A proposal for design an Effective Blended Learning Programs

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Abstract

E-learning systems have been adopting the blended learning approach because blended learning systems have the advantages of e-learning (flexibility in time and location, adaption to particular user needs) without its disadvantages (teacher- student relationship broken, isolation feeling in front of the computer.

The use of blended learning systems has still not spread to all educational institutions, largely because of issues of its own. It is not just that teachers and students need to adapt to new computer technology. The use of blended learning program might be rejected simply because of technological challenges, if not all teachers and students can be assumed to have necessary technological skills to use the software. This could be why the uptake of blended learning systems has been strongest in computer science department.

Our proposed system detailing with designed simulation blended learning systems so that they are easy to use for people without any technical training, and thus to lessen the rejection of blended learning programs for this reason. And our proposed system can operate effectively with the content of the course being delivered by teachers through lectures while the online component is used by the student to review the content after class.

Keywords: E-learning, Blened learning, research, success factor.

1. Introduction

The internet has given rise to one of the latest revolutions in education. While in the past students learned primarily passively by attending lectures given by human teachers, today the student can become an active agent in learning process through the use of web –based educational systems also called *e-Learning, or computer-based training (CBT) or web-based training (WBT*), is learning that can take place anytime and anywhere, whether the delivery is online or offline, CD or DVD. Learning topics can include how to use a software application, how to use a piece of hardware or machinery, how to improve soft skills such as customer service, or to review company policies and/or procedures.

CBT (i.e. tutorials) is usually accessible on a server, a LMS, or the Internet and allows your employees to learn at their own pace, no pressure or time restraints, no time away from their daily job tasks, and no costly traveling expenses for the company.[1]

But e-learning as has been shown to present problems , such as the loss of the student-teacher relationship therefore, blended learning has appeared , There are many definitions of blended learning, but the most common is that which recognizes some combination of virtual and physical environments, and it is the convergence of face-to-face settings, human interaction, information and communication technology (ICT) based settings, which are asynchronous, and text-based and where humans operate independently. This is a useful approach because it changes the focus in learning design by shifting the emphasis from simply considering the face-to-face and online environments to that of considering the design issues of (1) introducing e-learning and (2) the process of blending [the online and face-to-face environments]. This combination of classroom and online settings has a simplicity, but there is also a complexity to the concept which is evident in the wide variety of settings, diversity of the student population and consequent learning designs.[2]

2. Past, Present, and Future

BL is part of the ongoing convergence of two archetypal learning environments. On the one hand, we have the traditional face-to-face learning environment that has been around for centuries. On the other hand, we have distributed learning environments that have begun to grow and expand in exponential ways as new technologies have expanded the possibilities for distributed communication and interaction. In the past, these two learning environments have remained largely separate because they have used different media and method combinations and have addressed the needs of different audiences (see Figure 1) [3]

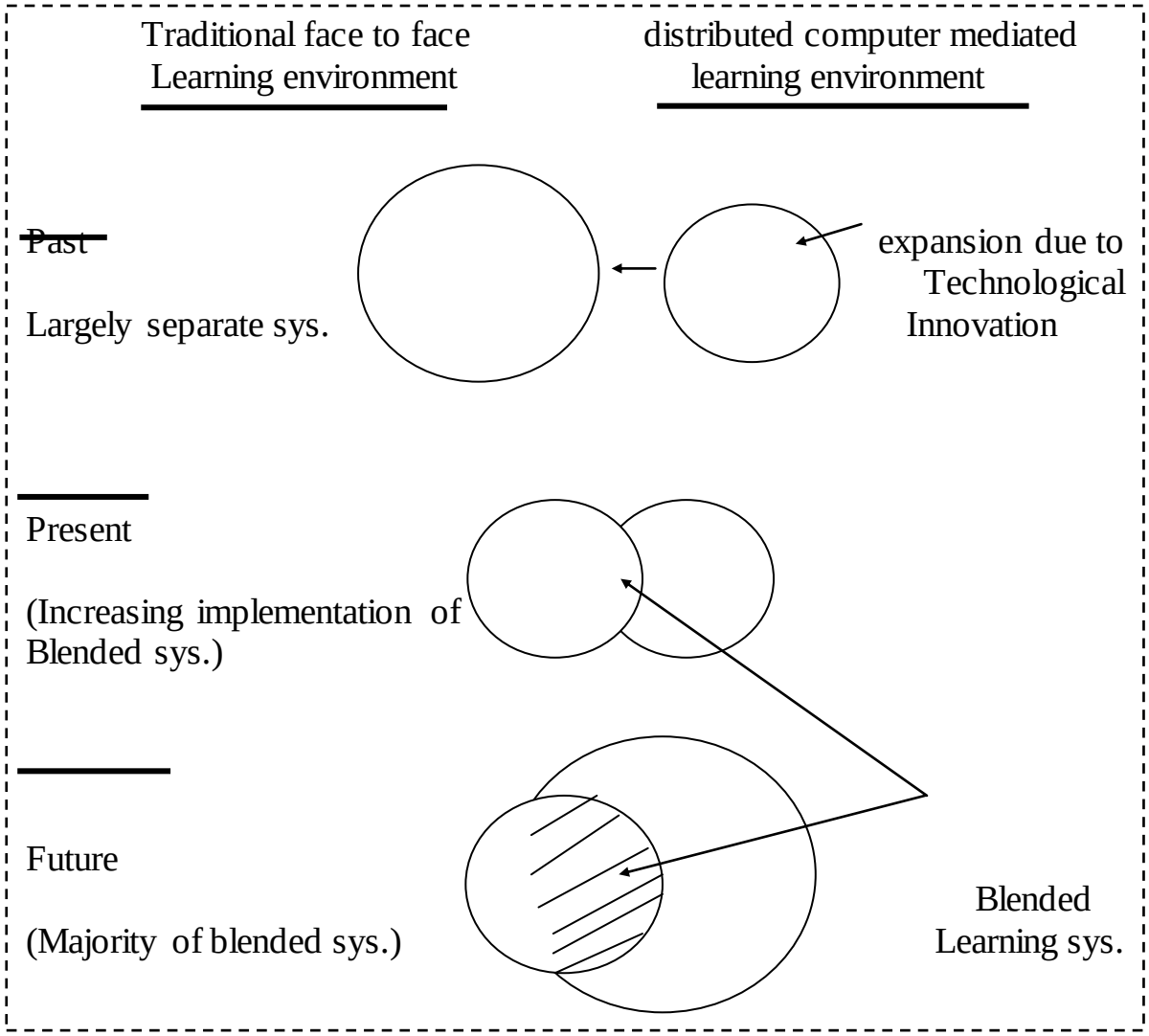


Figure 1: progressive convergence of traditional face to face learning environment and distributed environments allowing development of blended learning system.

