The Study of Kid's Personalization Model for E-learning Content Development in Saudi Arabia Schools

Amjad barqawi
College of Information Technology, University Tenaga National (UNITEN)
43009 Kajang, Selangor, Malaysia

and

Amjad barqawi
College of Information Technology, University Tenaga National (UNITEN)
43009 Kajang, Selangor, Malaysia

ABSTRACT

The normal teaching processes for kids still has a gap from the education accessible point which can be achieved by utilizing the available technologies. Kids by their own nature will be attracted to present images. We aim here to investigate the use of multimedia facilities to attract kids to such learning tool and gain their basics knowledge. The normal teaching methods is still usable but inside schools, therefore an auxiliary e-learning content presentation. (Attractive web-site) to increase kids interest with their courses even outside school campus shall be developed. In addition, kids like to learn by interaction skills such as listening and watching which can be done through the attractive e-learning content presentation. This paper came to investigate the attractive and interactive module that contains an adapt to the special needs, individual interests, the suitable pace and personal qualities for kid's , thus already get appropriate material of content for them , take into account the view of personalized e-learning content in the module. The proposed model in this study tends to contribute by linking individual psychological factors to learning outcomes and by considering the level of achievement in the taught subject as an indicator of the student's ability.

1. INTRODUCTION

Despite there are many development in using e learning in education, past failures have shown that investments in e-learning do not necessarily lead to financial returns and training outcomes [1]. This is mainly due to learning design characteristics influencing e learning in educational circumstances. Understanding learners' psychological processes is crucial for e learning systems to provide effective e-learning programs that take the personalizing characteristics into consideration[2]. In response to this, personalizing e learning appears as a critical need in education, and the intelligent e learning designs come to the surface.

As described in Alavi and Leidner's research framework, e learning is a virtual learning environment in which a learner's interactions with materials, peers and/or instructors are mediated through information and communication technologies. It is different from the traditional environment because ICT are used as tools to support the learning process [2] . Taking advantage of network infrastructures, learning can occur anywhere using many types of resources. This suggested that IT, instructional strategy, learners' psychological processes, and contextual factors together influenced e-learning outcomes. Besides that, the differences in learners' psychological attributes lead to differences in their benefits from e learning opportunities, and, consequently, to differences in their learning outcomes.

The personalization of e-learning makes use of easy adoption of innovative strategies to enhance learners' performance. For instance, learner control makes use of features such as hyperlinks that allow learners to navigate through text and multi-media content in their preferred sequence. Learners can skip familiar content and spend more time on topics of interest, as well as scheduling according to their own needs. Furthermore, new ways of presenting learning content can provide richer and more dynamic information display and animation [3].you to provide the PDF directly.

2. LITERRATURE REVIEW

2.1 BACKGROUND

personalizing e learning depends on understanding and utilizing of learners' internal factors. A few individual internal psychological states apparently affect e-learning outcomes, including learners' prior computer experience, computer self-efficacy, motivation, computer anxiety, and communication apprehension [4,5].Many researchers recently have endeavored to provide personalization mechanisms for Web-based learning [6-

7]. Nowadays, most recommendation systems [8-9] consider learner/user preferences, interests, or browsing behaviours when analyzing learner behaviors for personalized services. These systems neglect the importance of learner ability for implementing personalized mechanisms. On the other hand, some researchers emphasized that personalization should consider different levels of learner knowledge, and learners' learning styles, especially in relation to learning [6-7].

Also, learners perceive and process information in very different ways and we can group common ways of how people learn. This is represented in learning style. Learning style theory has been developed and applied in various curricula for all levels of education. By recognizing and understanding the individuals to their learning styles, the techniques can be used better and improve the speed and quality of learning [10]. Research work indicates that the key to getting and keeping students actively involved in learning lies in understanding learning style preferences, which can positively or negatively influence a student's performance. It has also been shown that adjusting teaching materials to meet the needs of a variety of learning styles benefits all students [11].

2.2 RELATED WORKS

Since one of the main problems with eLearning environments is their lack of personalization, many e learning models had been immersed to overcome personalization problems. It is not possible to discover everything that affects what a student learns in a class, and even if instructors could do, they would not be able to figure out the optimum teaching style for that student.

