Examining the effect of learners' gender on their learning achievement: Proposing a multimedia courseware

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ABSTRACT

Although the use of multimedia web design in education has drawn the interest of instructors in the modern learning process, the role of gender in such a process has not yet explored properly. The purpose of this research is therefore to evaluate the effects of gender on learners' achievements when studying from the proposed platform. Therefore, multimedia courseware was built at the very early stage. Then, the students were divided based on their gender into two groups (male and female). The learning performance of each group gets compared using t-test. Result showed that no significant difference occurs between the two groups. This means that the proposed design is equally fitting the learners of both genders. In addition, the result obtained has shown that gender has no effect on learners' output. In conclusion, this study provides a guideline for the design of multimedia courseware. It contributes to the theories of gender and learning to come up with a clear understanding of the type of design elements that can be used for positive learning experience.

Keywords: Learners' gender, Learning achievement, Proposing, Multimedia courseware

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1. Introduction

The meaning of multimedia learning is divided into many media components that can influence student success in both cognitive, psychomotor and learning attitudes. [1]. A multimedia platform can combine text, still images, video, graphics, and sound. Multimedia strength lies in the convergence of various media while improving the comprehension of information. Multimedia performance, however, depends on how media combinations are used, i.e. good design. Describes the requirements for Multimedia UI design. Much advice is focused on independent research. The guidelines are for simple and clear user interface. Let the user monitor the interaction and provide immediate, obvious feedback for each user behavior. Using of appropriate layout, grid, and animation [2]. Web designers worldwide use the same layout and a similar overall look. Nowadays the visual aspects are as critical as the usability. For example, it is important to use the right background and text color to hold the viewer on the page. The analysis shows the most appealing one is the most central location of the model. There were only slight variations when comparing the findings between genders [3].Early creation of Web pages included mainly long text pages with links to other long text pages. Icon is a small icon designed to represent something (a file, directory or action) in a graphical user interface that provides the user with a feature once clicking on it. Icons are typically stored as images in the bitmap. From the beginning, icons have been used on the Internet and the Website, but they have only recently begun to behave similarly to those of operating system icons, even though it is only in limited ways [2].

Multimedia can conform to a variety of instructional types – certain students perform and learn best by reading, others by listening, some by observing, etc. The application of multimedia also facilitates

meaningful learning experiences – students can decide for themselves how and when to apply different learning resources, engaging and integrated tools.

In addition, students should adapt their own instructional and learning processes to fit their talents and desires. They should function as per their expectations, reinforcing knowledge as much as they want in order to mitigate the stigma of learning outcomes. The integration of multimedia into leaning process should also be tailored to various goals, socio-cultural backgrounds, learning types and ages, etc. Personal learning can promote efficient, self-directed education development. In comparison, multimedia resources can be applied to make collaborative interaction simpler. Relatively small groups of students will collaborate together by interactive applications – learning from each other and improving their dialogue capabilities [4]. Moreover, emerging technologies, together with media platforms and online educational resources, leads to fulfilling one of the main educational goals of the summer college in order to make qualitative education more accessible for everybody. Multimedia can be applied as learning medium and as a form of communication. Multimedia resources and web tools can be used actively and objectively in specific learning contexts. New technologies can be integrated to promote relevant and cross-curricular study [5].

1.1. Multimedia in the web design interface

This research is urgent and timely since a clear understanding of how student learning is fostered becomes critical as the quality of learning and the interface design become significantly associated. That is why it is important to consider specifically how users interface architecture impacts knowledge acquisition in digital courseware in attempt to address these existing literature gaps. [6]. Multimedia has implemented the pedagogical power to promote student learning and balance learning with liveliness, Adding depth of meaning to the delivery of knowledge using more than one platform [7, 8]. Multimedia requires media synchronization in the creation of information-rich outputs, which is organized in certain chunks connected to the hypermedia. Students can access to the source of information in a limited timeframe, establish links across similar subjects, and expand their knowledge by aligning relevant information [9]. It is important that students adjust their time to assess information on the basis of personality traits, so that where differences can be treated equally by offering different learning opportunities, students can be involved at a top scale and can follow a student-centered instructional strategies with a stronger sense of engagement [10, 11]. Alessi & Trollip (2001) argued that where various media material is employed to view information in real time, students can learn with focused interest more efficiently than someone who learn with separate media where concentration is separated. This is because the human mind will have more throughputs to incorporate and reorganize all the various sources of information. Nevertheless, it is hard to create a successful curriculum as tasks require more studies and training to incorporate multimedia-enabled learning techniques into existing processes whilst creating undue disruption in the learning experience [12, 13]. Nevertheless, it is hard to create a successful curriculum as tasks require more studies and training to incorporate multimedia-enabled learning techniques into existing processes whilst creating undue disruption in the learning experience.

