INTERNATIONAL JOURNAL FOR RESEARCH IN APPLIED SCIENCE AND ENGINEERING TECHNOLOGY (IJRASET)

A Research on E-Learning environment through data mining approach – A comparative analysis

M. Jennifer June[#1]

[#]*Electronics and Media Technology, Karunya University*

Abstract— Data analysis and data mining techniques are standard as important disciplines that convey 'refined field knowledge'. In earlier days we were asking our friends or relatives for their view regarding products which we want to acquire from the merchants. But now a day's E-commerce is attaining more and more reputation. Same as the above the learning system has also become user friendly to the users that makes them to learn being in home using a system. This comparative analysis helps to understand the usage of e-learning and also how effectively data mining is used in this field.

Keywords— E-learning, data mining, collaborative learning, ICT, data warehouse.

I. INTRODUCTION

With the access of new information and communication technologies (ICT) into everyday use, the execution of a sustainable education progression poses new demands to technologies and learning methods. In the last twenty years, this topic has been dealt with from diverse perspectives, which have resulted in a blend and affluence of practice and move towards the use of ICT for educational purposes. [1]

In this article, we shall proceed from the unquestionable truth that in e–learning the computer plays an important role. Computer–based learning requires an proper computer interface design. From the viewpoint of its purpose, the computer interface design: (1) aid to extend the user's cognitive facility in the learning process and (2) has to fulfil the learning scheme and approach used in learning. Thus, it is important to conclude in what way the computer interface facilitates the attainment of information, support communication, supports the procedure of mastering and producing knowledge and lend a hand to perform other important tasks vital for the technique.

II. DATA MINING

A field that deals with digging out information from databases, without laying restrictions on the amount or types of data in a database, is data mining. Data mining (sometimes called data or knowledge discovery) is the progression of analysing information from diverse point of view and summarizing it into useful information.[2]

A. Data warehouses

Spectacular advances in data capture, processing power, data communication, and storage capabilities are enabling organizations to incorporate their different databases into data warehouses. Data warehousing is defined as a process of centralized data administration and recovery. Data warehousing, like data mining, is a reasonably new term although the concept itself has been around for years. Data warehousing represents an superlative idea of maintaining a central warehouse of all directorial data. Centralization of data is needed to exploit user access and analysis. Dramatic technological advances are making this vision a reality for many companies. And, equally[11] dramatic advances in data analysis software are allowing consumer to right to use this data freely. The data analysis software is what supports data mining.

III. E-LEARNING

The polysemy of the e-learning term, joined with the quick development of knowledge and its function in education, demonstrate a variety of senses. Most of the terms (online education, unfasten learning,[3] web-based knowledge, computer-mediated education, blended learning, m-learning,) have in common the ability to use a computer connected to a

INTERNATIONAL JOURNAL FOR RESEARCH IN APPLIED SCIENCE AND ENGINEERING TECHNOLOGY (IJRASET)

network, that recommend the opportunity to learn from anywhere, anytime, in any rhythm, with any means.

From the very establishment, the following two learning methods were distinguished

a. Cooperative learning in which the learners solve individual tasks the outcomes of which are summarized in a common result.[12]

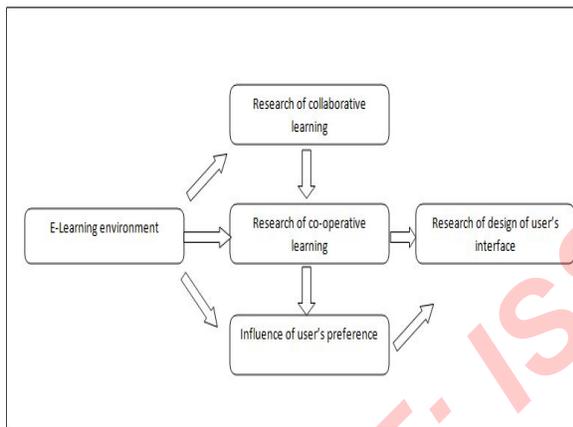b. Collaborative learning in which the partners work jointly.

