

| | | |
|---|--|--|
|  <p>ISSN NO. 2320-5407</p> | <p>Journal Homepage: - www.journalijar.com</p> <h2>INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)</h2> <p>Article DOI: 10.21474/IJAR01/3000 DOI URL: http://dx.doi.org/10.21474/IJAR01/3000</p> |  <p>INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) ISSN 2320-5407 Journal Homepage: http://www.journalijar.com Journal DOI: 10.21474/IJAR01</p> |
|---|--|--|

RESEARCH ARTICLE

DESIGNING AN INTERACTIVE EDUCATIONAL WEBSITE USING ASP.NET.

Asst. Lec. Asan Baker Kanbar and Asst. Lec. Wafaa Mustafa Hameed.

Department of Computer Science, Cihan University Sulaimaniya Campus, Sulaimaniya , Iraq.

Manuscript Info

Manuscript History

Received: 28 November 2016
Final Accepted: 27 December 2016
Published: January 2017

Key words:-

Website, Webpage, Distance learning,
Dataflow diagram, Database

Abstract

The present work describes a website designed for remote teaching, it enables the students to view the lessons and also test themselves after each lesson they view, they can get benefit from the useful articles uploaded to the page also can ask question and get answers. Distance learning is beneficial for eliminating time and money spent related to student travel and allowed Outreach College students access to adept instructors regardless of physical locale.

Copy Right, IJAR, 2016., All rights reserved.

Introduction:-

A dramatic increase in the development of technology-based teaching and learning has been witnessed in the past decade. Many universities and corporations started rethinking the design and implementation of the learning systems [1]. To take advantage from the emergence of the Internet, it provides an inexpensive and flexible infrastructure that can greatly enhance the communication among distance learning system and students. The rapidly increasing expansion of the Internet has brought dramatic impact to one's life and education alike. Distance learning differentiates from the traditional learning in its ability to train anyone, anytime, and anywhere attributed to the openness of the Internet. Without the temporal and spatial limitation, one can have an independent and individual learning space.

Recent advances in the Web have rapidly changed our life in various ways. These advances provide new ways for people to communicate on a global scale and assess vast amounts of information. The Web provides educators with opportunities to implement a range of new teaching and learning practices, which redefine classroom- learning experiences. The Web enables a so-called WBI (Web-Based Instruction) system as a teaching aid. The WBI system, which integrates a hypertext information network with communication and collaborative tools, presents two important innovative features: first, it provides specific tools to manipulate the multimedia information contents of the Web pages; second, authorized users can modify the information network in the system [2],[3],[4]. In the end, education projects are developed because of the learner. Projects are developed because we want participants to gain specific knowledge and skills. Education projects are developed to promote public safety and the development of environmental and scientific literacy.

Each student has different cognitive abilities [5]. In [6]; [7]; [8]; [9]; [10] those problems can be overcome with the use of adaptive learning system. Many studies have been conducted on adaptive learning. Among them, studies that provide the most universal method of adaptability offer courseware by considering learner styles [11]; [12]; [13]; [14]; [15]; [16]; [17]. However, there are also theories that assert that a learning strategy created according to either a task or content is much more effective than the learning style [18]; [19]; [20]. It is thus necessary to provide adaptability according to the learning content along with the learning style [21].

Corresponding Author:- Asst. Lec. Asan Baker Kanbar.

Address:- Department of Computer Science, Cihan University Sulaimaniya Campus, Sulaimaniya , Iraq

Careful attention to the design and implementation of an education project will be reflected in learner outcomes [22]. As a result of rapid improvements in both computer and Internet technologies, features and functions of e-learning systems have been improved. It has also become easier to access online lesson content and interactive, electronic applications or tools from any-where, at anytime. At this point, internet and the related technologies have an important role to play in all of these improvements and changes [23]

Methods And Techniques:-

Design Structure of the Educational Web Page:-

In this project the educational website designed using ASP.NET. ASP.NET (Active Server Page) is an open source web framework for building modern web applications and services [24]. With ASP.NET you can quickly create web sites based on HTML, CSS and JavaScript etc., scale them to millions of users and easily add more complex capabilities like Web APIs, forms over data or real time communications [25]. In this project the web page system corresponds to web interfaces and tools that are included in the system and provided to administrators, teachers, or student according to their role in connection with the system. There are three different types of user: administrators, students, and teachers. In order to log into the system, all of these users must make their registrations and type their usernames and passwords on the login page of the system. In order to save information the database very important for the web page here we used SQL server. Database contains administrators, teachers and students information and also consists of all materials related to education in addition to dates and results of quizzes and exams which the students submitted.

