The Performance of First Aid Training e- Course among the Students of SCSVMV University

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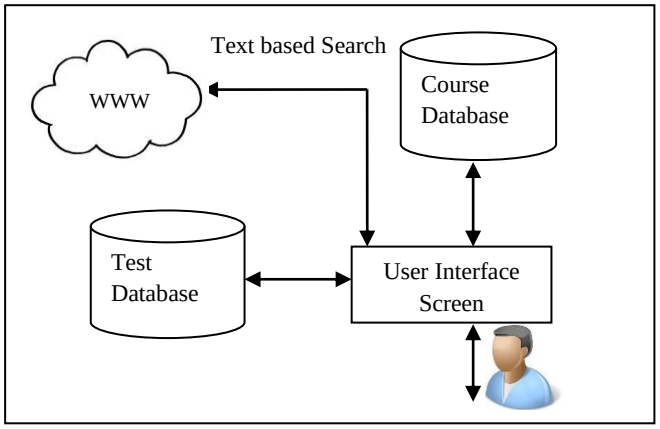
ABSTRACT: The "First-Aid awareness e-course" provides the basic medical awareness to the users. This course covers emergency situations. The main objective is achieving the medical awareness, social conscious and a friendly society through First-Aid awareness e-course. Most of the E-learning course has limitations such as scarcity of content, lack of intelligent search and context sensitive personalization problems, which are challenging tasks for researcher to take up this problem. The main aim of the model developed is to get consistency in content delivery, quality content in learning materials, students self-learning concept, and performance improvement in their examination of awareness course. A study has been conducted to measure the performance of student's awareness of First Aid training course among the students of SCSVMV University. The main aim of the model developed is to get consistency in content delivery, quality content in learning of first-aid awareness, students self-learning concept, and performance improvement in their performance.

1. INTRODUCTION : E-Learning is the use of technology to enable people to learn anytime and anywhere. This type of learning can include training, the delivery of just-in-time information and guidance from experts. The "First-Aid awareness e-course" system helps to develop the emergency awareness skills and knowledge. Feedbacks are collected from the user through several questions to analyze about the system and user can send their suggestions too. E-Learning is the use of telecommunication technology to deliver information for education and training. With the progress of information and communication technology development, e-Learning is emerging as the paradigm of modern education. The great advantages of e-Learning include liberating interactions between learners and instructors, or learners and learners, from limitations of time and space through the asynchronous and synchronous learning network model (Katz, 2000; Katz, 2002; Trentin, 1997). E-learning's characteristics fulfill the requirements for learning in a modern society and have created great demand for e-Learning from businesses and institutes of higher education. In the following sections, previous research, related literatures are discussed. A Model of e-learning system has developed. Finally, the results are analyzed and presented.

2. PRIOR STUDIES OF FIRST-AID AWARENESS E-COURSE: E-Learning is basically a web-based system that makes information or knowledge available to users or learners and disregards time restrictions or geographic proximity. Although E-learning of First-Aid awareness is use to avoid problems and make life be healthy. Many researchers from psychology and information system fields have identified important variables dealing with e-Learning. Among them, the technology acceptance model (Ajzen & Fishbein, 1977; Davis, Bagozzi, & Warshaw, 1989; Oliver, 1980), and the expectation and confirmation model (Bhattacherjee, 2001; Lin, Wu, & Tsai, 2005; Wu et al., 2006) have partially contributed to understanding e-Learning success. Table 1.1 shows the Comparative study of existing e-learning methods.

3. ARCHITECTURE OF E-LEARNING SYSTEM : In this work, architecture of first-aid awareness e-course has developed through the text based search engine. The text based search engine is capable of retrieving computer application based databases from the www and they are clustered based on the relativeness of the document to the user search. Clustering is based on page ranking which represents the level of relativeness for the retrieved clustered documents. Document retrieval is based on the occurrence of the computer application based terminologies and keywords based on the user search text.