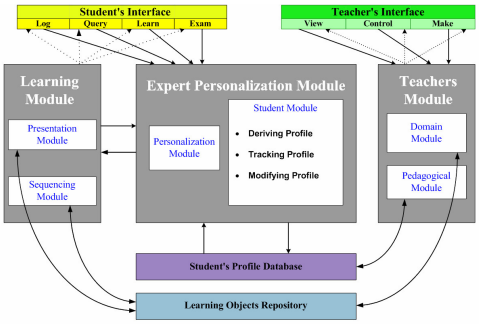
2.2. 1 INDeLER Personalization Model

This model was proposed by Jovanovick et. el. (2008) [12]and depends on the process of developing Student profile by mapping students categories explored with Felder- Soloman's ILS questionnaire to the appropriate value of the personalization vector XYZ, and by deriving vector's values from the acquired student's answers on Preference test. Obtained vector values perform the Personalized e Learning Course Model (PeLCoM) metadata and they provide recommendations for creating personalized eLearning experience.

INDeLER system derives student's profile, provides sequencing of personalized eLearning sessions and supports scenario for designing lessons content tailored to the individual student needs.

Overview:-

- The Model enables personalization from the aspect of contents and structure of curriculum, educational goals, curriculum volume, the level of difficulty of the curriculum and the domain of the curriculum. On the X axis there is a list of all Learning Objects (Los) which participate in the construction of a course.
- The Model enables personalization from the aspect of curriculum visualisation and the type of presentation (mathematical-logical, linguistic, musical, visual etc.); from the perspective of learning styles of the learners.
- The Model enables personalization from the aspect of sequencing teaching materials on the level of lessons by supporting different systems of program contents (a lesson by lesson planning), and from the aspect of sequencing teaching materials that constitute a lesson (in a single lesson) by supporting the definition of different views on a lesson.



T architecture of personalized eLearning system INDeLER

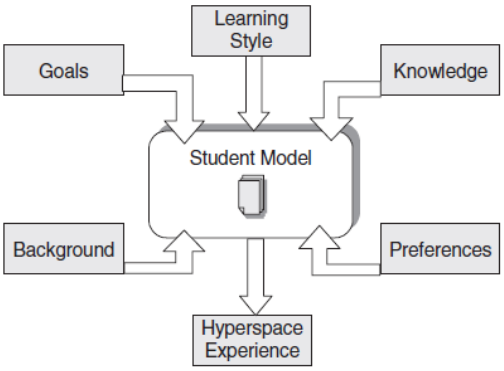
2.2. 2 Adaptive web-based learning Model

This model was proposed by Magoulas et. el. (2003) [13]and was designed to examine the use of individual differences as a basis of adaptation in web based learning systems. The model depends on students' learning styles and maintains the context for interaction between the student and the system that can accommodate student characteristics, needs and abilities. This model makes learning takes place progressively by making students actively participate in instructional decisions, and supporting them individually to assess their personal learning goals.

Overview:-

- The model serves as an instructional medium that has led to the design of student-centred systems with the aim to enhance the learning experience.
- It is based on the belief that enhancement of the effectiveness can be achieved by recognising students' learning needs, their learning styles, preferences with respect to specific learning processes, as well as their interests in specific

learning modules that cover their knowledge deficit.



Generic student model that incorporates individual differences

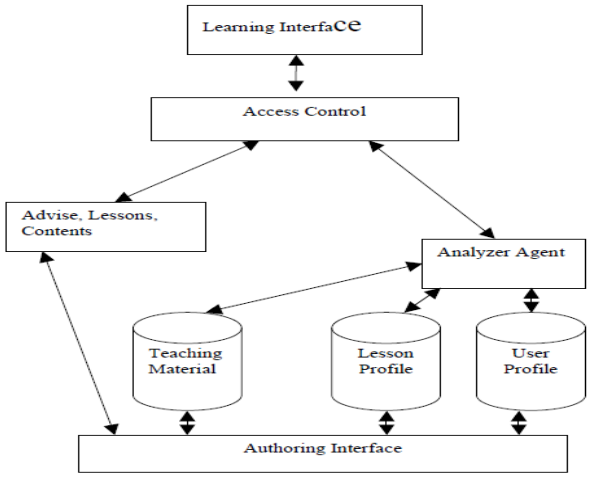
2.2. 3 Models Using Agents in Education (Knowledge based Models)

This model was proposed by Panjawaranonda & Srivihok (2005) [14]and was depending on user-centric approach that was applied to improve the performance, effectiveness and usability of the system. The model proposes an agent for learning mathematics in primary education. This agent provides material for both teachers and students.

For teachers, it gives advice in preparing teaching materials and methods based on student background. These recommendations can be procedures such as specific activities, or content including lessons in mathematics. For students, the system provides lessons to them as a result of the pre test for mathematics skills. The system was examined by three groups including teachers, software developers and education students.