Role of Each Group:-

As we mentioned before three kinds of user groups will use this website, administrator, teachers, and student. The administrator the only user who can view and control the overall the page as well as can make changes for example add or remove lessons delete unwanted contacts and also control the blog and give permission to view or not view the messages.

The teachers can view the students progress reports these reports contain the information of the lessons the students had viewed and can see how long they viewed the lessons, teachers also can view the quiz results that the students had submit.

The users under the student category can make their registration and view the lessons submit to quizzes and exams and also can view the results of all the quizzes that they had.

There will be a communication among these groups by sending mail messages to each other by this way the students can ask questions and get answers besides there is a discussion forum where the users can discuss any case about the subjects and lessons so that they can get benefit and knowledge from each other's experience.

Database Tables Design:-

A database is a collection of information that is organized so that it can easily be accessed, managed, and updated [26]. This educational web based system registration, member's information, lessons, quiz and exams marks, useful documents and other effective tables have been created, the design and the use of these tables explained as follow:

Lessons Table:-

This table contains the lesson name and a brief explanation of the subject so that if the student wanted to watch the lesson is going to just click on the lesson names that have been choose.

| Lesson | |
|---|-------------|
|  | LessonID |
| | Title |
| | Description |

Fig.1:- Lesson Table

Questions ,Quiz, and User Quiz Tables:-

The students whom watching the lessons their performance and success evaluation is required for this purpose some exams and tests performed to serve this case, and all these data saves in the database as well as the information concerning the exam questions and answers and also the date that submitted is saved in these tables.

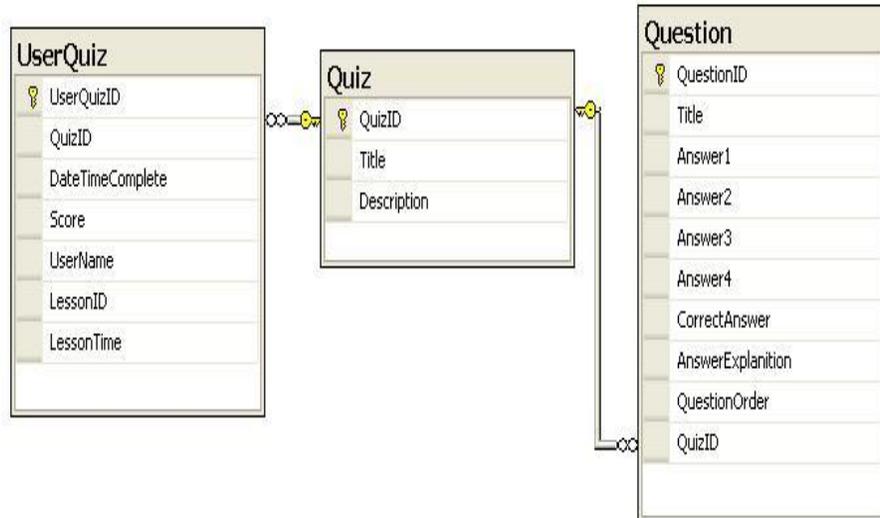


Fig.2:- Questions ,quiz, and UseQuiz tables

Forum Tables:-

This section contains two groups of tables. Arguing and replying table, these tables register all information about the questions, Answers, the name of the person who asked or answered the question and their date. The forum section is controlled by the administrator all questions and answers in any discussion waits for confirmation from the administrator of the page, the administrator will put 1 to activate or 0 to discard any unwanted question or answer, the table is shown in fig.3

