

main theme of the paper is related to the Elearning and media structure.the subtheme includes:

- generation of distance education**
- types of educational technology**
- course content and webpage design**

Topic: Media, Educational Technology and Online learning in Iran Virtual Universities

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Teaching-learning activities including the outcomes of interaction among teacher, student and education environment in accompany with technology make the process of learning more effective. In a virtual system of learning, technology replaces educational environment. Implication of technologies during different generations plus to usage of technologies as types of media and their application through online or e-learning environment in virtual universities of Iran is investigated as a research.

Media in combination with internet connection as a technology may help to reduce transactional distance in learning - that is the communication gap or psychological distance between participants which exists in the virtual learning environment. The quality of sound or music, movie or images and text construction in an e-learning environment is in interaction with internet connection characteristics. The effects of this interaction in Iran virtual universities are analyzed refer to the different types of media.

In the three Virtual Universities of Iran 25 teachers and 80 students in each universities through questionnaire were surveyed. The main questions related to the subject and to explain the effectiveness of Iran virtual universities in their approach to using the media include:

1. Are there any differences among teachers in terms of the limitation of media structure in combination with internet connection and its effects on learning-teaching process in different universities?
2. Are there any differences among the students about the Web page and course content design effectiveness in different universities?

Third generation of distance education

There are distinctions between the structures of technologies, which constitute a different generation. The main distinctive character of third generation is the two-way communication. World Wide Web is the only technology that combines text, audio and video, and all four structural characteristics of technology: broadcast, two way communication, synchronous and asynchronous communication. A major reason why the Web has such potential is that its media and structural characteristics provide more options for teaching and learning. The terms like: online learning and e-learning construction, broadcast (one-way) and communications (two-way) technologies, synchronous and asynchronous technology are approached in this generation.

Types of educational technologies and their impact on learning

In education, the five most important types of media usage illustrated in table 1 which includes:

- Direct human contact (face-to-face)
- Text (including still graphics)
- Audio
- Video
- Digital multi-media (incorporating text, audio and, video)

Table 1: Relationship between media, technology and educational application

Media	Technologies	Educational application
Face-to- face	Classrooms, labs	Lectures, seminar, experiments
Text	Print	Course units, supplementary (including: materials, correspondence tutoring graphics)
Audio	Cassettes, radio, telephone broadcasting,	Radio programs, telephone tutoring, audio-conferences
Video	Videocassettes, video-discs; cable, satellite, fibre optics, microwave, video conferencing	Television programmes, video conference
Digital multi-media	Computer, World Wide-Web, telephone, cable, satellite, fibre-optics, CD-ROM, DVD, wireless, Web conferencing	Power point, computer-aided learning (CAI, CBT), e-mail, discussion forums, learning objects/database, Web casts, Web Quests, online courses

While certain technologies are closely associated with each medium, a variety of different technologies may be used to deliver, as Table 1 indicates. Educational applications of different types of technology are described in the table. For example, in face to face kind of communication, it is possible to have a lecture and seminar or present print based material as a technology to deliberate text to the students. Any other types of media are approachable through technologies and they have different kinds of educational implication which are already explained in the Table 1.

1- Media characteristics and their impact on learning

Media in combination with internet connection as a technology may help to reduce transactional distance in learning and the communication gap or psychological distance between participants in a virtual learning environment. Bates, Harrington & Gilmore (cited in Oliver, 2001) described five types of media, from print to more complicated types like multimedia as the integration of video, audio, graphics, and data

within a single computer workstation. The types of media in relation to the modes of delivery and presentation commonly used in teaching and learning are separated.

- **Sound and Music**

The principal issues in online audio are technical (storage and bandwidth) and pedagogical. For maximum effect, materials must not simply be a recorded version of another medium (e.g. a lecture) but should be restricted to incorporate and interrelate with other modes of presentation.

Bandwidth continues to be the key limitation to the use of synchronous (live) audio on the Internet.

