INTERNATIONAL JOURNAL OF ADVANCE RESEARCH AND DEVELOPMENT

(Volume 5, Issue 4)

Available online at: www.ijarnd.com

Interactive tutorial framework for online learning

Min Min Naing, Moe Moe Hlaing

Computer University, Magway, Myanmar

ABSTRACT

Nowadays, online learning, teaching and online tutorial have become popular as higher education. Online learning is the delivery of learning, training or educational program according to the electronic means. So, this system is intended to develop an interactive tutorial website for online learners. A web based tutorial is a complete program whose purpose is to assist users in learning. It is a method of transferring knowledge, interactive set of instructions to teach by example. The online tutorial framework is the technique of representing a small kind of exam by a computer program. So, this system will examine the student study level by answering the random comprehensive questions. This system enhances the quality and improves the accessibility within education domain.

Keywords— *Interactive, Tutorial, Online Learning*

1. INTRODUCTION

With the advance of the Internet and the World Wide Web, the potential for reaching learners around the world increased greatly, and today's online learning offers rich educational resources in multiple media and the capability to support both real-time and asynchronous communication between instructors and learners as well as among different learners. Institutions of higher education and corporate training were quick to adopt online learning. Technologies can support any of these three types of online learning experience. These are expository instruction, active learning and interactive learning. In the expository learning experiences, content is transmitted to the student by a lecture, written material, or other mechanisms. In the active learning, the learner builds knowledge through inquiry-based manipulation of digital artifacts such as online drills, simulations, games, or micro worlds. Interactive learning activity in which the nature of the learning content is emergent as learners interact with one another and with a teacher or other knowledge sources. Any interactive system that accepts input from the user and provides information as output to the user.

This system is implemented to propose the interactive tutorial framework for online learning. The interactive online tutorial system is ideally an electronic counterpart of a human tutor. This system must be capable of guiding the student when he or she stumbles on a problem, suggest background or prerequisite material, understand the student's readiness for the course, and keep track of student's progress through the course.

In this system, interactive tutorial framework presents an opportunity for using technology to improve and enhance a student's learning environment. The major benefit of the proposed system is that, the interactive tutorial framework that is installed and supported in one place can be used by thousands of learners all over the world. This system practices student's skill by carrying out tasks within interactive learning environments. By building a web-based interactive tutorial framework, this system provides students to learn faster and translate the learning into improved performance interacting via interactive tutorial framework generally. It allows a student to solve exercises in any manner that the student chooses and is able to determine the student's ability to understand and apply basic concepts.

2. RELATED WORK

M. Kuimova, A. Kiyanitsyna and A. Truntyagin [1] proposed the e-learning system to improve the quality of higher education. They examined the students' perception of e-learning courses based on the moodle platform at national research Tomsk polytechnic university. The findings from 67 students reveal that the respondents highlighted the advantages of e-learning courses: convenience, combination of theoretical and practical material, on-line testing and apprehensibility of the assessment criteria.

L. Yordanova, N. Angelova and G. Kiryakova [2] described interactive models of e-learning for active learning. The usage of modern information and communication technologies in the educational process is a prerequisite for the creation of interactive learning environment. Interactive training models based on the use of electronic tools help to increase motivation and activity of students, which leads to the implementation of effective learning process. The purpose of this system is to explore and assess the potential of e-learning environment Moodle for organizing different types of interactive models of learning.

S. Senthamarai [3] presented the dynamic and communicative teaching methods that also called interactive teaching methods, constitute the basic elements of a recently developed process to motivate learning, so that the students and future engineers develop a critical position about the taught content. Using interactive techniques and strategies, the students become more engaged in learning; retain more information, thus becoming more satisfied.

3. ONLINE LEARNING

Online learning refers to instructional environments supported by internet. Online learning comprises a wide variety of programs that use the internet within and beyond school walls

to provide access to instructional materials as well as facilitate interaction among teachers and students. Online learning can be fully online or blended with face-to-face interactions [5].

Online learning is gradually growing and has become a part of university education. Universities develop a variety of courses to satisfy student learning needs and improve employee effectiveness. Online learning proves that it helps not only to deliver the content and material of the course, but also to improve student academic achievement. Online learning engages students in the learning process, provides opportunities for students' online activities at their own pace and at the time convenient for them. It creates learning situations and makes learners responsible for their own learning.

Online learning improves learners' time-management skills, ability to coordinate their study time and an opportunity to skip the elements they do not need. Modern educational technologies and online learning technologies are student-centered and are focused on the development of individual student resources [1].