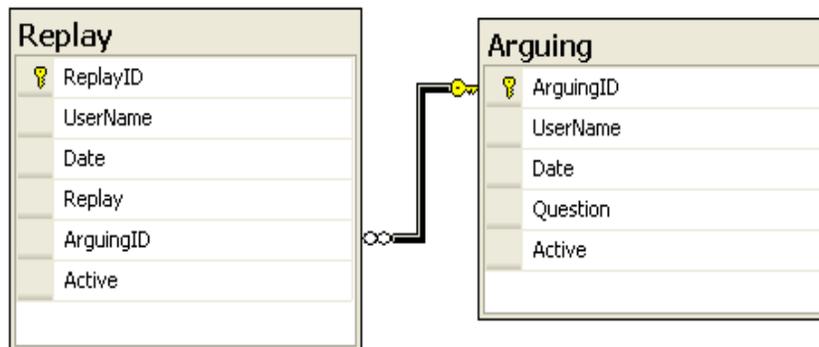


Fig.3:- Arguing and Reply Tables

Announcement Table:-

In this table the announcement and it's date is saved, also this table is controlled by the administrator who can show the announcement by making the active field 1 or to hide the announcement by making it 0 . This table shown in Fig.5

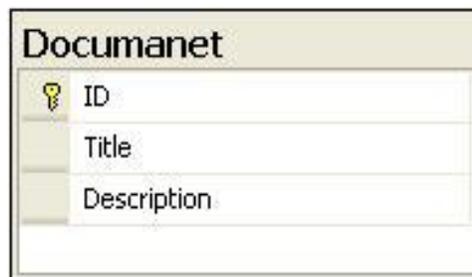


| Announcement | |
|--|--|
|  ID | |
| Detail | |
| Active | |
| Date | |

Fig.5:- Announcement Table

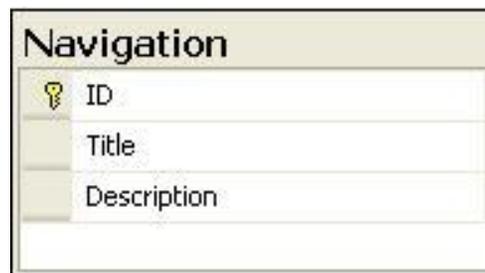
Useful Materials, Navigation and Documents Tables:-

Useful links and documents such as books, papers ...etc can be added to the web page by the administrator and will be saved in the database, these tables shown in Fig.6 and Fig.7.



| Documanet | |
|--|--|
|  ID | |
| Title | |
| Description | |

Fig 6:- Navigation Table



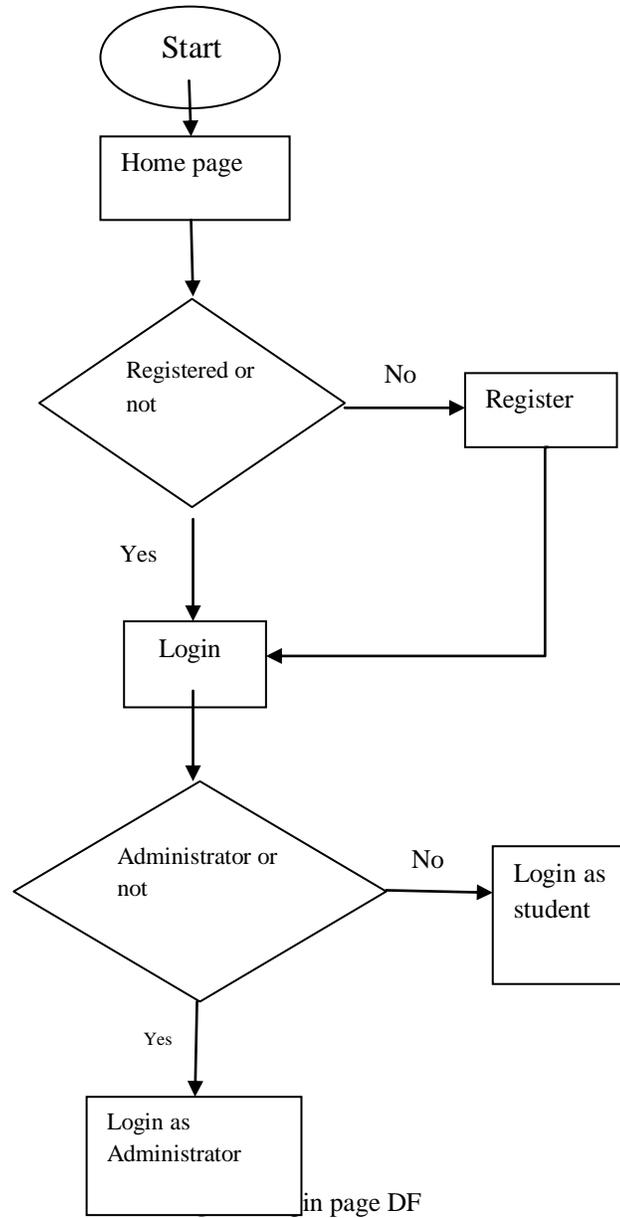
| Navigation | |
|--|--|
|  ID | |
| Title | |
| Description | |