Overview:-

- Component technologies and artificial intelligence were used to deliver e Learning. These components include: pedagogy agents, interactivity level, quality of feedback, control strategies, tutorial remediation, and student model.
- Web-mining techniques have been used to build a recommended agent for e Learning systems. This agent recommends activities to a learner based on his/her access history.
- The model proposes a collaborative voting approach for adjusting course material difficulty in order to determine an appropriate level of difficulty parameter for the course material.



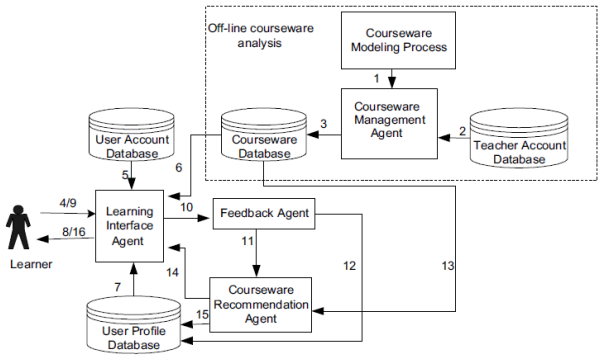
Architecture of the proposed system

2.2. 4 Personalized Coursework Recommendation Models

Chen et. al (2004) [15] proposed a personalized courseware recommendation system (PCRS) based on the proposed fuzzy item response theory to provide Web-based learning services. Depending on the estimation of learner abilities, the novel system can recommend appropriate courseware to learners. In this model, learner ability and the difficulties of courseware are simultaneously taken into account when implementing a personalization mechanism.

Overview:-

- The coursework recommendations are built upon the student's ability that was measured by his response to two questions with different difficulties.
- The students' abilities were estimated using fuzzy response theory to make use of approximation through the intervals provided by the functions that the researchers used to express the students' abilities.
- Item characteristic function with a single difficulty parameter was applied to model the courseware to estimate learner's ability.



Architecture of the proposed Coursework Recommendation model

3. THE CONTEXT OF E LEARNING IN DAUDIA ARABIA (KINGDOM PRIVATE SCHOOLS)

Regarding the teachers evaluation of the school website and the content attached to it, the results reveal that about half of the teachers (93%) believe that the presented material for students takes care of their interests , wishes , and abilities. Beside that, most of the teachers (65%) believe that the site is not flexible or support students with needed educational material.

Regarding inquiries, more than half of the teachers sample (54%), believe that the site did not support students with suitable inquiries. The same attitude continues to be stressed regarding the attractiveness of the content, where (58%) of the teachers evaluated it as not attractive.

All the above results were consistent with each other and with the teachers suggestions that there should be an electronic site at school that makes a better content than the one available now, a suggestion that was presented by (96%) of the teachers sample.

Regarding the students' responses related to the issue if the web site fun to learn, the results shows that 49.6% answered as yes but 50.4% answered by No, which means that more than a half of respondents answer that the web site is not fun.

This results may indicate that half of the students see the website as fun which is not consistent – to a degree – with the previous results. That may be interpreted by the fact that the students look at the websites generally as fun for learning and they expect the school website to be so.

Another interpretation is related to a need for more investigation in the meaning of fun in the students population.

3.1 The Need for Improved Methodology

Computer Science, together with Psychology and Education, has been trying to refine teaching computational tools towards individual-centered or personalized self-learning [16][17]. Every day, new approaches to the use of computer and education are bringing new perspectives to this area.

All these promising ideas should be utilized in designing e learning in a way that its personalization aspects may be increased to meet the most learners' characteristics in both psychological and academic domains. So, both these factors; academic and psychological dimensions have to be considered in a personalized e learning model.

One size fits all approach that can be seen in most of e learning models have to come to an end since the students are different in their levels of achievements and in their learning styles. The variation among the students stimulated the need for appropriate teaching styles that should be adopted in designing the students' learning opportunities. This is why the proposed e learning model had utilized the expert knowledge in extracting the most appropriate approach in sequencing the learning experiences for a certain learning according to his achievement level and his learning style. This expert knowledge had been used in the model as a key factor that determines the sequences of learning opportunities for the different students.

4. FUTURE WORKS

The primary results will guide to develop an expert system which is able to present student with the suitable teaching material (content) based on experts (teachers) decisions. In addition, profiling of each individual student will be constructed as a result of student historical behavior in using the model. Thereby, personalizing student's interests and likes which can be directed and enhanced by the existence of expert system, to deliver the best content for each student.

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