1.2. The characteristics of the user interface principle

Different features of these universal values were also established through an investigation that was carried out. As set out in Table 4.2. That happens next. Each concept can be categorized into various attributes which should be implemented in the detailed guidelines. For instance, the definition of consistency is accompanied by five separate elements, covering different facets of the overall structure of the screen. Used components and the location of the main menu. The principle of experience with the elements and functions of previous practice is accompanied by special aspects that typically involve basic commands. Concepts and words that consumers clearly know. The theory of flexibility includes various features, including access to several levels of intended users, including the use of incredibly simple components and instructions and succinct guidelines for beginners. And the shortcuts were to be used. And the concept of effective user feedback is characterized by five elements that lead

to clear and instant feedback by, for instance, the confirmation dialogue to endorse user behavior. Ultimately, the idea of satisfying aesthetics and visual contact requires elements that lead to the quality of the website's layout and the opportunity to access details by effective communication. In a nutshell. Eighteen essential characteristics of the five concepts most widely cited in past literature. For the adequate understanding, see Table 1. The characteristics of the user interface theory, taken from [14].

Table 1. The characteristics of the user interface design

Guidelines	conception	Characteristics
The principle of quality in Product Design	The use of design features and the arrangement of components within the panel should be compatible and should require the same behavior or commands for the same reason.	-Suitable layout of the screen -Lasting use of concept elements - Persistent key menu role - Matching devices and navigation bar - Effects for equal behavior
The concept of knowledge of the structures and functions from previous experience	The concepts are designed to ensure that the software and operations are easy to understand. Terminology, icons and the organization of items will lead to users' prior knowledge and familiarity in other areas.	-Should use basic commands -Designs. Icons and terms which are common from other applications or from real life should be used.
Flexibility principle of process response to individual differences.	The courseware can satisfy various levels of individual user experience and preferences. It covers Navigation and Functionality elements.	- The design features must be appropriate for the required user (age, experience, etc.) - The text utilized must be readable and appropriate. - Navigation can also include obvious shortcuts. Acts should be plainly visible, but commands may be used to achieve performance - Sound and Or text should be provided as substitutes to visual representations in order to allow for different forms of learning.
The principle of supporting user with efficient feedback	The system will continuously alert the user to remind them of where they are, what they have done and what the system wants them to do next, through clear and immediate feedback on each action performed.	- Hold the user continuously posted about their current position. - Provide immediate guidance on actions being taken by way of visual signals. Audio effects, photographs, or a mix of them. - Feedback provided should be user-friendly and informative. - Feedback notifications should be quick and transparent - For triggering intervention a validation dialog should be used.
The visual contact theory, via an aesthetically pleasing screen appearance.	The screen appearance of the courseware should be appropriate and pleasing to the intended audience and ensuring that consumers can see what devices are supported, what alternative activities have to be implemented and what is being performed. What alternative actions are available need to be taken and what is being done.	- Provide the user with the visually appreciable elements to use. - Considering the usefulness of the icons carefully. Font. Colon animations, graphics and layout to ensure the communication is easy to understand and efficient.

2. Method and materials

There are many things that a web developer must take into account when designing a website. Such factors can be broken down into two main parts, the front end and the back end. A Web site's front-end refers to the layer of presentation or graphical user interface. What the student communicates with while visiting a website is the front-end. The back-end is the infrastructure allowing the Website to function. The back-end consists of elements such as Web servers, software , databases, network and telecommunication, and computer hardware. Technically speaking this partnership is the networked contact model for the Client / Server [2].