Learning system	Theory Basis	Instructional Emphasis	Results
E-learning recommender system (Developed by Khairil Imran Bin Ghauth & Nor Aniza Abdullah in 2009)	Content-based recommendation and recommendation based on good learners' average ratings.	To recommend additional learning resources that are similar to those of the viewing item to guide learners in selecting good learning resources in order to improve their learning process.	From the Calculated weight and the cosine similarity it is found that the learning process of the learners got improved widely by using Additional Learning Resources.
Virtual Environment Class Room(Developed by Johnson et al., 2000)	A mixed- methods evaluation pilot study of student perceptions of the learning environment across three distance-learning platforms: a learning management system (Blackboard), webinar (Illuminate), and a virtual environment (Second Life).	Close-ended and open-ended self- administered survey questions of nine learning and instructional domains, drawn from the Student Assessment of Learning Gains (SALG). Students progressed into each successive mode for three weeks.	All domains were rated highly for the Overall assessment of the learning environment, quality of information provided in assistance of Learning content, and quality of class resources. Students found the virtual environment to be "extremely effective" and helped increase participation, interaction with others, and the number of classroom discussions.
Online automatic recommendation system(Developed by Jemni and Nasraoui in 2009)	Nutch's automated crawling and indexing techniques, standardized educational content metadata to build content models, and Web usage mining techniques (clustering and association rule mining) to build learner profiles	To provide online automatic recommendations for active learners without requiring their explicit feedback	The enrichment of the learner's model increased the quality of learning object recommendations especially from an instructional point of view to a greater degree.
Smart E- Learning Using Recommender System (Developed by Soonthornphis aj et al. 2006)	collaborative filtering approach	To aggregate recommended materials from other e- learning websites and predict more suitable materials for learners.	The developed system greatly allows all learners to collaborate their expertise and effective in predicting the most suitable Learning Material to each learner.
Open Source LMS (Developed by Kerkiri et al. in 2007)	Description and reputation metadata	Recommend personalized learning resources	Experiment proved that the use of reputation metadata augmented learner's satisfaction by retrieving those learning materials which were evaluated positively

Figure 1.1 Architecture of e-learning system

The text based search engine is created, which is capable of extracting the documents from open source learning objects. Document retrieval is based on the occurrence of computer application based terminologies and keywords based on the user search text. The below is the algorithm for Text based Search engine used in the Architecture of e-learning system

- This First-Aid Awareness e-course system provides all the information based on user's requirements.
- This system allow the user to upload new tips and the user can test themselves with several questions.
- The user can enter their query to search manually. This system also provides Google search for getting more information about any relevant topics. This encompass custom search to achieve user's task performance as quickly.
- The Feedback page is collect user's statement with agree or disagree of the questionnaire. This feedback is saved and generates report as graphical representation.
- The Administrator can easily analyze the feedback with total number of users by the users who are given feedback. This displays as percentage level. The range is specified in graphical chart.

Algorithm - Text based Search engine

Step 1: Enter Search Text
Step 2: Extract Keyword & Terminology from Text
Step 3: Through Word Net extract alternate Keyword &Terminology and store it in Relation List
Step 4: Based on Relation List, Related DOCs are extracted from OSDBs
Step 5: Extracted DOCs are stored in Temp Folder and Listed 42 by Doc Lister
Step 6: Using Doc Lister, the Organizer ranks & Cluster the DOCs Based on Rank Score
Step 7: Graph Tree will be constructed for extracted DOCs and it will be displayed to learners based on the Cluster Priority Level

3.1 IMPLEMENTING THE ARCHITECTURE OF E-LEARNING SYSTEM

This work constructed an e-learning that enables the management and facilitation of a range of learning and teaching activities and services. E-learning can save costs and time. It helps to improve the speed and effectiveness of the educational processes, communication among learners, and also staff and students.
This First-Aid awareness e-learning system consists of various functional units listed below.