Fig.7:- Document Table

The Dataflow Diagram of The Designed Website:-

Login Page Dataflow Diagram:-

Any use wants to use this web page must register first, if the user was administrator so the website will show the administrator page, for the students the student page will be shown. Fig.8 shows this action.



Administrator Page Dataflow Diagram:-

After the administrator login process, the system automatically directs administrators the Admin user interface. The Admin page has been developed similar to the design of other management interface that is used by teachers. But it includes more options. Fig.9 shows the dataflow diagram of the administrator page.

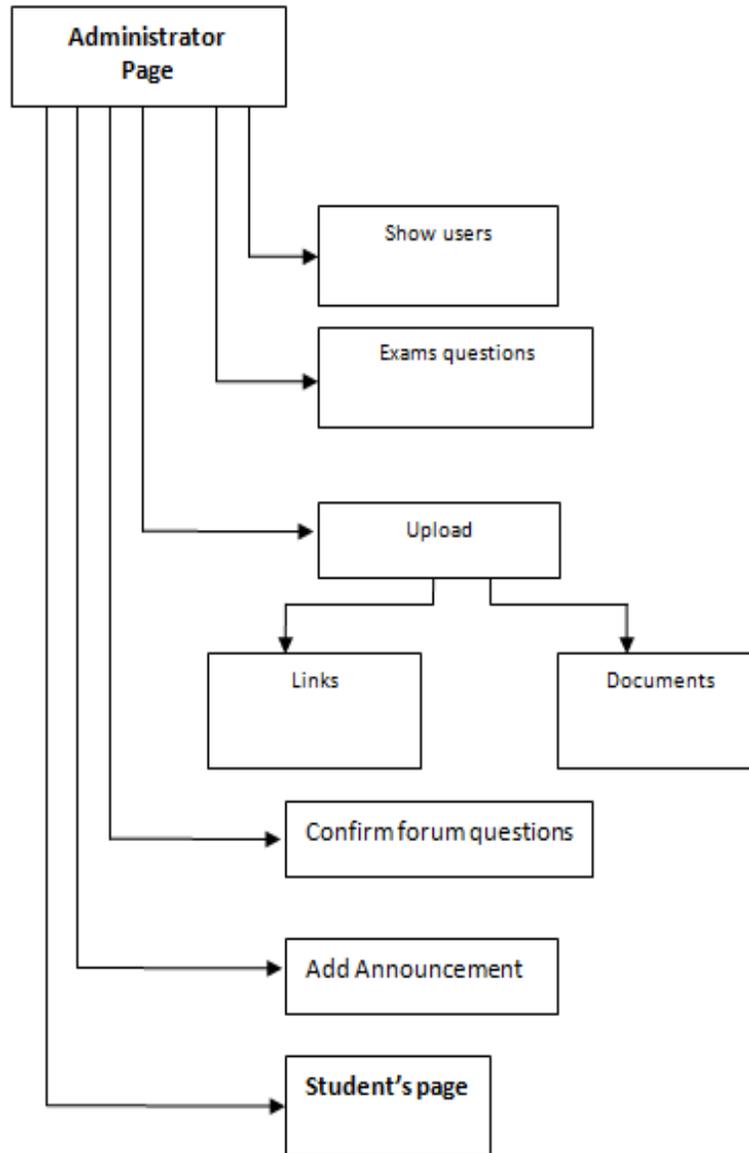


Fig 9:- Administrator page DFD

Student Page:-

The most important part is the student part here the student can see the course lessons title. Only first lesson contents will be active and can be viewed easily by clicking on the link provided by the system, the