Fig. 1 Flowchart of the process happens with related to e-learning and data mining.

A. Research achievement in an e–learning environment as an educational innovation

Knowledge society is based on a new example in our approach towards information. Synergy exist between the pattern of knowledge society as the framework of a generally acknowledged set of supplies and considerations determining the growth of measures and the type of movement and the development of the information and communication technologies. [4]The quality features of knowledge society are diversified opportunities, freedom of opinion and the right to participation. ICT provide not only abundant opportunities for cooperation, but also make certain contact to an colossal quantity of information which requires new competences for its evaluation.

The use of information technologies ensures the most crucial demands of 21st century education: personalisation, adjustment to the learners' needs, efficacy and effectively. Technologies play a crucial role in students' lives, they support them to make the learning environment inventive and creative. The ability of students and educators and new technology–based educational systems describe the new education society at the centre of which is the learner. The intensity of communication and collaboration skills with the new technologies conclude the mode of acquiring understanding and personalisation[5]. The new generation grows and develops in an environment saturate by the new technologies, it is often alluded to as the NetGen or the Google generation. ICT release their creativity.

Blogs, social networks, multimedia application sharing and online games have become tools that teach young people how to learn, is one of the most important components of creativity.
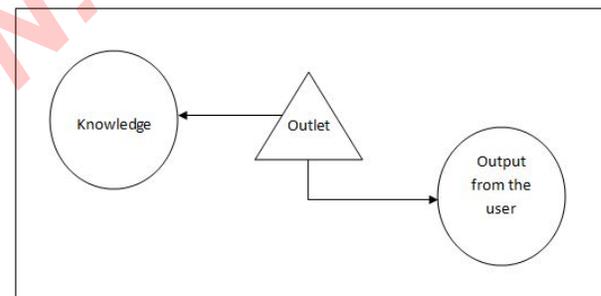

Fig. 2 Information process design

B. E-Learning package
Stage I: Planning

The first stage is planning which consisted of three steps.

1) The first step is to define the scope. In this step the researcher dogged goals and objectives of the final consonant E-learning package. The learning goals and objectives were determined, including general and performance objectives, learning strategies, the initial activities, supplementary

INTERNATIONAL JOURNAL FOR RESEARCH IN APPLIED SCIENCE AND ENGINEERING TECHNOLOGY (IJRASET)

exercise and tests.[6] The research also specifies the scope of the final consonant E learning package.

2) The second step is to recognize learner uniqueness. The research studies the target learners' background in advance in order to act in response to the learners' needs. The learners' distinctiveness included: age, educational level, motivation, prerequisite language skills, facility with a computer, access to computers and time availability. [7]

3) The third step is to select and collect resources. In this step related information possessions were composed and made ready for each lesson. The research ensures that the materials for content, instructional development and an instructional delivery system such as a computer program were ready. The resources were selected and collected

Stage II: Design

The second stage is design which consists of three steps.

4) The fourth step is to develop original content ideas. In this step of the process, the researcher dogged the form and distinctiveness of the instruction by firstly exclusion of ideas. Continual or unworkable ideas were removed and the most functional ideas were recognized for review. Secondly, task and perception analysis process was done. The researcher analysed the tasks and likely content that the students would study until the concluding content was distinguished. Thirdly, a introductory explanation of the lesson was produced. Lastly, assessment and alteration of the design was carried out in order to have a methodical program of training. [8]

5) The fifth step in this stage is to create flowcharts. In this step, a flow chart was developed. The flowchart shows how the learners' procedure can continue easily and at the same time get better learners' attention and information.

6) The sixth step is to generate the storyboard. In this step, the lesson contents were exhibited as images for each frame on paper in order to present the lesson contented in multiple forms on the computer screen.[9] In this process the lesson content on the storyboard was evaluated and revised until it was considered acceptable. A word processor was used to write the primary text. The information was arranged in lists when proper. In this step the storyboard was reviewed and scripts were prepared.