User Management
Content Management
- o Course Management
- o Table of Content Management
- o Sub Table of Content Management
- o Learner's Content Management etc

Online Test
Management Search
Feedback

Figure 1.2

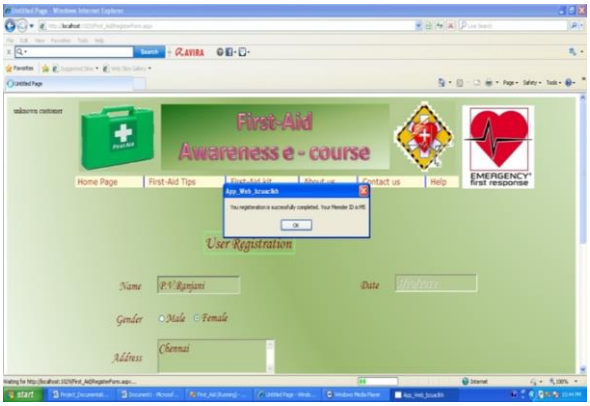


Figure 1.3

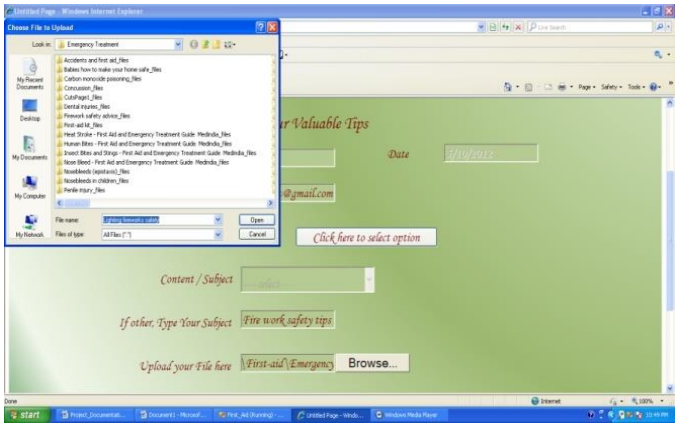
In the above Figure1.2 express the user can enter their personal detail to become as a member for this e-course. The details are stored in Database. A unique member ID is created and displays that ID to the user. The validation controls are implemented for each control.

Search: The user can learn First-Aid Tips details through this page. The Menu control has various tips as a list format. The user can click the tips item from the list, then the appropriate tips detail is shown on the page. The user can navigate tips details for read the other information. The First-Aid information is retrieved from the Database. The user can enter their query about First-Aid for quick retrieval information from the Database. The custom search is also available for the user. They are manually entry their query and the control is allow to search the more information about the particular tips from open source (WWW).

Figure 1.4

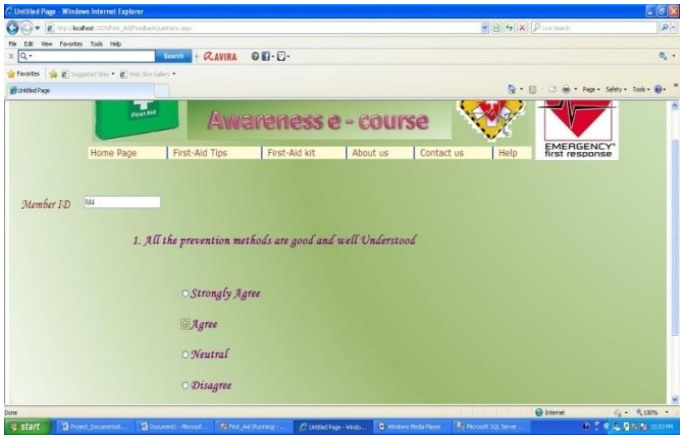
Upload Tips from Registered user:

Upload tips page is allow the registered user to upload any information about First-Aid. The user can upload only word document file or text file. The other file formats are not allowed to upload from the user. The uploaded file is saved at a folder that make as a shared folder in network. Message box is displayed for confirmation of file upload.