3.1 Advantages of Online Learning

Advantages of online learning are as follows [1]:

- It provides an opportunity for university teachers to study colleagues' experiences, thus providing a chance of continual retraining,
- It provides better teaching aids, their efficient, timely updating and availability,
- It facilitates flexible asynchronous learning,
- It provides learners with a sense of autonomy and control,
- It provides a personal work schedule and a list of students' training courses tailored to their interests within the framework of educational standards,
- It forms critical thinking skills, initiative and responsibility for the work,
- It ensures lifelong learning by removing spatial and temporal restrictions and
- It develops students' ability to work independently.

3.2 Online learning Models

Models of online learning describe where technology plays a specific role in supporting learning. Types of organizational models of online learning are as follows:

- Non, blended, fully distance: Assists or replaces other learning and teaching approaches
- Synchronous or asynchronous: Interaction time - real time communication or individual work
- Collaborative learning: Instructional methods designed to encourage or require students to work together on learning tasks
- Computer-supported collaborative learning: Uses blogs, wikis, and cloud-based document sites such as Google Docs and Dropbox [2].

4. INTERACTIVE LEARNING

Interactive learning environments such as intelligent tutoring systems and software tutorials often teach procedures with step-by-step demonstrations [6]. Interactive learning is a pedagogical approach that incorporates social networking and urban computing into course design and delivery. Interactive learning has evolved out of the hyper-growth in the use of digital technology and virtual communication, particularly by students. The use of interactive technology in learning for students is as natural as using a pencil and paper were to past generations.

Increasingly, students and teachers rely on each other to access sources of knowledge and share their information, expanding the general scope of the educational process to include not just instruction, but the expansion of knowledge. The role change from keeper of knowledge to facilitator of learning presents a challenge and an opportunity for educators to dramatically change the way their students learn. The boundaries between teacher and students have less meaning with interactive learning [8].

4.1 Types of Interaction in Interactive Learning

Three types of interaction in the distance learning context: (i) learner-content interaction, (ii) learner-instructor interaction, and (iii) learner-learner interaction. Learner-content interaction refers to the interaction between the learner and the content for the subject of study. Learner-content interaction is considered as the intellectual process in interacting with the learning content that changes learner's understanding, or cognitive structures in their mind. Learner-instructor interaction refers to the interaction between the learner and the expert who prepared the distance learning material, such as receiving support from the instructor. Learner-learner interaction refers to the interaction between one learner and other learners, either individually or in groups such as group discussion and feedback [4]. Levels of interaction is shown in Figure 1.

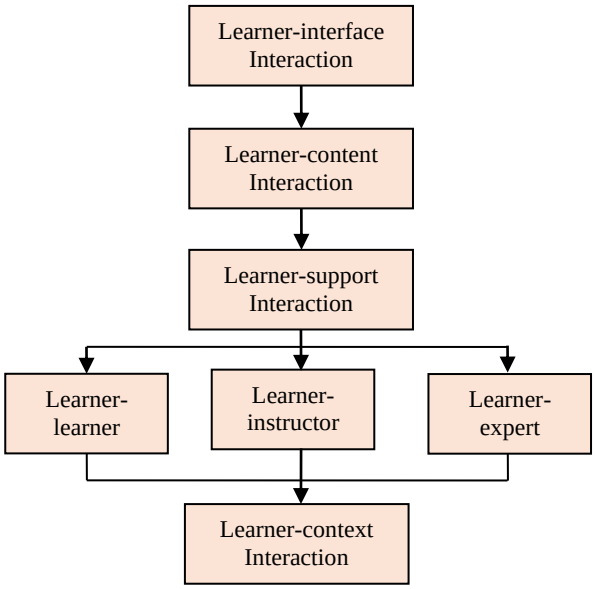

Fig. 1: Levels of Interaction

5. ONLINE TUTORIAL

While tutors have traditionally instructed pupils in face-to-face environments, many students now rely on entirely online tutors. Web based tutoring opportunities at all grade levels, along with reviews of the leading providers of online tutorial services. Benefits of online tutorial system are as follows:

- Save money and time: Online tutorial provides a time saving benefit because tutors preload teaching material and students can upload homework.
- Offers unlimited flexibility: The virtual whiteboard product allows face-to-face, as well as screen-sharing, writing, drawing capability. Younger generations prefer texting over talking. With online tutoring, the same preference is applicable.
- Serves different learning styles: With the emphasis on personalized approaches, tutors have access to tools to assist with instruction, including videos, graphics, manipulatives, to service a diversity of learning modalities [7].