There are many names for this type of learning, including: learning mixture, integrated learning, hybrid learning, multi-method learning.[4]

4. Blended learning elements:

Learning requirements and preferences of each learner tend to be different. Organizations must use a blend of learning approaches in their strategies to get the right content in the right format to the right people at the right time. Blended learning combines multiple delivery media that are designed to complement each other and promote learning and application-learned behavior. Blended learning programs may include several forms of learning tools, such as real-time virtual/ collaboration software, self-paced Web-based courses, electronic performance support systems (EPSS) embedded within the job-task environment, and knowledge management systems. Blended learning mixes various event-based activities, including

face-to-face classrooms, live learning, and self-paced learning. This often is a mix of traditional instructor-led training, synchronous online conferencing or training, asynchronous self-paced study, and structured on-the-job training from an experienced worker or mentor.[5]

5. Why blended:

Blended learning is not new. However, in the past, blended learning was comprised of physical classroom formats, such as lectures, labs, books, or handouts. Today, organizations have a myriad of learning approaches and choices .The concept of blended learning is rooted in the idea that learning is not just a one-time event—*learning is a continuous process.* Blending provides various benefits over using any single learning delivery medium alone.[5]

There are many reasons that an instructor, trainer, or learner might pick blended learning over other learning options. There are six reasons that one might choose to design or use a blended learning system: (1) pedagogical richness, (2) access to knowledge, (3) social interaction, (4) personal agency, (5) cost-effectiveness, and (6) ease of revision. In the BL literature, the most common reason provided is that BL combines the best of both worlds. Although there is some truth to this, it is rarely acknowledged that a blended learning environment can also mix the least effective elements of both worlds if it is not designed well. The people chose BL for three reasons: (1) improved pedagogy, (2) increased access and flexibility, and (3) increased cost-effectiveness. [3]

6. The problems of blended learning system:

Blended learning is not free of problems; the problems must be considered and taken into account these problems including:

- Some students or trainees lack the experience or skill enough to deal with computers and networks, and this is the most important barriers to e-learning, especially if we are talking about the kind of self-learning.
- There is no guarantee that the existing hardware of learners or trainees in their homes or places of study training course electronically on the same efficiency, capacity and speed, equipment and it suitable for the systematic content of the course.
- Difficulties in many systems and speed networking and communications in places of study.[6]
- A number of difficulties in evaluation and monitoring system and the patch and take the absence.
- One of the main problems of blended learning provided qualified personal in this type of learning.[7]

7. General system structure:

The proposed system defines a set of methods or strategies to manage the interaction between the teachers, students, and content of the proposed system.

The definition of proposed system starts with the identification of the entities (i.e. student, database, the interactions and the computational process (i.e. actions performed by a computational layer to achieve an interaction goal), which are the target of the methods or strategies that will serve to manage the interaction in on line blended learning system figure 2 shows an interaction with these elements.

As can be seen in figure 2, three different entities are distinguished: **(Students**, **Teachers** and **Computer application) .**

The computer application is a key entity for the methodology as it is the entity in charge of implementing the methods to manage the interaction.

In fact two main types of interaction are considered:

- **The Student- Computer application**:
  Students log into the blended learning system and interact with the computer similarly, the computer has to provide a response to any action of the students in a way that she or he can understand without having any kind of specific computer training.
- **The Teacher-Computer application interaction**: teachers also need to interact with the computer. Two subtype of interaction can be distinguished here: firstly the editing of the content of the blended learning course and secondly, the monitoring of student learning progress (individuals or groups)
- **The data base model:** while the kind of data that a blended learning system needs to store can vary widely (questions, algorithms, numbers, texts, etc) for most educational learning system. These data can all be expressed as a set of concepts and their relationships.
  In proposed system we use a conceptual model as part of the data model. The architecture of the proposed system can be explained by the diagram in the figure (2). And the software requirements in our research are:

1-Windows XP with IIS (Internet Information Services) installed or any Windows Server.

2- Microsoft SQL Server 2000.

3-Microsoft Visual Interdev 6.0 (for programming Java script, ASP active server page and HTML).

And in order to examine the viability of our framework, we incorporate and implement it over a well designed simulation environment.

1-three PCs , Ram 512 MB for (client and database) computers, 1 GB for each computer. CPU 2 GHz for each PC and any size of Hard Disk drive.

2-LAN (Local Area Network) Cards with UTP cables for connections and one HUB device. Or Wireless Network Cards.

And the conceptual model in the proposed system can be defined as a set of related database and their relationships. Each db can be associated with text, figures, sounds, etc. the process of proposed system divided into two process of management student-computer application interaction and the teacher-computer application interaction and its internal process as show in the below.

7.1 process for management of student-computer application interaction:

In figure 3, two processes have been distinguished:

The local assessment process in figure 4, the learning process in figure 5.

All of them are described below.

7.1.1 the local assessment process

The goal of the local assessment process is to capture the student's knowledge for evaluating it. In order to achieve this goal, the procedure of this process is shown in the flowchart below in figure 4.

7.1.2 The learn process:

The goal of the learning process is to manage the interaction between the student and the computer whenever the student is learning new content. The difference with the previous in this process there is no capture of knowledge from student; rather, it is the student who captures knowledge from the system. The figure 5 shows the flowchart of this process.

7.2 processes for the management of the teacher- computer application interaction:

In this step two processes have been distinguishes: the database model creator process and the monitoring process. Both of these are described below.

7.2.1 the database model:

The goal of the db model process is to manage the acquisition of the content of a blended learning course as provided by the teachers. However, the process of transferring that knowledge into the blended learning system is not easy. The goal of the db model creator process is to

facilitate the creation of the db model of the course by making the authoring tool interface more targeted and easier to use.

Moreover, the process to manage the interaction between the teacher and the authoring tool is necessary because teachers tend to have more difficulties than students to learn to use on line applications. The flowchart of the db model process can be seen in the figure 6.

7.2.2 The students progress monitoring process:

The goal of this process is to provide the teacher with the possibility of keeping track of the progress made by their students in an easy way. Many educational computer applications generate logs registering the actions performed by the students, however these logs are difficult to understand by non computer science experts. The figure below show the flowchart of the student progress.