Feedback from the user:

The user can give their suggestion / feedback about this First-Aid E-Course. It is used for further development of this course. The user must enter their name, E-Mail ID for contact. The feedbacks are collected by certain Questionnaire.



First-Aid Quiz:

The First-Aid Quiz is used to test user themselves. Certain questions are given that are based on critical situation. The user can select the correct answer from the different options. Then the marks scored by them are displayed.

4. METHODOLOGY

ASP.NET is a compiled, NET-based environment, we can author applications in any .NET compatible language, including Visual Basic .NET, C#, and Java Script .NET. Additionally, the entire .Net Framework is available to any ASP.NET application. Developers can easily access the benefits of these technologies, which include the managed common language runtime environment (CLR), type safely, inheritance, and so on.

4.1 HYPOTHESIS

To verify the relationships, hypothesis is formed based on student profile developed on the bases of information collected through feedback.

4.1.1 Hypothesis Tested- I

Research Hypothesis (H_1)

There is an association between the No. of Online course attended based on Year of studying.

Null Hypothesis (H_0)

There is no association between the No. of Online course attended based on Year of studying.

No. of Online Courses attended * Year of Study		Year of Study		Total
		I	II	
NIL	count	196	29	225
	%	64.50%	9.50%	74.00%
ONE	count	62	7	69
	%	20.40%	2.30%	22.70%
TWO	count	7	0	7
	%	2.30%	0.00%	2.30%
MORE	count	3	0	3
	%	1.00%	0.00%	1.00%
TOTAL	count	268	36	304
	%	88.20%	11.80%	100.00%

Table 1.2 Numbers of online courses attended by year of study

From the above cross tabulation, the number of courses attended based on their year of study were tabulated in the following manner. 64.5% of the first year students and 9.5% of the second year students were not attended any online courses. 20.4% of I year and 2.3% of II year students were attended ONE course on online. 2.3% of I year students were attended TWO courses on online. 1.0% of the first year students were attended more than two courses on online.

4.1.2 Hypothesis Tested- II

Research Hypothesis (H_1)

There is an association between the No. of hours spent on computer for education purpose based on course.

Null Hypothesis (H_0)

There is no association between the No. of hours spent on computer for education purpose based on course.

From the above cross tabulation, the number of hours spent on computer for educational purpose learning for various courses were tabulated in the following manner. BE (CSE) count was found to be 5.3% of the respondent for not using online learning, 11.5% for respondent using 1- 5 hours. 3.9% for the respondents using 6 – 10 hours, 1.6% for the respondent using 15 – 20 hours. BE (ECE) count was found to be 6.6% of the respondent for not using online learning, 9.2% for respondent using 1- 5 hours. 5.9% for the respondents using 6 – 10 hours, 1.6% for the respondent using 15 – 20 hours. BE (EEE) count was found to be 6.6 % of the respondent for not using online learning, 8.6% for respondent using 1- 5 hours. 2.6% for the respondents using 6 – 10 hours, 1.3% for the respondent using 15 – 20 hours. BE (MECH) count was found to be 6.6 % of the respondent for not using online learning, 12.2% for respondent using 1- 5 hours. 3.3% for the respondents using 6 – 10 hours, 2.0% for the respondent using 15 – 20 hours. Other courses were spent minimum hours for using online learning.

Number of hours spent on Computer * Studying Course		Course						Total
		BE (CSE)	BE (EEE)	BE (ECE)	BE (MECH)	BCA	MCA(INTEGRATED)	
<1	Count	18	15	13	23	2	5	76
	%	5.9%	4.9%	4.3%	7.6%	.7%	1.6%	25.0%
1-5	Count	46	42	52	49	1	23	213
	%	15.1%	13.8%	17.1%	16.1%	.3%	7.6%	70.1%
6-10	Count	4	1	6	1	0	3	15
	%	1.3%	.3%	2.0%	.3%	.0%	1.0%	4.9%
Total l	Count	68	58	71	73	3	31	304
	%	22.4%	19.1%	23.4%	24.0%	1.0%	10.2%	100.0%

Table 1.3 Hours of spent on Computer by course

4.1.3 Hypothesis Tested- III

Research Hypothesis (H_1)

There is an association between the No. of hours spent on computer for education purpose based on gender

Null Hypothesis (H_0)

There is no association between the No. of hours spent on computer for education purpose based on gender.