- **Print and Text**

There is no medium more ubiquitous than print, and no mode more familiar than text in its many forms. Print is accessible (to the literate), and comparatively low in cost; furthermore, online text is easy to produce, translates well across various platforms and operating systems, and in some of its forms, may be manipulated by the user if desired. However, print may be seen by some as the “slightly seedy poor relation” (Pittman, 1987) of other instructional media.

- **Still graphics and static displays**

A wide and growing selection of graphic technologies are available to online programmers: from older technologies, such as overhead projectors and 35mm slide projectors, broadcast TV, and pre-produced videotapes, to various forms of digital video (interactive and non-interactive), computer-generated video, and interpersonal communications tools such as group and desktop videoconferencing. Graphics can increase the motivation of users to attend, prompt perception, and aid recall, and assist in the development of higher order thinking and concept formation. Furthermore, still graphics combine high information content (they can illustrate abstract or unfamiliar concepts) with relatively low production and distribution costs. Online compression formats, such as ‘jpg’, permit low bandwidth distribution of high quality graphics.

2- Course content and web page design

Thinking about questions for designing the course structure for higher education, according to Merrill (1996), will be attempted to sort them in three different areas:

- The structure of idea and knowledge
- The way in which access to the course is instructed
- The structure of the courses events

Course content is the most significant aspect of the asynchronous learning experience. The content can be designed to run within a learning environment or learning management system or it may be launched and viewed independently of the environment (for example delivered on a CD-ROM). Piskurich (2004) explained the most common forms of content presentation in e-learning which include:

- Web-based multimedia tutorials, lessons or courses.
- Simulation (around job tasks, products, or physical environments).
- Assessments-a series of online questions such as multiple choice-fill in the blanks-drag and others.
- Documents - case studies, stories, procedures and so forth.

To present the content in e-learning environment, the instructor or designer should consider the usual elements contained within a Web page. They are:

- Formatted and coloured text.
- Still or moving images such as photographs, animations or video clips, links that provide navigation they take you to another location in the same page or to another Web page.
- Formatted tables
- Horizontal rule lines

Mac Vay Lynch (2002) gives suggestions to the designer when he wants to make decision about Web page and course content designing. He suggests that we should ask ourselves the following questions for each page we design:

- What is the purpose of the page? Is this an introductory page, an advanced page, a glossary entry, an assignment, or a fun link?
- Who is your intended audience? Knowing your readers helps you give shape to the information content and pick a consistent voice to address them.
- How do you like to structure the information?

It is common to see at least two levels of hierarchy: a top level index and second level pages. Put as much content towards the top of a hierarchy as possible. The earliest way to layout your information is by dividing it into major categories or concept chunks. The basic questions would be like:

- How can you break your topics into subtopics and what are their relationships? If you have several small topics, group them onto a single age.
- How many links will you include and for what purpose?
- How important is your navigation structure? If you want to dictate sequencing, you need to plan your linking structure carefully.
- How many pictures, sounds, and movies should you use and how will they be placed or linked?

There are several key elements suggested by Mac Vay Lynch (2002), when building web pages, which are as follows:

- Designing the perspective of your site
- Creating storyboards and templates
- Determining page length
- Creating accessible/usable content
- Using meaningful graphics
- Selecting colour and fonts that assist learning
- Finishing touches

Differences among teachers' viewpoint on the limitation of media structure in combination with internet connection and its effects on learning

This analysis was done to test the following null hypothesis:

H0 1: There are no differences among the teachers' viewpoints about the limitation of media structure in combination with internet connection and its effects on learning.

Supposed formula:

$$H_0 = \mu_1 = \mu_2 = \mu_3$$

$$H_A = \mu_1 \neq \mu_2 \neq \mu_3$$

The calculated value of F was not found significant at the 0.05 level of confidence ($F = df_2, 57 = .162$). Therefore, the null hypothesis is not rejected. It is revealed that the teachers in the three universities do not have different viewpoints about the limitation of media structure in combination with internet connection and its effects on learning from those of the students in these Universities.