Stage III: Development

The third stage is development which consists of four steps.

7) The seventh step is to get ready with the media. This step included the researcher sort the texts using Microsoft Word. Audio was recorded or edited using Sound Forge [10]

8) The eighth step is to plan the exercise. At this stage, the storyboard was shifted into the CALL program using the storyboard on paper and later ready to be produced the final consonant E-learning.

9) The ninth step is to carry out a test. In testing the researcher, the programmer and experts tests the final consonant E-learning package using an evaluation outline which verify the look and feel; technique and rule; [13]

10) The tenth step is to modify material. After doing the test, the information from the assessment form were used to modify the final consonant E-learning package.[14]

IV. CONCLUSIONS

In this work we have tinted the software architecture of an in house built e-learning setting for data mining analysis. The learning act explore technique in an e–learning environment is an appearance of the modern era which is characterized by the access of information and communication technologies into learning and everyday life. Abundant studies have shown that data generation in action considers sponsoring the students' activity in group work and develops their inspiration and research skills.

REFERENCES

[1] Genat, B. Building emergent situated knowledges in participatory action research. Action Research 7; 2009. p.101-115. 142   Janis Kapenieks / Procedia Computer Science 26 (2013) 121 – 142

[2] Dick, B., Stringer, E., Huxham, C. Final reflections, unanswered questions. Action Research 7(1); 2009. p. 117-120.

INTERNATIONAL JOURNAL FOR RESEARCH IN APPLIED SCIENCE AND ENGINEERING TECHNOLOGY (IJRASET)

[3] Stahl, G., Koschmann, T., Suthers, D. Computer-supported collaborative learning: An historical perspective. In: Cambridge handbook of the learning sciences. Sawyer, R., editor. Cambridge, UK, 2006: Cambridge University Press.

[4] Dillenbourg, P. What do you mean by "collaborative learning"? What do you mean by "collaborative learning"? Amsterdam, NL: Pergamon, Elsevier Science; 1999. p. 1-16.

[5] Roschelle, J., Teasley, S. The construction of shared knowledge in collaborative problem solving. Computer-supported collaborative learning. Berlin, Germany. 1995: Springer Verlag.

[6] Mayer, R. E. Multimedia Learning. New York. 2001: Cambridge University Press.

[7] Nielsen, J. Usability Engineering. San Francisco. 1993: Academic Press.

[8] Carliner, S. S. P. The e-learning Handbook. San Francisco. 2008: Pfeiffer.

[9] Bonk, C. Searching for Learner-Centered, Constructivist, and Sociocultural Components of Collaborative Educational Learning Tools. Electronic collaborators: Learner - centered technologies for literacy, apprenticeship, and discourse. New York: Lawrence Erlbaum Associates; 1998. p. 25 - 50.

[10] Baker, M., Lund, K. Promoting reflective interactions in a computer supported collaborative learning environment. Journal of Computer Assisted Learning. (13); 1997. p. 175-193.

[11] Clark, R., Mayer, R. E-Learning and the Science of Instruction. San Francisco. 2003: Pfeifer.

[12] 1Kapenieks, J. E-learning environment for sustainability in educational action research. In: 9th International JTEFS/BBCC Conference "Sustainable development. Culture. Education", Siauliai, Lithuania: Siauliai University; 2011.

[13] Kapenieks, J. Collaboration Trends during Action Research in an E-Learning Environment for Developing and Acquiring Effective Personal Knowledge. In: CSEDU 2011 3rd International Conference on Computer Supported Education. Noordwijkerhout: SciTePress; 2011.

[14] Lund, A. Expert ratings of usability maxims. Ergonomics in Design. 5(3); 1997. p. 15-20.

[15] Kapenieks, J. E-learning interface for educational action research. In: 10th International JTEFS/BBCC Conference "Sustainable Development. Culture. Education". Savonlinna, Finland: University of Eastern Finland; 2012.