Number of hours spent on Computer * Gender		Gender		Total
		Male	Female	
<1	Count	57	19	76
	%	18.8%	6.3%	25.0%
1-5	Count	148	65	213
	%	48.7%	21.4%	70.1%
6-10	Count	6	9	15
	%	2.0%	3.0%	4.9%
Total	Count	211	93	304
	%	69.4%	30.6%	100.0%

Table 1.4 Hours of spent on Computer by Gender

From the above cross tabulation, the number of hours spent on computer for educational purpose based on gender was tabulated in the following manner. Male count was found to be 18.8% of the respondent for not using computer for learning, 48.7% for respondent using 1- 5 hours. 2.0% for the respondents using 6 – 10 hours. Similarly, Female count was found to be 6.3% of the respondent for not using computer for learning, 21.4% for respondent using 1- 5 hours. 3.0% for the respondents using 6 – 10 hours.

4.1.4 Hypothesis Tested- V

Research Hypothesis (H_1)

There is a significant difference in the opinions of students about the effective learning through E- course based on their gender.

Null Hypothesis (H_0)

There is no significant difference in the opinions of students about the effective learning through E- course based on their gender.

Constraints	Gender	Size	Mean	Std. Deviation	t	P value
All the prevention methods in E- learning course were good and well understandable:	Male	211	1.80	.57	.287	.774
	Female	93	1.82	.62	.277	.782
The First-Aid Treatment steps in E- learning course were clearly explained	Male	211	2.01	.53	.349	.727
	Female	93	2.03	.49	.359	.720
All the treatment steps can be following by everyone at any situation	Male	211	2.38	.82	.961	.337
	Female	93	2.48	.85	.949	.344
Learning materials used in E- learning course for the First-Aid were good	Male	211	2.02	.58	.628	.530
	Female	93	2.08	.79	.560	.576
E- learning course User Interface Screen Design was very interactive with learner	Male	211	2.29	.76	.556	.121
	Female	93	2.14	.86	.480	.141
The Quality of the course content was very high in level	Male	211	2.57	.93	.196	.845
	Female	93	2.59	.91	.198	.843
The prevention method and treatment instructions for Diabetic were very useful	Male	211	2.05	.66	.766	.444
	Female	93	1.99	.65	.772	.441
The prevention method and treatment instructions for Heart attack were very useful	Male	211	2.08	.85	.659	.510
	Female	93	2.01	.85	.658	.511
The prevention method and treatment instructions for Chocking were very useful	Male	211	2.09	.59	.876	.382
	Female	93	2.02	.69	.829	.408
The prevention method and treatment instructions for Electric shock were very useful	Male	211	1.93	.71	.200	.842
	Female	93	1.95	.66	.205	.838
The prevention method and treatment instructions for Convulsion were very useful	Male	211	2.09	.65	1.03	.306
	Female	93	2.17	.73	.982	.327
The prevention method and treatment instructions for Unconscious were very useful	Male	211	1.99	.71	1.56	.120
	Female	93	1.85	.67	1.59	.113
The prevention method and treatment instructions for Heat stroke were very useful	Male	211	2.05	.61	.299	.765
	Female	93	2.08	.64	.292	.770
The prevention method and treatment instructions for Burn were very useful	Male	211	1.94	.54	1.03	.306
	Female	93	2.01	.61	.976	.330

The prevention method and treatment instructions for Bleeding were very useful	Male	211	1.98	.62	1.92	.056
	Female	93	2.13	.61	1.93	.055
The prevention method and treatment instructions for Poisoning very useful	Male	211	2.16	.83	.598	.550
	Female	93	2.10	.70	.638	.524
The prevention method and treatment instructions for Snake Bites were very useful	Male	211	1.89	.72	2.20	.029
	Female	93	2.10	.80	2.11	.037