other lessons will be not activated unless the student pass the first lesson's quiz at that time the next lesson will be active and so on if the student didn't pass that quiz the next lesson will not be active, after the student passes all the quizzes the general exam will be activated so that the student can submit an exam contain questions about all the lessons that the student watched, beside the lessons the student can view past submitted exam marks, can enter the forum, see the announcements, and can get benefit from the useful materials part. The dataflow of the student page shown in Fig.10.

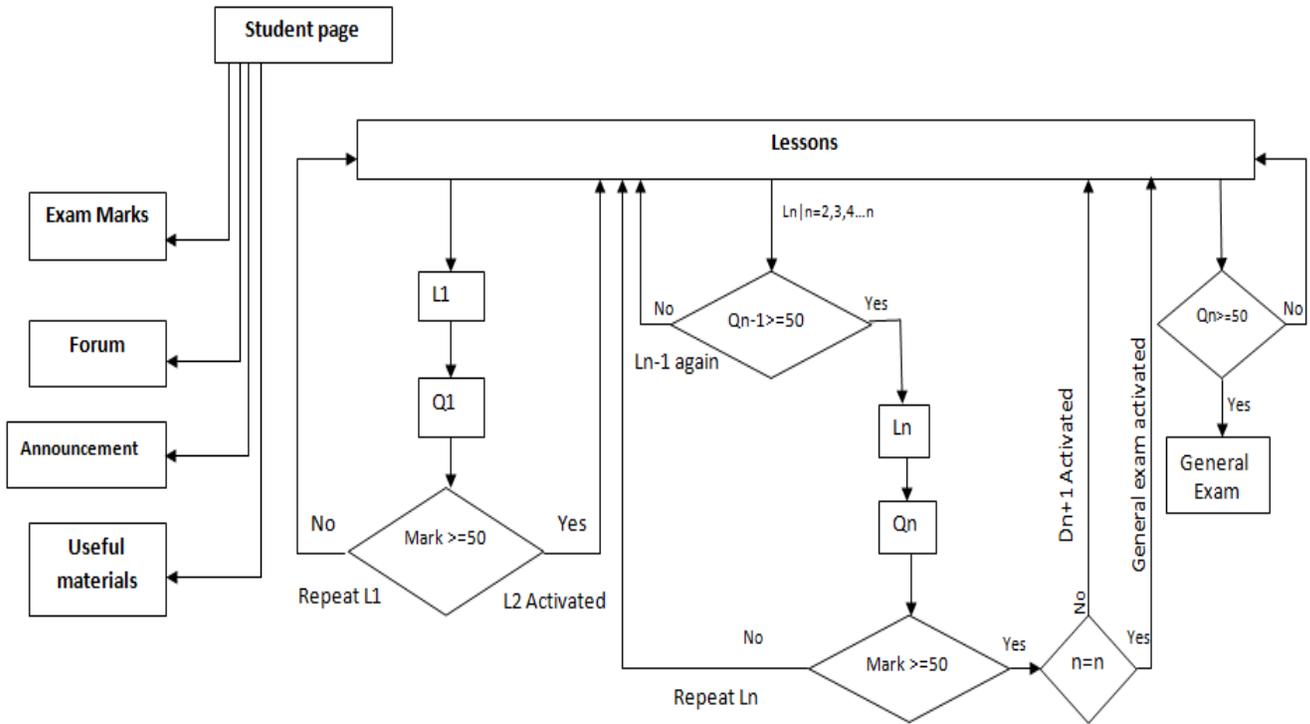


Fig.10:- Student Page DFD

User Communication Tools:-

In this system there are two different communication tools that can be used to communicate among system users. These communication tools used to improve the quality of the education activities by ensuring effective socialization processes among students and teachers.