6. PROPOSED SYSTEM DESIGN

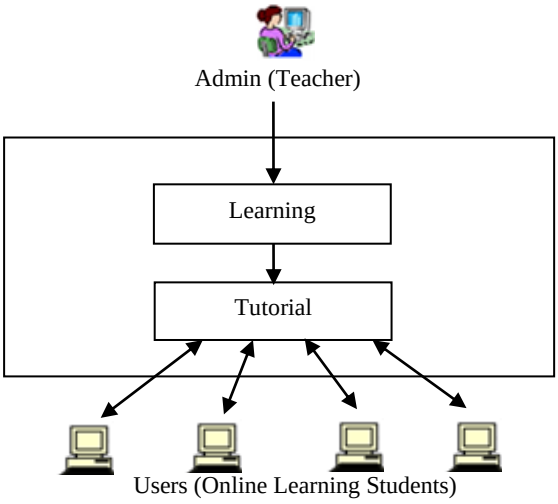

Fig. 2: Proposed System Design

Proposed system design is shown in Figure 2. This system is proposed as the interactive tutorial framework for online learning. In this system, there are two types of users. (a) Teacher (Admin User), (b) Students (Online Learning Users). The teacher (admin user) can add, update and delete the learning course. Moreover, this user can also add new questions, update questions and delete old questions. The admin user can load the questions according to the exam type and send them to students (online learning users) to sit for the exam and then, calculate marks after receiving all answers from students. After calculating, the admin user sends back the exam results to respective students. In this system, the exam students will answer that are given by the exam center. Moreover, the exam clients can cease the exam as soon as all questions have been answered and see the marks that are sent by the teacher after calculating marks.

6.1 System Flow Diagram

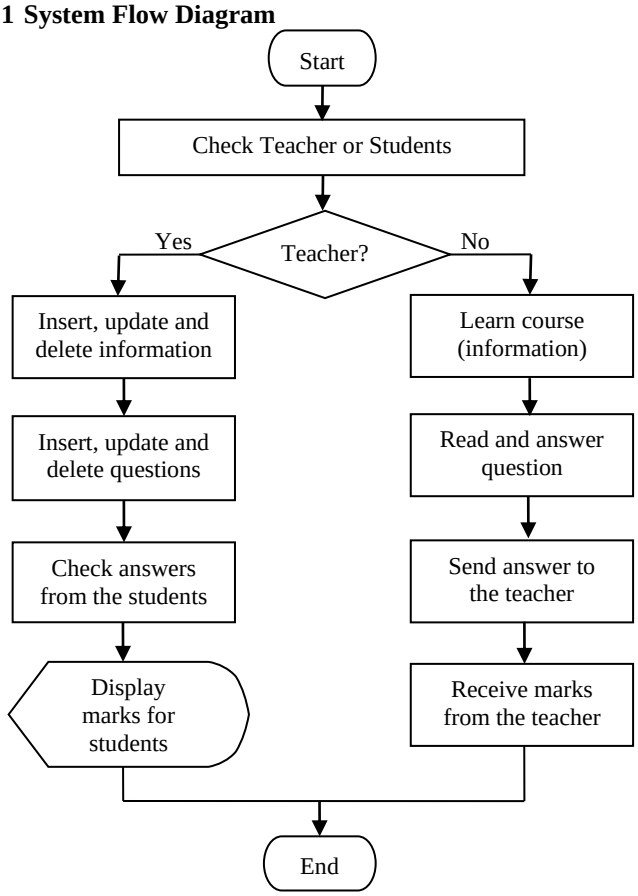

Fig. 3: Flow Diagram of the System

System flow diagram is shown in Figure 3. Teacher (admin user) can insert, update and delete the course (information), and questions for students. The admin user can check the answers that are accepted from the online students. After checking, the admin user must send marks to +1the user (online student).

In this system, every online student must learn the course (information) to answer questions from the teacher. After learning, these students must answer questions and send the answers to the teacher. Finally, every online student must receive and view their marks (results) from the teacher.

6.2 Implementation of the System

In this system, the user can first learn the courses about interactive online tutorial before the exam. This system proposed four topics to learn for the user. These topics are Software Engineering, IT Knowledge, Networking and English Learning. Detail explanations about each topic are described in this system. Figure 4 shows the learning course of the system.