Table 1.5 Opinions of students about the effective learning through E- Course based by Gender

The independent sample T- test for the above observance table shows that there is a significant difference between the prevention methods of treatment instruction for bleeding. It is inferred that the 95% confidence interval of the difference was 0.004. Hence null hypothesis is rejected. Also there is a significant difference between the prevention method and treatment instructions for snakebites. Since, the obtained significant value is 0.02. This is less than the fixed significant value (i.e., $p < 0.05$). So that null hypothesis is rejected.

4.1.5 Hypothesis Tested- VI

		Sum of Squares	**Mean Square**	**F**	**P value**
All the prevention methods in E- learning course were good and well understandable:	Between Groups	2.333	.467	1.366	.237
	Within Groups	101.82	.342		
	Total	104.15			
The First-Aid Treatment steps in E- learning course were clearly explained	Between Groups	1.309	.262	.956	.445
	Within Groups	81.60	.274		
	Total	82.91			
All the treatment steps can be following by everyone at any situation	Between Groups	2.540	.508	.723	.606
	Within Groups	209.23	.702		
	Total	211.77			
Learning materials used in E- learning course for the First-Aid were good	Between Groups	1.201	.240	.549	.739
	Within Groups	130.32	.437		
	Total	131.52			
E- learning course User Interface Screen Design was very interactive with learner	Between Groups	4.129	0.826	1.306	0.261
	Within Groups	188.38	0.632		
	Total	192.49			
The Quality of the course content was very high in level	Between Groups	5.612	1.122	1.313	0.258
	Within Groups	254.64	0.855		
	Total	260.26			
The prevention method and treatment instructions for Diabetic were very useful	Between Groups	4.929	0.986	2.318	0.044
	Within Groups	126.74	0.425		
	Total	131.67			
The prevention method and treatment instructions for Heart attack were very useful	Between Groups	1.069	0.214	0.292	0.917
	Within Groups	217.86	0.731		
	Total	218.93			

The prevention method and treatment instructions for Chocking were very useful	Between Groups	2.85	0.57	1.455	0.204
	Within Groups	116.7	0.392		
	Total	119.54			
The prevention method and treatment instructions for Electric shock were very useful	Between Groups	0.815	0.163	0.333	0.893
	Within Groups	145.86	0.489		
	Total	146.68			
The prevention method and treatment instructions for Convulsion were very useful	Between Groups	3.124	0.625	1.358	0.24
	Within Groups	137.07	0.46		
	Total	140.19			
The prevention method and treatment instructions for Unconscious were very useful	Between Groups	0.741	0.148	0.296	0.915
	Within Groups	149.3	0.501		
	Total	150.04			
The prevention method and treatment instructions for Heat stroke were very useful	Between Groups	0.548	0.11	0.281	0.924
	Within Groups	116.38	0.391		
	Total	116.93			
The prevention method and treatment instructions for Burn were very useful	Between Groups	3.259	0.652	2.06	0.07
	Within Groups	94.268	0.316		
	Total	97.526			
The prevention method and treatment instructions for Bleeding were very useful	Between Groups	1.129	0.226	0.577	0.718
	Within Groups	116.66	0.391		
	Total	117.78			
The prevention method and treatment instructions for Poisoning very useful	Between Groups	2.695	0.539	0.839	0.523
	Within Groups	191.5	0.643		
	Total	194.19			
The prevention method and treatment instructions for Snake Bites were very useful	Between Groups	0.73	0.146	0.252	0.939
	Within Groups	172.62	0.579		
	Total	173.35			

Table 1.6 Opinions of students about the effective learning through E- Course based by studying course

Research Hypothesis (H_1)

There is a significant difference in the opinions of students about the effective learning through E- course based on their studying course.

