Development of a design model to guide Computer Based Learning (CBL) design and development efforts in Gulf Cooperation Council (GCC) states

Prepared by:
Resala Abdullah Al-Adraj
Bahrain university

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Abstract
Computer Based Learning (CBL) programs teach the material of a specific field and at the same time offer various ways of objectively assessing the knowledge gained. The interactive use of multimedia components such as text, graphics, sound, digital slide shows, and videos as well as quizzes can theoretically facilitate the learning process.

The purpose of this research is to identify key components of (CBL) satisfaction. The CBL environment is an expanding market driven by several market forces. A working list of potential variables for satisfaction can be developed from the a survey to compare the traditional to the CBL environments. A questionnaire will be developed using these variables and administered to a number of students in a successful, distance education program. The results of the questionnaire are factored into a number of constructs that ultimately correlated well with the satisfaction ratings of the subjects. Using these factors as guidance, some operational and administrative implications of those findings are discussed.

Main aim of the research
1- To develop an innovative design model for the effective design and development CBL by determining the most effective success factors that influence the development process.
2- To determine the effectiveness of the proposed design model methodology to enhance e-learning.
3- To adapt the proposed design model methodology to enhance e-learning In the University of Bahrain.
Research task and goals:
1- Review the literature on CBL to identify various development activities necessary to lower the risks of CBL system failure.
2- Survey the critical aspects of CBL methodology used in GCC. These aspects cover File server, multimedia technology, student participation, CBL cost, and class room setup.
3- Evaluate the impact of the variables affected the CBL.
4- Propose solutions to enhance the practice of systems development in GCC by increasing CBL efficiency and effectiveness

Research methodology and research design
1- Review the current literature on CBL to introduce the major constructs proposed for testing. A set of exploratory Interviews will also be conducted to probe the relevance of the research model.
2- Interviews with educators and CBL designers to identify current problems and potential solutions.
3- Observation and survey to determine current difficulties and problems faced by students in e-learning and development of CBL. In e-learning community, with specific focus on formal educational institutions and community organizations to pinpoint these specific problems with regard to CBL development that supports and enhances my study.
4- Setup the research model and derive research hypotheses. The major proposition of the study is the following:
5- Develop a research instrument to measure the different constructs of the study.
6- Collect data from CBL developers by using survey questionnaire in various Bahraini organizations which are involved in CBL development.
7- Analyze results statically using a statistical package (e.g SPSS-PC) and present findings.
8- Draw some conclusions and suggest further work.
9- Develop a design model for development of interactive multimedia to effectively support e-learning in Bahrain.
10- Design and construction of a prototype CBL environment to verify the suitability of the proposed design model in e-learning development in Bahrain.

Literature search
The learning environment of today’s education is increasingly dependent on e-learning and other multimodal forms. Face to face learning has been outdated, and many countries are changing their systems to encompass wider range of people and to suit the various learning styles of students and their multiple intelligences (Gardner, frames of mind, 1983).

The researcher has already participated in a study with Mr Salah Musameh, about the interaction between the teacher and the learner in the area of online learning. The study investigated the behavior of the student when learning in e-learning mode. This study will emphasis on this concept.

The main theme of my research will depend on the results of Cuevas et al, 2004, in this research the researchers evaluated the following propositions:

Proposition 1: Diagrams and knowledge integration;
Proposition 2: Multimedia and training for complex systems;
Proposition 3: Mental model development and training evaluation;
Proposition 4: instructional efficiency and training evaluation;
Proposition 5: fostering constructive meta-cognitive process;
Proposition 6: supporting individual differences in ability

My research propositions will encompass what they have discussed and build upon it.

The research will also look at the factors that influence the success of distance education. This will be based on the study by Martz, Reddy and Sangermano, 2004. They derived 22 variables that had implied learner satisfaction.

The study will compare the various platforms and will utilize the research of: Mihai Rusan - IPA SA (Automation Engineering) and Sanda Petrescu - IPA SA (Automation Engineering), 1997, in so doing.

The research will attempt to derive strategies to systematically evaluate on online assessment on higher education. A study by Elizabeth Buchanan, 2004, recommended that assessment need to be revised and revisited, so the results will provide a true learning opportunities for all.

The research will also use the statistical methodologies of my masters thesis, 2000. I will use the secondary data and build upon it.

Propositions for the design of CBL systems:
In this section the training propositions derived from the aforementioned research efforts will be described. The overall objective of this collective research was to develop and test cognitive-based principles for designing learner support tools for distributed training environments that would enable trainees to develop the knowledge necessary for operating complex systems. Within these efforts there were two main initiatives that are directly relevant to the instructional design characteristics of distributed CBL systems.

The first initiative involve a basic level cognitive initiative investigating ways in which knowledge can be integrated to facilitate knowledge structure organization and mental model development.

The second initiative involve an investigation in individual differences and meta-cognitive process within multimedia CBL programs. Furthermore, these investigations will provide us methodologies in the ways that multimedia CBL instruction can influence knowledge acquisition, and also how this technology can best be used for assessment of training effectiveness. The following propositions for optimizing distributed learning effectiveness in complex CBL environments will be evaluated.

Proposition 1: comparative study between the various CBL platforms
Proposition 2: detect the factors that influence the success of CBL.
Proposition 3: findings of surveyed students results will be matched with industry findings
Proposition 4: based on these findings the hypothesis will be proposed

Based on the hypotheses, develop a design model for development of interactive multimedia to effectively support e-learning in Bahrain. The research will also attempt to design and construct
o prototype CBL environment to verify the suitability of the proposed design model in e-learning development in Bahrain.

The anticipated outcomes of the investigation of the above propositions are as follows:

1. Improved understanding of the current issues facing e-learning in Bahrain, and potential for the use of in-house CBL in Bahrain
2. Design an effective model based on field study bearing in mind the conventional CBL development methods used in Bahrain
3. New design model for the development of effective interactive multimedia learning environment.

References