8. System Implementation :

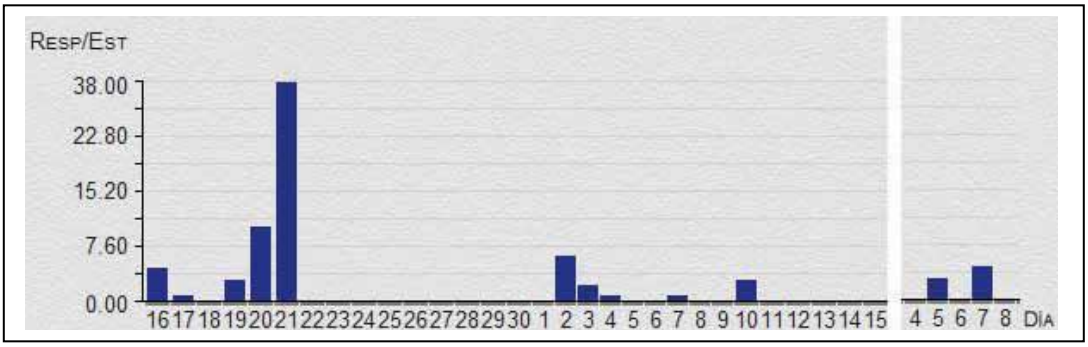
When proposed system is implemented we need connect to internet, the all page can display, and the main page shows in **figure (7)** In execute the application by using the local host to not connect to internet and the administrator not to install in server internet, the student can enter to system. But the student name and password must be used and student must select teacher name and select course from list box that display all teacher found in the system and with there course, when inter in special pace the administrator check in login table and enter to next page to display data or exit, when they are not found, there is figure shows how to use user name and password of system.

And if all information about student and its password its correct the display page display the course title which student choice it with course introduction and all modules about this course , all these show in figure (8). then when student choice module1 as example the figure (9) appear as screen about course title and additional information about it with its image.

9. Conclusions:

1. While learning technologies and delivery media continue to evolve and progress, one thing is certain: Organizations (corporate, government, and academic) favor blended learning models over single delivery mode programs.
2. We've found that e-learning is most effective when it uses a blended learning.
3. More insights into the factors and approaches which can improve Connections between the virtual and physical elements of blended courses within universities.

4. Comparative research into the strengths and weakness of different ICT, especially the new technologies integrated with face-to-face environments, to investigate the characteristics of optimal blends for learning.
5. use information and communication technologies to support more active approaches to student learning, support learning activities that extend outside face-to-face sessions, and assist students in being better prepared for face-to-face sessions.
6. Complex materials can be integrated as learning objects that contain learning materials as well as metadata describing the content, e.g. a sequences for delivering the content.
7. The figure below shows the frequency of use the proposed system by 3 students as can be seen they logged in to the system in different days, therefore, a first difference that can be highlighted between the interaction of students without computer training tend to use it with a lower frequency.



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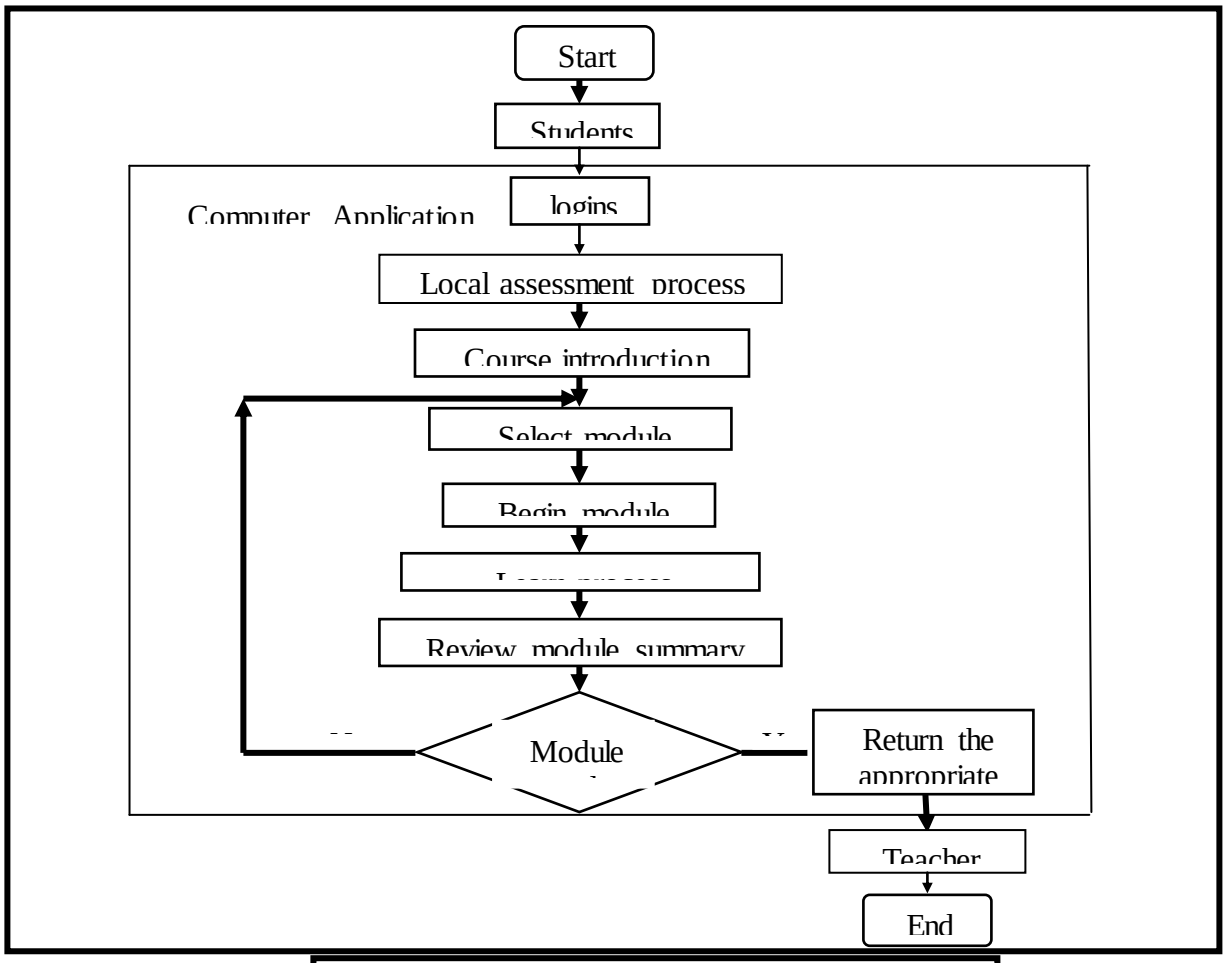


Figure 2: the systems structure.