A web page's visual appeal depends on what colors, shapes, and sizes were used. The pages should be structured to keep the attention of the viewer, without disturbing the key elements. Every factor should be considered in a model, and carefully consider the "visual weight." The "visual weight" is based on line size, shade and thickness.as shown in figure (1)
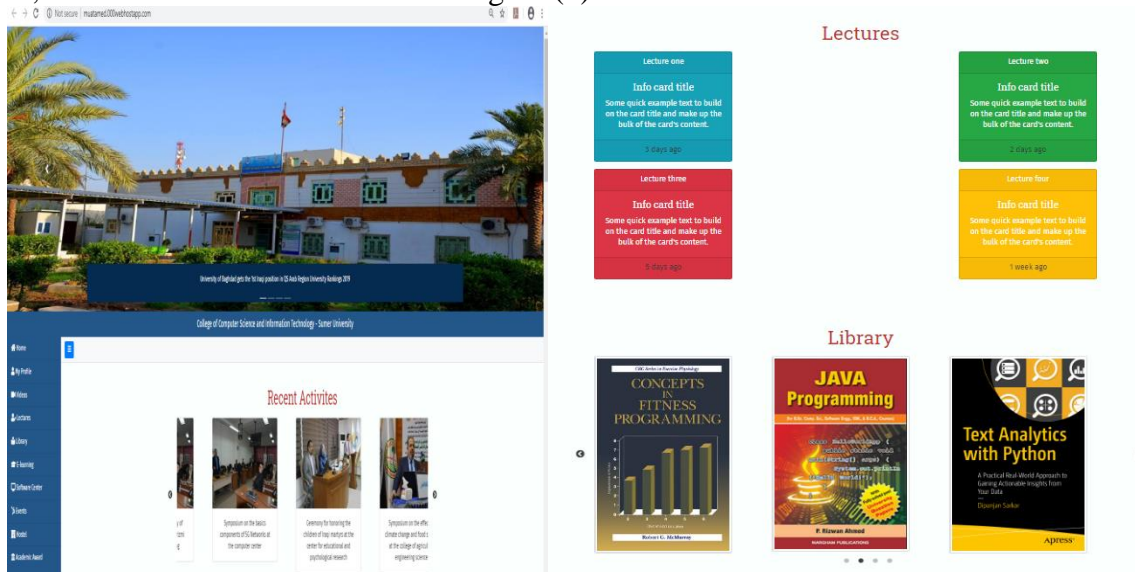

Figure: 1 interface of web design

A Web page user needs visual cues to recognize that one unit is the layout. The text, the title, photos, graphics and captions will all go together well. We are connected when elements are located near each other, and the reverse when they are further away from each other. Can create unity by using the following methods. The font size, style and heading should be constant. Concentrating on the placement in such a way that the elements that are close to each other are connected to each other, and the elements that are farther have less relation. Repeating colors, shapes and textures in different areas is recommended. Choosing visuals that share a similar color, theme and shape should also be considered.

This analysis was carried out on 50 students The researcher used the experimental approach to test the effect of an independent variable (web design using multimedia) on the dependent variable (academic achievement), a contrast was made between the experimental study using web design using multimedia along with an lecturer and tested using conventional methods of debate and dialogue, along with a lecturer. The variables have been measured, each consisting of 20 students, ensuring that all male and female groups are similar in terms of specialization, academic level, lecturer position and teaching venue, and both groups have undergone pre- and post-academic performance testing.

2.1. Semantics

It is important that users are able to interpret the meanings of the graphic symbols accurately. It implies that the images will actually resemble the objects with which the user communicates. Where these symbolic representations are used, users may need to know how to correctly interpret the symbols. However, complex content with impressive multimedia like video and pictures, are in principle optional extras, which gives users more comfortable and warmer environment while browsing. For our

needs we have to know our visual symbols and graphic effects, so that our communication can be direct and intentional [15].
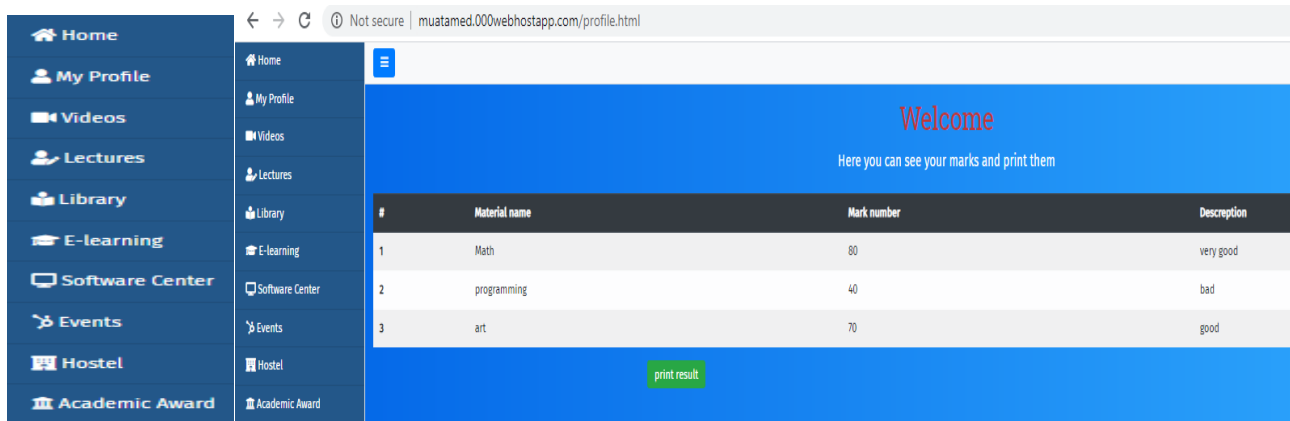

Figure 2: Objects and semantic interpret the meanings of graphical symbols

The above figure 2 illustrated that the sample graphical symbol representation of objects and semantic interpret meanings while making the communication. The interpret graphical symbols are more useful to predict the complex contents and multimedia information.

