion

Besides being a powerful tool for making presentations, multimedia offers unique advantages in the field of education. Traditional learning: verbal message as the primary means of explaining ideas to learners; Lectures, printed lessons and text. Multimedia: the presentation of material using both words and pictures. For instance, text alone simply does not allow students to get a “feel” of any of plays. The key to providing this experience is having simultaneous graphic, video and audio, rather than in a sequential manner. The appeal of multimedia learning is best illustrated by the popularity of the video games currently available in the market. These are multimedia programs combining text, audio, video, and animated graphics in an easy to use fashion. It is here that the power of multimedia can be unleashed to provide long term benefit to all. Multimedia enables learning through exploration, discovery, and experience. Technology does not necessarily drive education. That role belongs to the learning needs of students. With multimedia, the process of learning can become more goals oriented, more participatory, and flexible in time and space, unaffected by distances and tailored to individual learning styles, and increase collaboration between teachers and students. Multimedia enables learning to become fun and friendly, without fear of inadequacies or failure. As we know human brain has dual channel and they separate information, processing channels for visual and verbal materials. These channels have limited capacity. For active processing: learning requires substantial cognitive processing in the verbal and visual channel. Multimedia is to make; maximize the usage of both channels, balance the processing load of both channels, use one channel to share the burden of the other, prime related concepts and knowledge to structure learning, As a result learning through experience, learning by doing, learning while enjoying learning when you need to know at using Multimedia systems (Young, 2006). Also multimedia include Pedagogical assessment; constructivism: inquiry-based, problem-based, project-based; creation of meaning using prior knowledge and experience; socratic method with levels of probing questions, systematic observation, hypotheses testing, and problem-solving, real-world situations, public venues, cooperative learning, community of learners. As a result pedagogic approach is superior and pedagogy is innovative. Questions are appropriate to the content and effectively measure student mastery of the content. Approach is appropriate for the intended student population. Overall tenor of interaction is helpful. Student is an active participant in the learning process. Graphics, video and audio are used to motivate (www.wps.prenhall.com). There are a lot of reasons to use Multimedia in social sciences education. Multimedia is fast, cheap, consistent, private, personal, a strong foundation, a tool to make remembering longer, easier, more information faster and fun. The pedagogical vision is clear: only when multimedia technologies have become routine components of education and e-learning will we have an educational environment that reflects the media-rich world in which we now live.

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