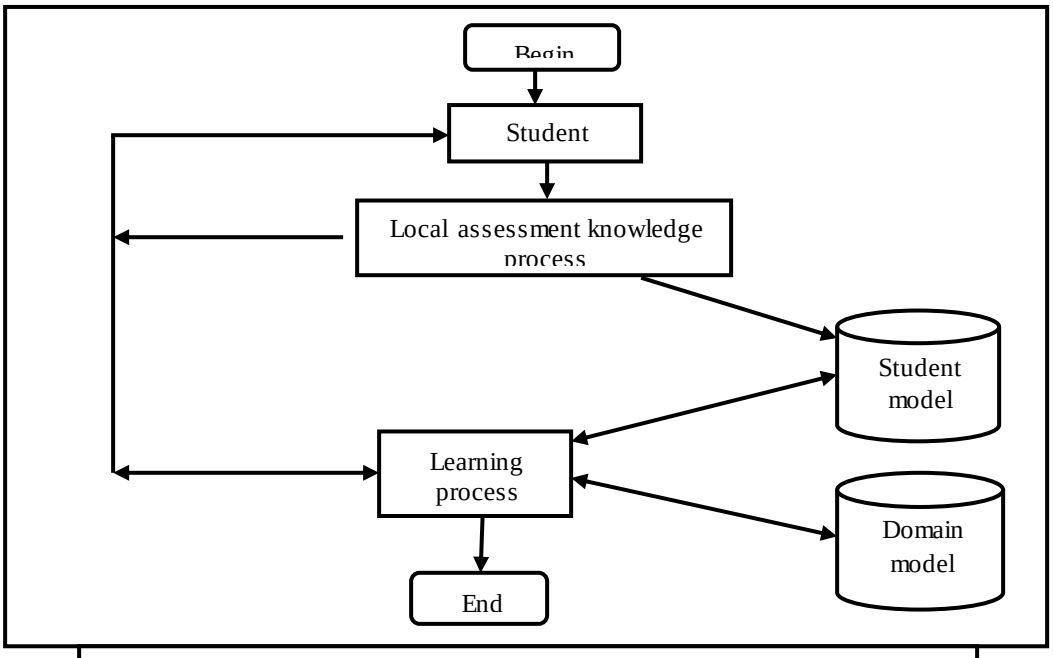


Figure 3: student computer application interaction

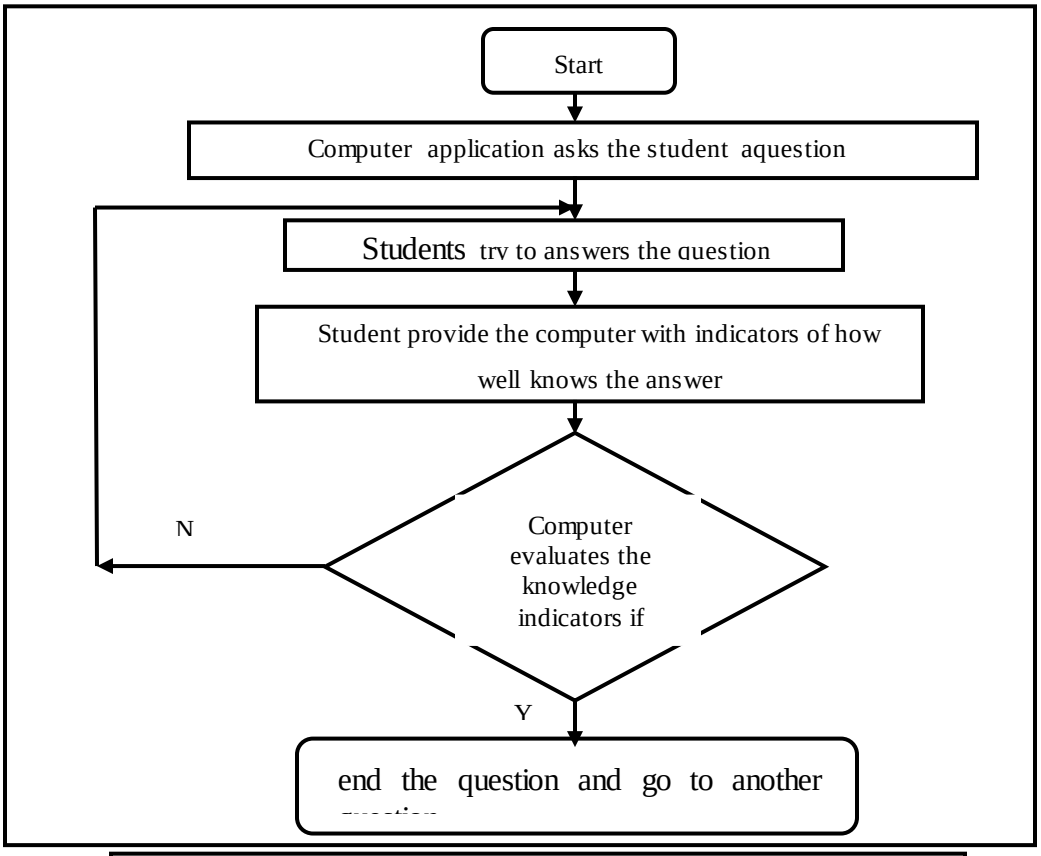


Figure 4: the flowchart of the local assessment process.