The first communication tool is a forum, which is used to send messages or write comments on existing ones. The discussion subjects provided for users may be defined by teachers or other users via the management interface. The administrator can delete any illegal message or comment from the forum even can block the user account if the user insists on sending unacceptable messages.

The second communication tool of the system is an internal messaging tool, which allows students and teachers to send private messages each other.

Results and Future Work:-

There are some reasons that let us use asp.net as graphical user interface, web application exists in compiled form on the server so the execution speed is faster as compared to the interpreted scripts [27]. asp.net is not limited to script languages, it allows you to make use of .net languages like c#, j#, VB, etc. asp.net is a very valuable tool for programmers and developers as it allows them to build dynamic, rich web sites and web applications using compiled languages like VB and c#. the main advantage of this language is high security; code cannot be viewed from the browser. asp.net offers built-in security features through windows authentication or other authentication methods[28],[29].

One of the most important result we achieved in this project by activation constrains, that activation of the next lecture is depend on the student quiz result of the previous lecture so that the student must study hard to pass the quiz to activate the next lecture.

Besides the teacher can view the time that the student spent viewing and studying each lecture this done by timer starts when the student click to view the lecture and ends when clicking on quiz at the end of lecture so the lecture viewing time can be calculated the benefit of method is to give information if the student passed the lecture and

submit the quiz and may he or she can pass the quiz by chance; this information can help the teacher when assessment the students.

In the future this project can be developed by adding private chat between the users so that they can communicate privately get benefit from each other's experience, video conferencing also very important to share information between the users beside that can be virtual class so the students can attend any lecture the teacher demonstrate without any constrains all what they need is an internet connection.

Conclusion:-

Today's economy is based on a global perspective. We need to compete and collaborate with the world. Thus education must be catered along these lines. We have seen that this is possible with the use of technology, technology is a necessity in today's world and we must be ready for it. Computers can provide universal success by dividing lessons into segments to the extent needed to make sure that everyone can accomplish something. They deliver results accurately and quickly, the closer the connection between the action and reward, the more valuable and more effective is the reward. With computers and technology, learning can be a 24/7 process. Teaching will not be bound by time constraints. Technology is a versatile and valuable tool for teaching and learning and becoming a way of life. The most important thing is that teachers need to be prepared to use these technologies effectively.

References:-

1. Elvis Wai Chung Leung, City University of Hong Kong, Media-Based Presentation with Personalization in a Web-Based eLearning System, Advances in Computer Science – ASIAN 2005. Data Management on the Web Volume 3818 -pp 160-171
2. Seryn, W. & John, E. (1997), A case Study of communication technology within the elementary school, Australian Journal of Educational Technology, 13(2), 144-164
3. Giovanni, F. & Rosella, C. (1999), A Web-Based Instruction System to support design activities in Architecture, Paper presented to AusWeb 99, Fifth Australian World Wide Web Conference.
4. Mason, R. (1991), Moderating Educational Computer Conferencing in DEOSNEWS Vol. 1 No. 19
5. Hernawati. K., "E-Learning Adaptif Berbasis Karakteristik Peserta Didik", Prosiding Seminar Nasional Penelitian, Pendidikan dan Penerapan MIPA, Fakultas MIPA, Universitas Negeri Yogyakarta, 14 Mei 2011, ISBN: 978-979-99314-5-0, 2011.
6. Sfenrianto, "A Model Of Adaptive E-Learning SystemBased On Student's Motivation", Proceedings International Conference on Creative Communication and Inovative Technology (ICCIT), 8 Agustus 2009, Tangerang-Indonesia , ISSN 1978-8282, 2009.
7. Surjono. H. D, "Pemanfaatan Teknologi E-Learning Adaptif untuk Mengatasi Keragaman Gaya Belajar", Jurnal Penelitian Saintek, Vol 8, No 1, April 2013.
8. Dantes. G. R, Suarni. N. K and Sujaya. I. G, "Model Dynamic Intellectual Learning (DIL): Pergeseran Paradigma E-Learning Menuju Adaptive Learning", Konferensi Nasional Sistem dan Informatika 2010; Bali, November 13, 2010
9. Esichaikul. V, Lamnoi. S and Bechter. C, "Student Modelling in Adaptive E-Learning Systems", Knowledge Management & E-Learning: An International Journal, Vol.3, No.3, 2011.
10. Wirawan. I. M. A and Wahyuni. D. S, "Adaptive Mobile Learning Concept", Proceedings of the International Mobile Learning Festival, Bali - Indonesia June 2 – 4, 2014.
11. C. A. Carver, R. A. Howard and E. Lavelle, "Enhancing student learning by incorporating learning styles into adaptive hypermedia", Proceedings of ED-MEDIA '96 World Conf. on Educational Multimedia and Hypermedia, (1996) June, 17-22, Boston, USA.
12. J. E. Gilbert and C. Y. Han, "Adapting instruction in search of a significant difference", Journal of Network and Computer Applications, vol. 22, (1999), pp. 1-12.
13. M. Stern and P. Woolf, "Adaptive content in an online lecture system", Proceedings of the International Conference on Adaptive Hypermedia and Adaptive Web based System, (2000) August 28-30, Trento, Italy, pp. 29 1-300.
14. M. Grigoriadou, K. Papanikolaou, H. Kornilakis and G. Magoulas, "INSPIRE: An intelligent system for personalized instruction in a remote environment", Proceedings of 3rd Workshop on Adaptive Hypertext and Hypermedia, (2001) July 13-17, Sonthofen, Germany, pp. 13-24.