Null Hypothesis (H_0)

There is no significant difference in the opinions of students about the effective learning through E- course based on their studying course. The tested research hypothesis using one way ANOVA (Analysis of Variance) shows that there is a significant difference between the prevention methods for treating Diabetic patient. The obtained significant value is 0.04. Hence the null hypothesis got rejected.

CONCLUSION: The basic concepts of First-Aid awareness system have been outlined. This considered in the context of formally and systematically organized learning about the medical items and symptoms for disease, in which the instructor and the learner(s) use ICT to facilitate their interaction and collaboration. The use of this system should reduce the disease and protect people. This is most useful because of learning about the First-Aid is use to protect people life. First-Aid awareness e-course can save costs and time. It helps to improve the knowledge of medicals symptoms and prevention. Finally conclude that the end of the training participants would have increased knowledge o f essential health disease and related treatments. This online first aid e-course could equip you with the skills and knowledge to help save someone's life!

REFERENCES

[1] Ajzen, I., & Fishbein, M. (1977). Attitude–behavior relations: a theoretical analysis and review of empirical research. Psychological Bulletin, 84, 888–918.

[2] Arbaugh, J. B., & Duray, R. (2002). Technological and structural characteristics, student learning and satisfaction with web-based courses – An exploratory study of two on-line MBA programs. Management Learning, 33(3), 331–347.

[3] Aronen, R., & Dieressen, G. (2001). Improvement equipment reliability through e-Learning. Hydrocarbon Processing, 47–57.

[4] Bhattacherjee, A. (2001). Understanding information systems continuance: an expectation confirmation model. MIS Quarterly, 25(3), 270–351.

[5] Katz, Y. J. (2000). The comparative suitability of three ICT distance learning methodologies for college level instruction. Educational Media International, 37(1), 25– 30.

[6] Katz, Y. J. (2002). Attitudes affecting college students' preferences for distance learning. Journal of Computer Assisted Learning, 18,2–9

[7] Lewis, C. (2002). Driving factors for e-Learning: an organizational perspective. Perspectives, 6(2), 50–54. Lin, Cathy S., Wu, S., & Tsai, R. J. (2005). Integrating perceived playfulness into expectation-confirmation model for web portal context. Information & Management, 42, 683–693.

[8] Piccoli, G., Ahmad, R., & Ives, B. (2001). Web-based virtual learning environments: a research framework and a preliminary assessment of effectiveness in basic IT skill training. MIS Quarterly, 25(4), 401–426.

[9] Wu, J. P., Tsai, R. J., Chen, C. C., & Wu, Y. C. (2006). An integrative model to predict the continuance use of electronic learning systems: hints for teaching. International Journal on E-Learning, 5(2), 287–302.

[10] Khairil Imran Ghauth and, Nor Aniza Abdullah, (2009) An Empirical Evaluation Of Learner Performance In E-Learning Recommender Systems And An Adaptive Hypermedia System, pp 141-152.

[11] Jonassen, D. H., Computers in the Classroom, Englewood Cliffs, NJ:Merrill, Keefe, J. W. (1987), in "Learning Style".

[12] Peters, J., Jarvis, P. et al., Adult Education, San Francisco, CA, Ed Rogers, A., Teaching Adults, Buckingham: OU Press

[13] Jemni, M., & Nasraoui, O. (2009). Automatic recommendations for e-learning personalization based on web usage mining techniques and information retrieval. Educational Technology & Society, 12(4), 30–42.

[14] Liang, G., Weining, K. & Junzhou, L. (2006). Courseware recommendation in e-learning system. Advances in Web Based Learning – ICWL2006, Springer Berlin/Heidelberg, 10-24.

[15] Kerkiri, T., Manitsaris, A. & Mavridou, A. (2007). Reputation metadata for e commending personalized e-learning resources. Proceedings of the Second International Workshop on Semantic Media Adaptation and Personalization, Uxbridge, 110-115.

[16] http://www.firstaidforfree.com

[17] www.indiadevelopmentgateway.com

[18] www.netdoctor.com