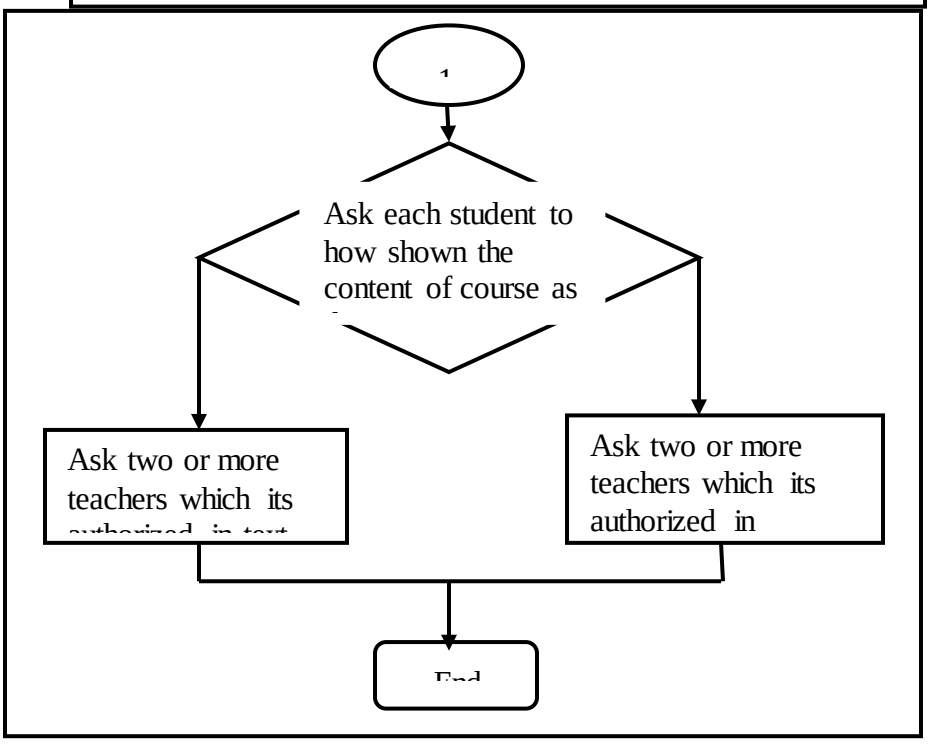


Figure 5: the flowchart of the learning process.