15. P. Paredes, and P. Rodrigues, "Considering sensing-intuitive dimension to exposition-exemplification in adaptive sequencing", Proceedings of AH2002 Workshop, Second International Conference on Adaptive Hypermedia and Adaptive Web-based Systems, (2002) May 29-31, Malaga, Spain, pp. 556-559.
16. N. Stash, A. Cristea and P. D. Bra, "Authoring of learning styles in adaptive hypermedia: problems and solutions", Proceedings of the WWW 2004 Conference, (2004) May 17-22, New York, USA, pp. 114-123.
17. J. Lee, "Adaptive Courseware Using Kolb's Learning Style", International Magazine on Advances in Computer Science and Telecommunication, vol. 3, no. 1, (2012), pp. 45-59.
18. G. K. Tallmadge and J. W. Shearer, "Study of Training Equipment and Individual Differences: the Effects of Subject Matter Variables", Supplementary Report, American Institutes for Research, (1968).
19. D. C. Berliner and L. S. Cahen, "Trait-Treatment Interaction and Learning", Review of Research in Education, vol. 1, (1973), pp. 58-94.
20. D. H. Jonassen, "Aptitude-versus content-treatment interactions, implication for instructional designs", Journal of Instructional Development, vol. 5, no. 4, (1982), pp. 15-27.
21. I Made Agus Wirawan, Made Sento Gitakarna, "Development of adaptive mobile learning (AML) On information system courses", International Journal of Advanced Computer Science and Applications, vol.6, No.12, 2015.
22. National Oceanic and Atmospheric Administration U.S. Department of Commerce , Designing Education Projects, Second Edition, APRIL 2009
23. Deperlioglu, O., & Kose, U. (2010). The effectiveness and experiences of blended learning approaches to computer programming education. Computer Applications in Engineering Education [in Early View]. DOI: 10.1002/cae.20476
24. The Asp.net website in <http://www.asp.net/>
25. [https://msdn.microsoft.com/en-us/library/aa711425\(v=vs.71\).aspx](https://msdn.microsoft.com/en-us/library/aa711425(v=vs.71).aspx)
26. Search sql server website, in <http://searchsqlserver.techtarget.com/definition/database>
27. Inside ASP.Net Web Matrix: Alex Homer and Dave Sussman - <http://www.asp.net/Tools/redirect.aspx?path=webmatrixbook>
28. <http://www.careerride.com/ASP-NET-Advantages.aspx>
29. <http://www.pixelstech.net/article/1453714400-Why-to-Build-Modern-Web-Apps-with-ASP-NET>