3. Results

Based on the nature of computer screens, which are a mixture of red , green and blue light emitting squares called pixels, web project visual or graphic designers are expected to design in a grid format from the beginning. Every icon or graphic object used on the Web is saved either as a GIF or as a JPEG image. Such images are a mix of pixels in square shape. Pixels are fused to form. This is especially important from a pedagogical point of view, as it concerns entry, as well as the understanding and meaning of the learning material incorporated [14]. One of the most important aspect of general web design is color, so if we chose a warm red color for the menu and for the other parts of the website, we are communicating in different way [15].

Furthermore, in order for the user to participate successfully in the learning process through engaging course content, the interface design should not only respond correctly and constructively to the actions of the user, it should also enable the users to control his/her own learning rate and function. This means that interface design is an integral aspect of the product as a whole and can describe features and promote interaction. It also has the biggest impact on the use of digital courseware in the learning experience and on its efficacy as shown in Figure 3 [14].
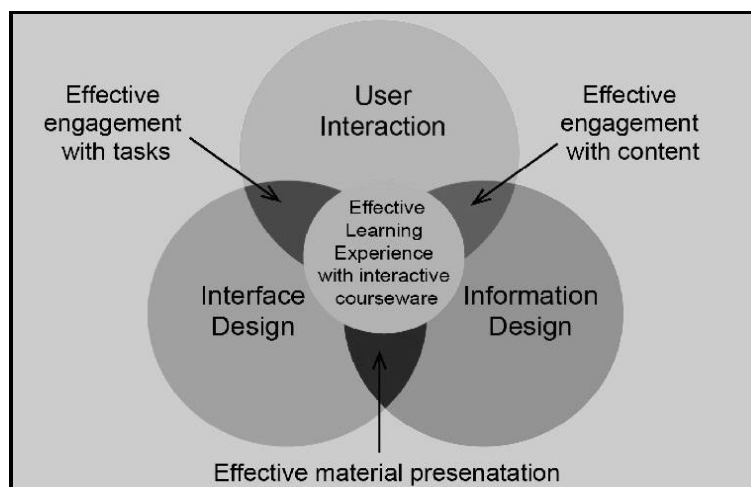

Figure 3. The design relationship approach to create effective learning experiences (obtained from [14])

Three of the components (interaction design, information design and interface design) need to be considered as interrelated factors in any student learning experience research and possible learning outcomes that can be obtained from interactive courseware. So, in order to enhance the learning experiences so performance of the students, all three components must be considered in conjunction. However, in a study of the affectivity of interactive courseware there is a justification for concentrating on the performance of interface design.

4. Discussion

In order to explore the effect of gender on learners' achievements when studying from the proposed platform, T-test was applied based on the recommendation of [16]. The t-test results revealed that the quality and performance of multimedia courseware interface design affects learning motivation, interactivity, and cognitive load for students. SPSS software was used to evaluate data collection from 20 out of 50 students which involved 10 males and 10 females. From the T-test results the t-statistic is 5.236 with 18 degrees of freedom. Result showed that no significant difference occurs between the two groups. The focus of this research was to develop a modern web design to enhance the quality of learning, design features and student-focused learning. Engaging structured content is an essential part of learning. The use of digital elements to create instructional resources makes learning activities more interesting. This is an integral part of the learning experience, which it offers for pupils. Perceptions of learning improved as students discovered that education with design features was more versatile in discovering and developing new skills. The students have been involved in this student-centered environment and have strengthened their desire to learn.

5. Conclusion

According to the results of the study, showing the successful use of multimedia in contrast with conventional teaching approaches, the usage of multimedia in theoretical and practical faculties. Expansion using multimedia in teaching other theoretical curricula and emphasizing the engagement of the students to use the web portal as an instructional resource in teaching at the university of Sumer. Giving guidance and training to lecturers on the use of multimedia tools, Conduct more work on the use of multimedia in curricula for the workplace in the university of Sumer in order to students will be familiar with it.

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