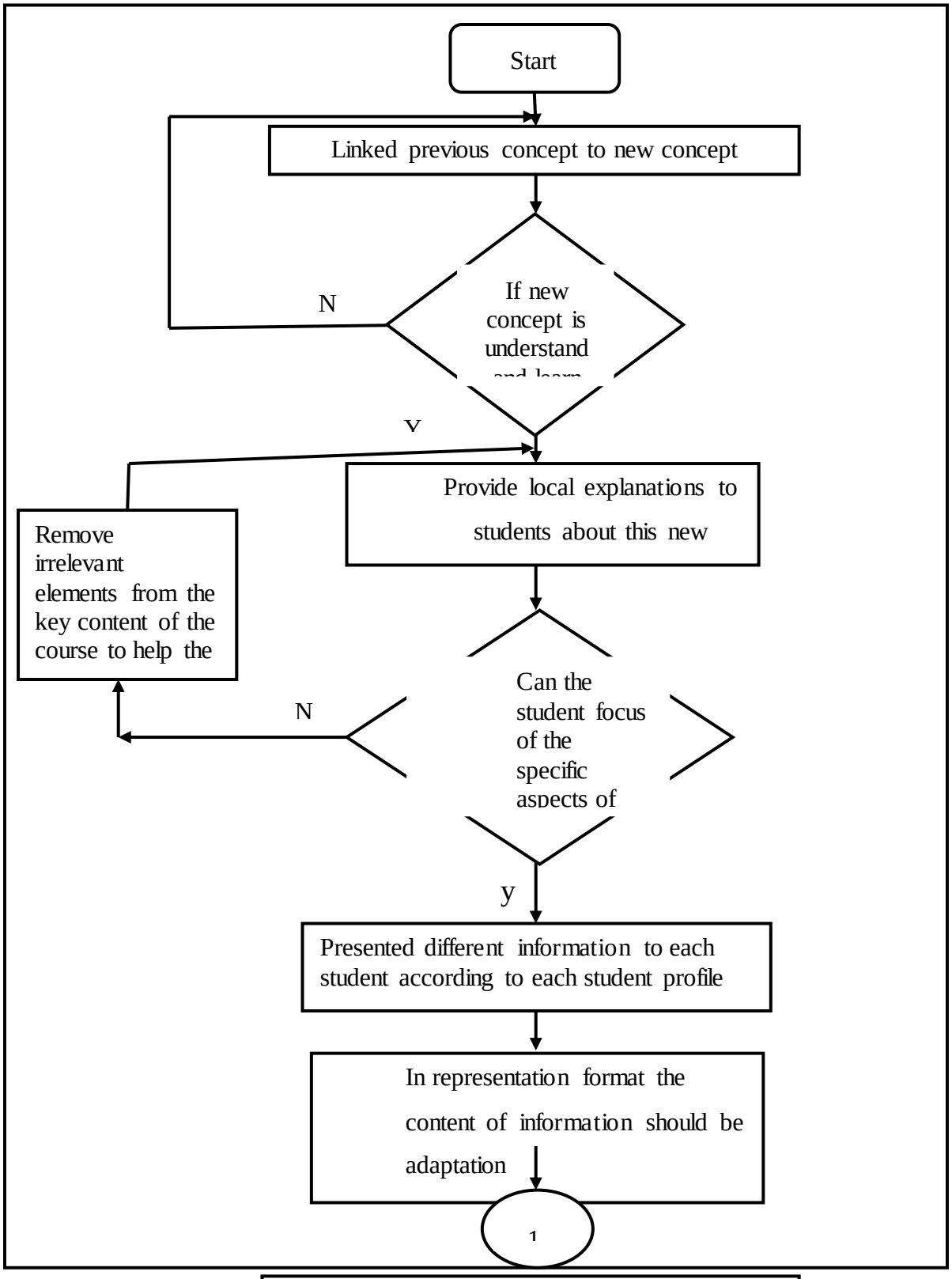


Figure 5: the flowchart of the learning process

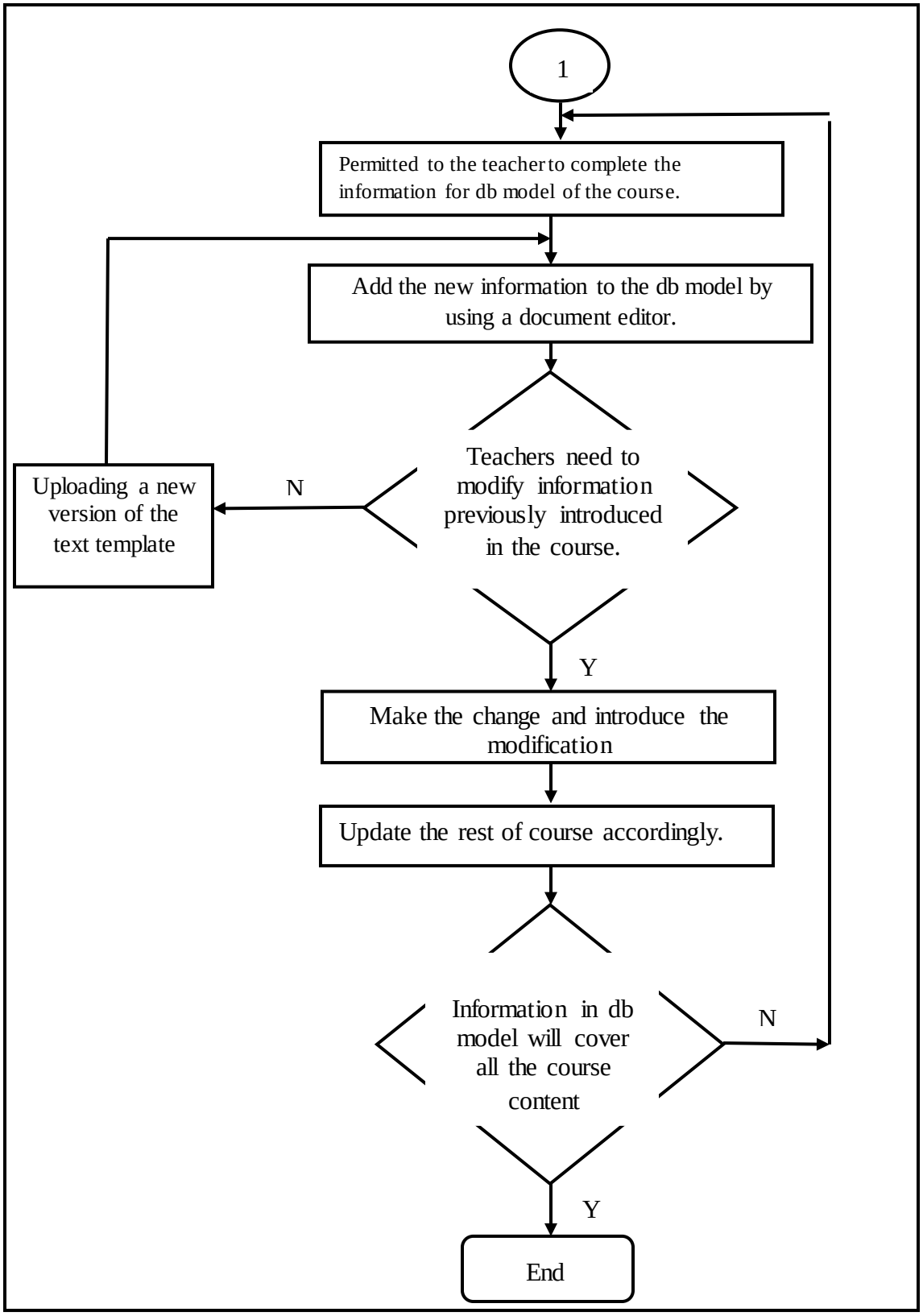
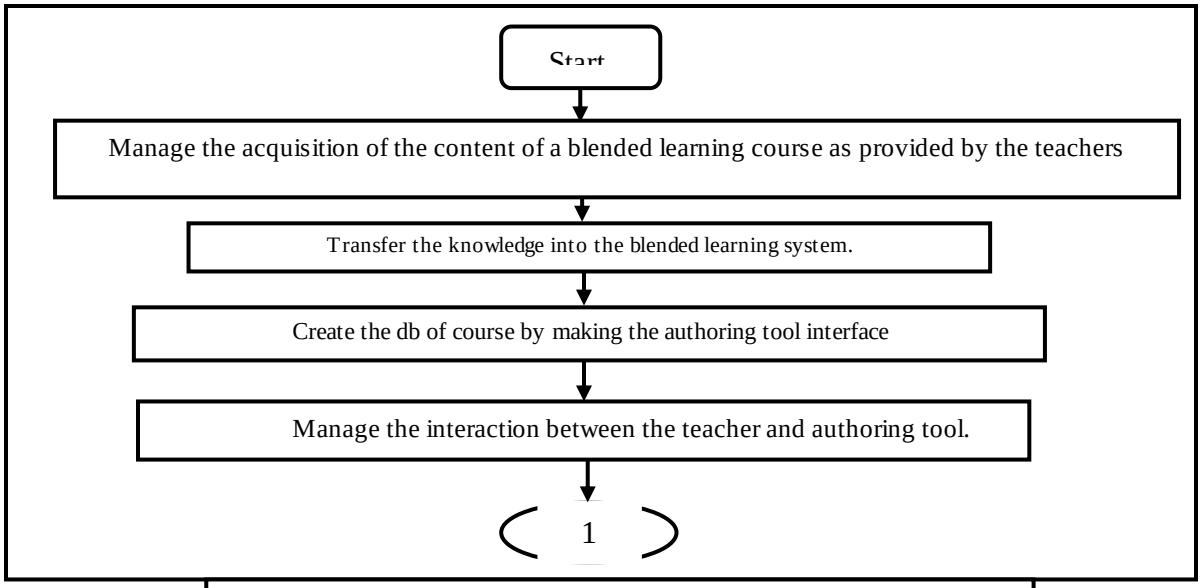


Figure 6: the flowchart of the db model.