Discussion

The first question of the study is about the efficiency of using media in combination with internet connection. In this regard the construction of different types of media and using them through web based system is explained and analyzed as follows.

Any types of media have advantages and limitations, especially in a virtual learning environment when it is supposed to be connected through an internet connection. For example, print and text as media and mode have some advantages as these are easily accessible or print based media is robust with enough flexibility. But when we want to use them in the virtual learning system, the problem is the kind of designing or the kind of approach adopted by students, especially when the text is only accessible through Website.

In many cases which relate to the using of media by students, they denote that they have problems in using facilities through the website because of the characteristics of internet connection. These kinds of problems could be solved easily if the universities give a copy of the text on the CD at the proper time.

The researcher also believes that a properly planned use of media can improve its efficiency.

Print based material and texts on CD are the kinds of facilities that can be easily distributed among students. Meanwhile some problems related to the internet connection characteristics like disconnection during voice chat can be solved by the strategies which lead the students to reviewing the stored contents of courses in the files. The teacher also can improve teaching-learning process by reviewing the filed content on the website or by giving advice to the students through networked communication facilities. Asking questions or proposing them as practices which affects students final term results, might be used as a motive to lead students to review the filed contents of the virtual classes.

Moving images likes slides, figures and diagrams are the other medium whose efficiency is analyzed in this study. While offering the text through a website, the harmony and conjunction of the moving images with written content, colour, narrated scenario and its adjustment in appearance are important issues. Disadvantages of each item will affect the learning process.

The study findings about media construction and its efficiency in combination with internet in the first question denote the teachers' assertion on improper efficiency of these facilities which affects the teaching-learning process in Iran virtual universities. This problem sometimes relates to the types of media construction like the characteristics of slide, figure, and diagram, its contingency with content because of design or choice of proper media and sometimes linked to the characteristics of internet connection.

Differences among students' viewpoints on the webpage and effectiveness of course content design in different Universities

This analysis was done to test the following null hypothesis:

H₀ 2: There are no differences among students' viewpoints on webpage and course content design effectiveness in different universities.

Supposed formula:

$$H_0 = \mu_1 = \mu_2 = \mu_3 \quad H_A = \mu_1 \neq \mu_2 \neq \mu_3$$

The F value was found significant ($p < 0.05$) which means there are differences among students' viewpoints on the Webpage and course content design effectiveness in different universities.

The mean of frequencies and percentage of the respondents' score in the table showed that the means of score are more than 60%. It means that the minimum answer of respondents score directed on the average level of satisfaction and more. Therefore most of the respondents (students) agree about the efficiency of the course content and the webpage design but there is difference among the area of agreement in the three universities as revealed by the Tukey formula (Glass, Stanley, 1970).

Implication of Tukey formula (post hoc test) to analyze the differences in Universities revealed the differences among Shiraz virtual university with two others are meaningful. But the differences between Khaje Nasir and Oloom-Hadith are not significant.

Discussion

The second question of the study deals with the course content and webpage design. The content is the most significant aspect of the asynchronous learning experience. Designing of content and webpage should be on the basis of rational reason which encourages, leads and helps students to learn through the virtual learning environment. For example, considering organization and sequencing of the content, or giving opportunity to students to know when and how to shift attention, are approachable strategies for teachers during the designing of the content.

The second question of the study asks about course content and web-page design. Findings show that there are differences among students' viewpoints in different universities about course content and web page design efficiency. It indicates that universities have different approaches to the kinds of course content and web page design at least in relation to the mentioned items of the study. The findings indicate the students' satisfaction in the three universities from the kinds of course content and web page design. The ranking of students' answers about their satisfaction from the items like: summaries at the end of texts, sufficient model and examples in texts, texts note size and type words are different. The differences among universities' efficiency about course content should be considered on the basis of different offered subjects. Shiraz virtual university is offering more subjects than the others.

Conclusion:

According to the approach of the study, it is essential for Iran virtual universities to have modification with the variables discussed in the paper.

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