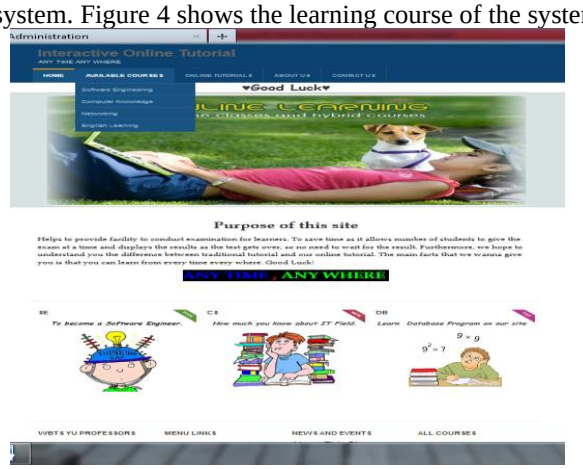

Fig. 4: Learning Course of the System

After learning the course, online tutorial process can be started. In this tutorial process, the user must face each test. These tests are Software Engineering test, IT Knowledge test, Networking test and English Learning test. Among them, Software Engineering test, IT Knowledge test and Networking test consist of two steps about online tutorial. Figure 5 shows the multiple-choice question process.

Fig. 5: Multiple Choice Question Process

In the first step of each test and English learning test, this system allows the user to free answer the multiple choice questions. The user needs to register for answering these questions in this first step. This system defines the tutorial time about 80 seconds within the first step of online tutorial. If the user can answer the half of these questions, this system allows the user to pass exam. In this system, skip process is contained

for the user who can't answer the question. And then, the proposed system can immediately produce the results of the user (learner). Furthermore, the user can print their tutorial results. Moreover, the user can answer the short question type from the second step of each test. In this test, this system also defines the tutorial time about 120 seconds. In the short question type, this system describes the information to easily answer the short question type for the user. Figure 6 shows the result production process.

Fig. 6: Result Production Process

In this system, the administrator can add and delete the TRUE/ FALSE questions, multiple choice questions and short questions. Moreover, the administrator can filter the detail information to know either the user who is passed or the user who is failed. Administration process is shown in Figure 7.

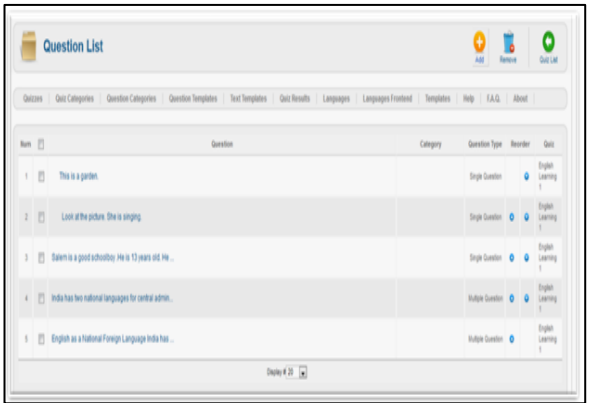

Fig. 7: Administration Process

7. CONCLUSION

This system is implemented as an interactive tutorial framework for online learning. As a result of this system, every online student can be made in a timely manner without waste of time. The complete facilities that are provided by the educational center can be seen in this system. By implementing this system gives us benefits such as elimination of distance barriers and part of time utilizing difficulties, saving the time, cost effective such as costs of authoring, publishing, distributing, modifying and etc., attraction for learner by giving more information than a general lecture. In this system, every online student can communicate with teacher via interactive tutorial framework.

8. REFERENCES

[1] M. Kuimova, A. Kiyanitsyna and A. Truntyagin, "E-Learning as a Means to Improve the Quality of Higher Education", SHS Web of Conference, pp. 1-5, 2016.

[2] L. Yordanova, N. Angelova and G. Kiryakova, "Interactive Models of E-Learning for Active Learning", Applied Researches in Technics, Technologies and Education (ARTTE), vol. 3, no. 4, 2015.

[3] S. Senthamarai, "Interactive Teaching Strategies", Journal of Applied and Advanced Research, S36-S38, 2018.

[4] L. Shengru, Y. Shinobu and T.Junichi, "The Influence of Interactive Learning Materials on Self-Regulated Learning and Learning Satisfaction of Primary School Teachers in Mongolia", Sustainability, pp. 2-19, 2018.

[5] M. Bakia, L. Shear and Y. Toyama, "Understanding the Implications of Online Learning for Educational Productivity", Center for Technology in Learning SRI International, pp. 1-76, 2012.

[6] O. Eleanor, A. Erik and G. Sumit, "A Framework for Automatically Generating Interactive Instructional Scaffolding", ACM, pp. 1-10, 2015.

[7] Castellanos, "Top 6 Benefits of Online Tutoring", NeoTutor, 2018.

[8] http:// en.wikipedia.org/ wiki/ Interactive-learning.