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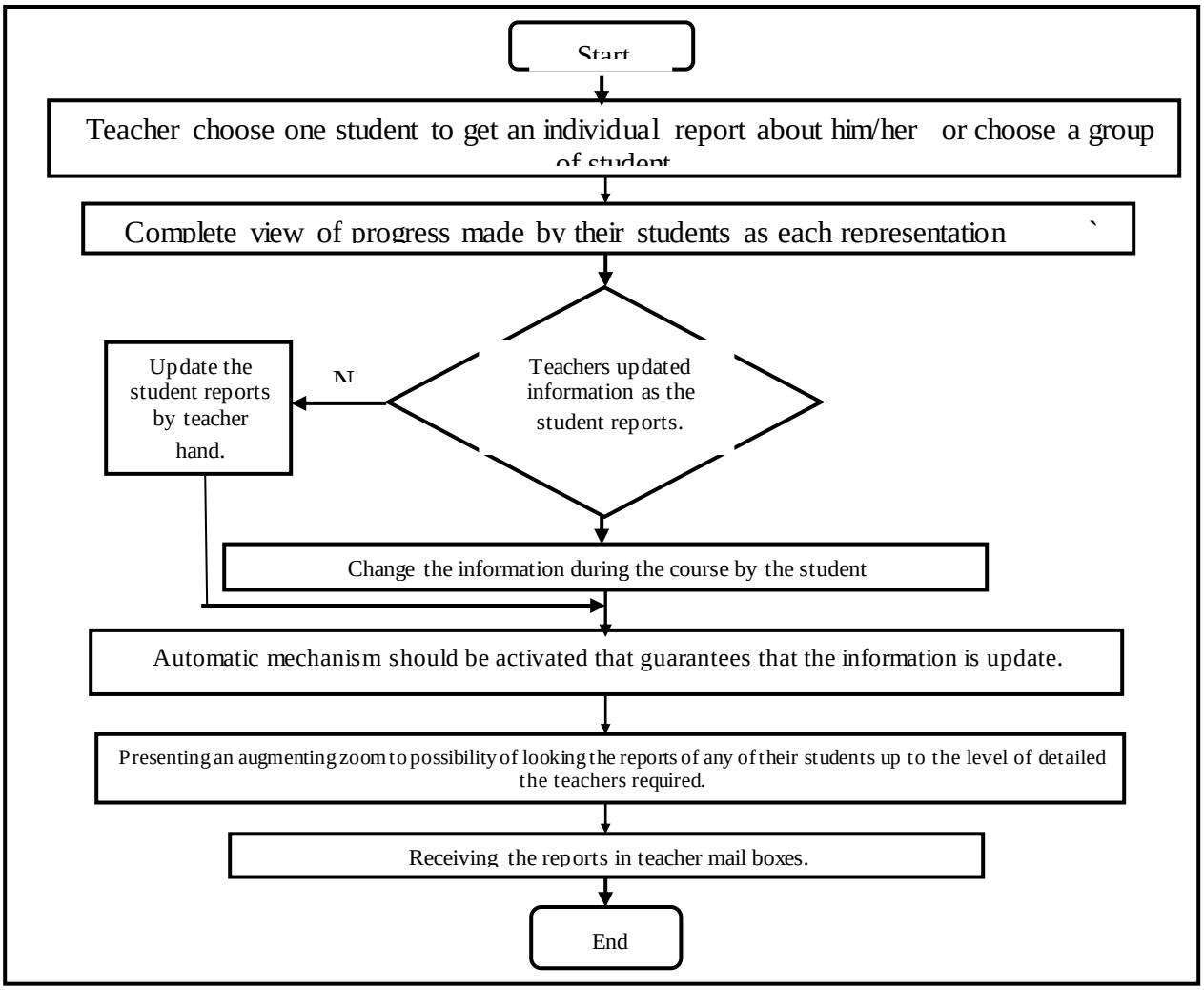

Figure 7: the student's progress flowchart.

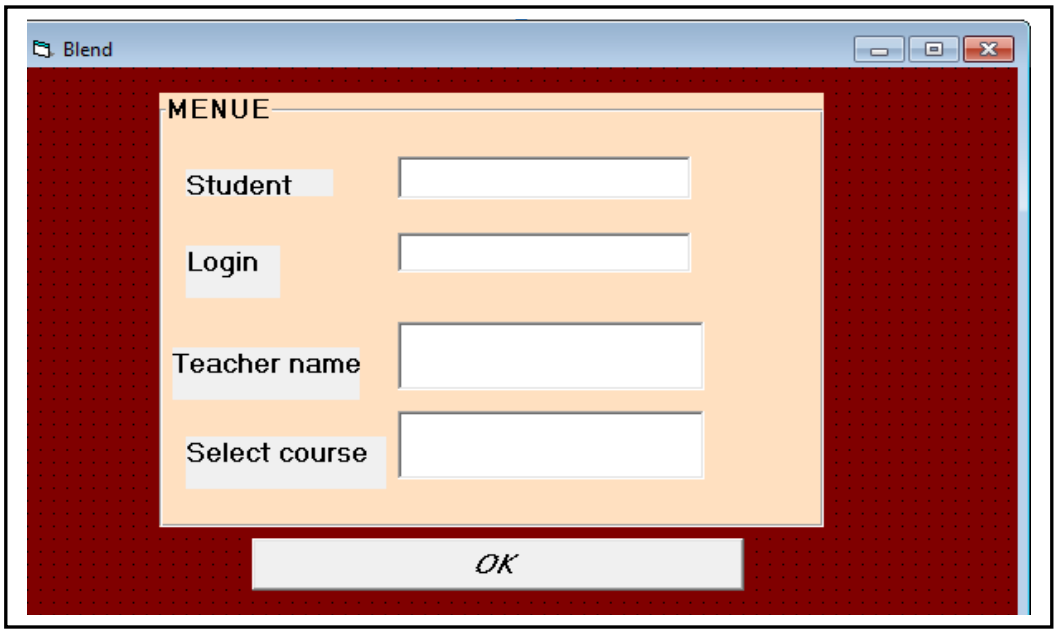

Figure 8 : the main menue

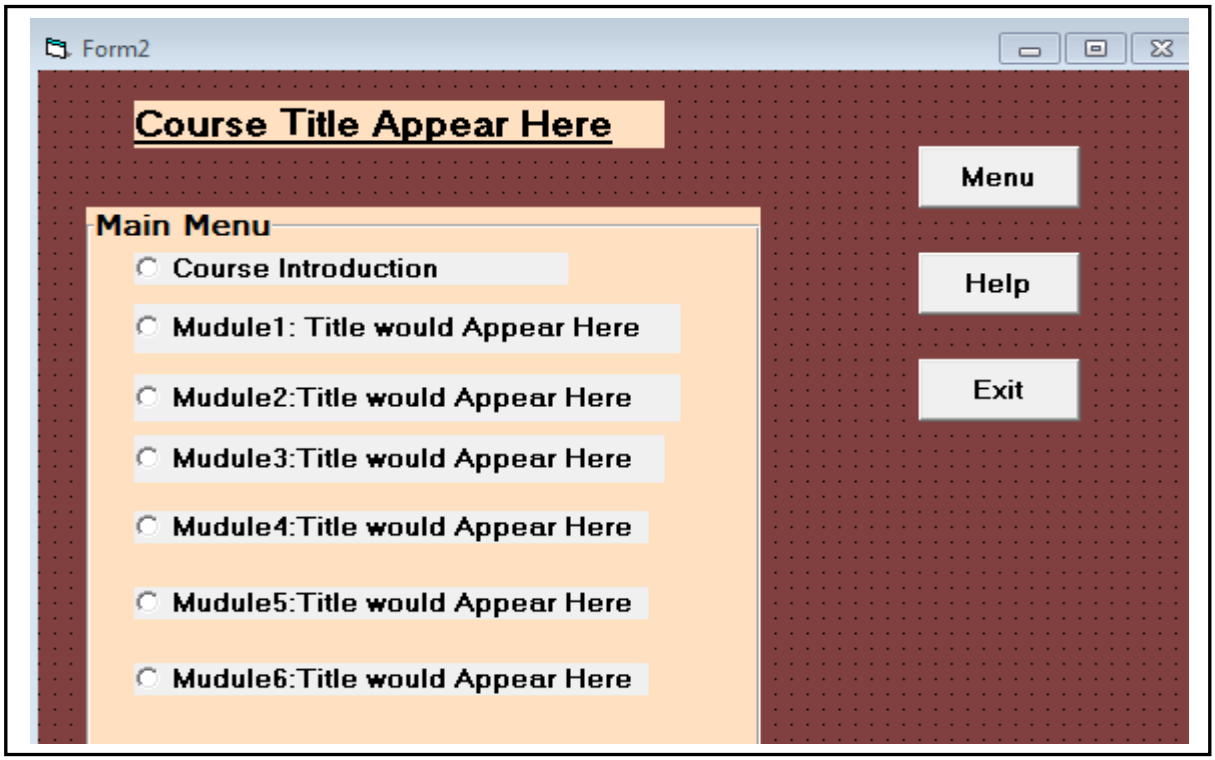

Figure 9: Second menue about course and its module

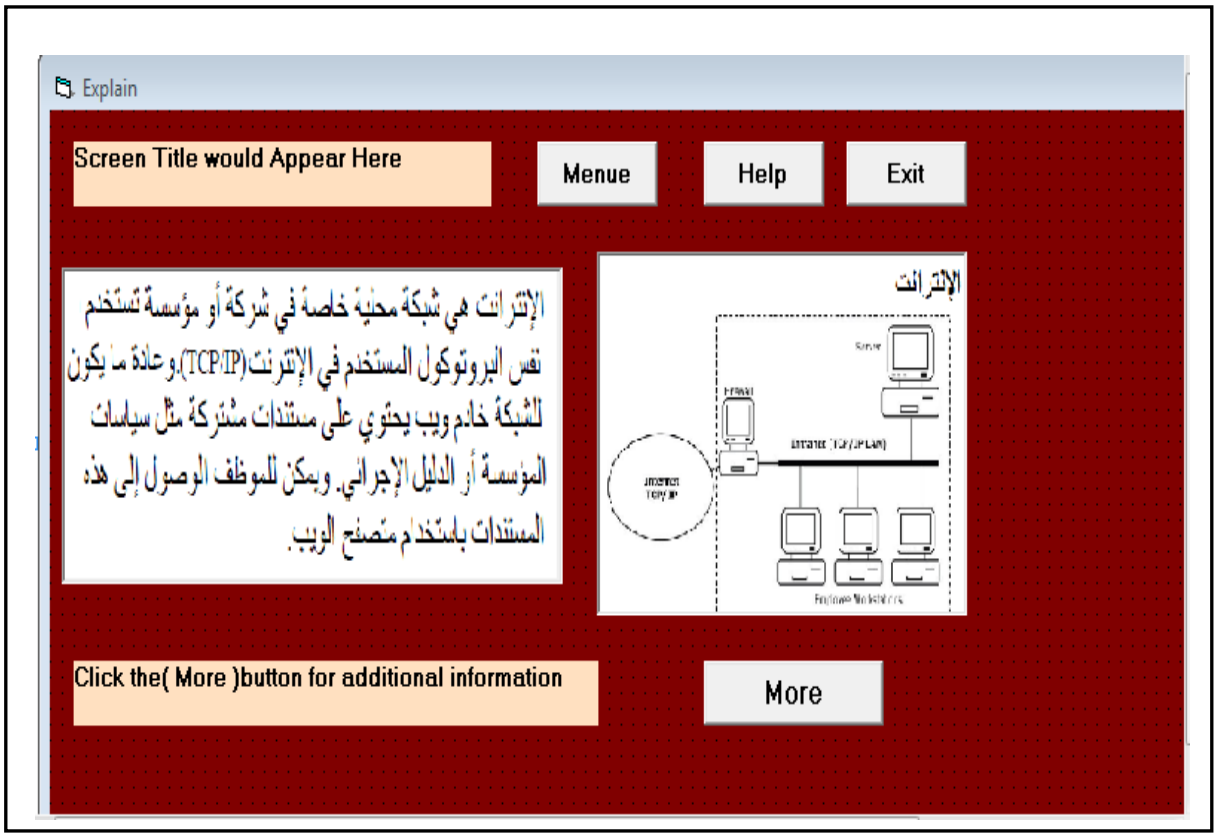

Figure 10 : Explain page about course

مقترح لتصميم برنامج كفؤء كنظام للتعلم المختلط

م. رغد محمد هادي

الخلاصة:

في السنوات الأخيرة أعتمد نظام التعلم الالكتروني على نهج التعلم المختلط أو المخلوط لان هذا التعلم لديه مزايا التعلم الالكتروني (المرونة في الوقت والمكان و التأقلم مع احتياجات مستخدم معين) دون سلبياته (لا توجد علاقة بين المعلم والطالب والشعور بالعزلة أمام الكمبيوتر).

لم ينتشر استخدام نظام التعلم المختلط لحد الآن لجميع المؤسسات التعليمية السبب هو ليس على الطالب والمعلم فقط التكييف مع تكنولوجيا الكمبيوتر الجديدة , لكن السبب الحقيقي هو التحديات التكنولوجية نفسها . أذا يمكن الافتراض انه ليس كل من المعلمين والطلاب لديهم المهارات التكنولوجية الضرورية نفسها لاستخدام برنامج ما على الكمبيوتر. وقد يكون هذا هو السبب في ان استخدام النظام المختلط هو الأقوى في قسم علم الحاسبات.

لذلك تم تصميم نظام مثال على نظام التعلم المختلط بحيث يكون سهل الاستخدام بالنسبة للمستخدمين دون الحاجة إلى أي تدريب تقني وبالتالي يخفف على الناس من فكرة رفضهم لاستخدام اي برنامج من برامج التعلم المختلط. النظام المقترح يعمل بفعالية مع جميع محتويات البرنامج الدراسي المقدم من قبل المعلمين من خلال المحاضرات ويمكن استعراض محتوى هذا البرنامج على الانترنيت من قبل الطلاب بعد الصف.

الكلمات المفتاحية:

التعلم الكتروني, التعلم الخليط, البحث, عوامل النجاح.