A heuristic ISD Model for Designing Online Courses for Higher Education in Palestine

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Abstract

The current paper proposes a heuristic instructional system design model (ISD) for designing online courses. The main goal of ISD model is to organize the process of designing effective online courses or self-study materials for both higher education and K-12. The current paper proposes a heuristic instructional system model based on Kemp’s model, ASSURE Model, and Keller’s model, in addition to using the LORI instrument to evaluate the quality of the learning objects.

Designing instructional material for Distance Learning in higher education is inherently different than face-to-face learning. This is because of the intervention of temporal, psychological and geographical distance between teacher and learner via a Web-based interface. The current model introduces new strategies for designing online courses based on creating learning objects. Using motivational strategies design is an essential part in designing these objects to sustain learners’ attention on online courses.

This paper further highlights the benefits of using this model and various challenges in designing learning objects and incorporating several components of the model.

ملخص

تقدم الورقة البحثية نموذجا مقترحا لتصميم المقررات التعليمية والتدريبية في مؤسسات التعليم العام والعالي.

يهدف النموذج إلى تنظيم عملية التصميم التعليمي من أجل الحصول على مقررات تعليمية الكترونية فعالة تعتمد على Kemp’s model ASSURE Model Keller’s model بالاضافة الى اداة لوري لتقييم العناصر التعليمية المستخدمة في بناء المقررات الإلكترونية.

تصميم المقررات الإلكترونية للتعليم عن بعد يتعلق بتصميم المقررات التعليمية لتعليم التفاعليات التي تواجه الشخص في مجموعة مختلفة من التفاعلات الجغرافية للتعليم والطالب بالإضافة الى العوامل النفسية لكلاهما بالإضافة إلى وجود مجموعة من التداخلات التكنولوجية.

النموذج المقترح يقدم استراتيجيات جديدة لتصميم المقررات الإلكترونية بالاعتماد على انشاء عناصر تعليمية التي تعتبر من المبادئ الاساسية في نموذج استخدام استخدام استراتيجيات تصميم الدافعية في Motivational Strategies Principles تصميم العناصر التعليمية من أجل جذب انتباه المتعلم واستمرارته.

في نهاية الورقة البحثية تم استعراض التحديات التي تواجه استخدام النموذج بالإضافة الى فوائد استخدامه مع تقديم نماذج من مواد تدريبية تم تصميمها باستخدام النموذج.
Introduction

The rapid growth of technological and economic developments has placed a greater demand on the higher-education system in several universities worldwide to develop effective courses that are appropriate for e-learning. It is crucial for both students and faculty to focus on the importance of lifelong and continuous learning to upgrade their knowledge and skills, to inspire creativity, to think critically and to adapt to global change. Nowadays, E-learning emerges as a result of the growth diffusion of Information and Communication Technology (hereafter, ICT); this new paradigm has a huge impact on teaching and learning strategies. E-learning has many applications in the learning process; there are a wide set of applications like computer-based learning, web-based learning, digital collaboration, and Virtual Classrooms (Shraim & Khlaif, 2010; Cavanaugh, 2001). Local Universities in Palestine seek to adopt distance learning in (some courses for many reasons some of these related to financial issues, others related to the new policy in these institutions).

According to Picciano and Seaman, (2007); Rozgiene et al., (2008); Andersson and Gronlund, (2009) most of the previous studies focus deeply on technological issues and not as much as on using an instructional system design (hereafter, ISD) based on learning objects and motivation principles in both public and higher education. The main purpose of this paper is to analyze and introduce an effective instructional system design that will meet the demands of an increasing e-learning environment. This system will be used by local universities to design effective online courses or self-study courses based on different e-learning paradigms. Furthermore, it will be used to support students in higher education.

Implementing such a complex system for e-learning within current educational infrastructures is no easy task, and the lack of frameworks to design effective online courses is an immense challenge for teachers and administrators. Furthermore, there are new trends in designing online courses related to the integrating of learning objects in the instructional design system. I propose an Instructional System Design (ISD) model as a framework to mitigate the aforementioned problem. The model that I propose offers teachers and administrators a full and detailed account of the various stages required for successful implementation of e-learning. The development of the proposed ISD model integrates a number of models already proven successful, including Kemp's model of instructional system design, using Keller's Model, and LORI for evaluation of the learning objects (Learning Objects Review Instrument). In order to summarize the idea of the proposed ISD the rest of the paper will address the following: section two will focus on the description of the model and its foundations. Section three introduces an example of designing a learning object by using the proposed model. Finally, the conclusion details the lessons learnt from the research.
Description of the Model

The essential goal of the new model (Figure 1) is to draw attention how to organize full learning activities effectively design, develop, implement, evaluate, and organize full learning activities effectively to promote learners’ performance in online courses. The current instructional design model based on the basic components of instructional system design which are analysis, design, development, implementation, and evaluation. The theoretical foundation of the new model comes from the learning theories: behaviorism, constructivism, and cognitivism.

Behaviorism theory based on the relationship between the reinforcement factor, designing environmental conditions, and stimulus & response. Those factors have a positive influence to motivate students to learn more by this model. From the point view of behaviorist, instructional design has five stages. These stages are analysis, design, development, implementation, and evaluation (ADDI & E). In the first stage, analysis, instructional designer identifies input information (objectives, goals, the characteristic of instructors, students, materials, their environment). Instructional designer designs the strategies and learning activities in the design phase. In the development stage, instructional developer develops instructional materials, media, and motivational design strategies. In the implementation stage, instructor implements learning activities. Finally, evaluator checks learning outputs. These stages will be discussed in details in the article.

Cognitivism is interested in intellectual learning process, motivation, content and experiences. The current model will focus in how to store the acquired knowledge into long term memory by designing effective instructional activities. From the point view of cognitivist, instructional design is constructed new knowledge with their prior knowledge and own experiences. Learner should learn how to learn to solve their learning problems and how to think. Therefore, the role of instructor is to design meaningful activities in learning environments. Designed meaningful activities should encourage learners to construct new knowledge and store it in their long term memory. Students will play a vital role in the discussions and collaborative activities. The current instructional design model is interested in constructing new knowledge, motivation, organizing, and designing meaningful learning experiences. Constructivism is interested in personal applications. McGriff (2001) expounds that the learning process must be concerned with the experiences and contexts that strengthen the learner willing and enable to learn. Learners become autonomous, become active participants, and reflect their own thought. Learners try to get their own experience in the instructional activities.

The constructivist view of instructional design is active learning or learning by doing. For this reason, learners should use cognitive activity to construct new knowledge. Learning environment must represent real work activities. This environment is playing a vital role to construct new knowledge.
The ISD model that I propose is based on four other models: Kemp's model (Figure 2), ASSURE model (Figure 3), the Keller's model (Figure 4), and LORI (Learning Object Review Instrument, Appendix A). While each of these models are worthy of close attention and while I encourage everyone to research more about them, for the purposes of having more time to explore the current model being proposed, I will not be giving detailed definitions. Thus, to start, it is the current model that I will describe. My Model (Khalil's Model) has different stages that should be conducted before designing online courses. These stages are illustrated as follows:

1.- Analysis Phase: Human Resources Analysis

In this phase, the development and designing teams will focus on the 'instructors'- and the learners' analysis. The instructional developing and designing teams will conduct the analysis phase. Front-End Analysis (FEA) is the blueprint for creating suitable instruction. When we conduct FEA early in the process, we will save time and money. However, FEA describes ideal performance or instruction to meet the project requirements, and defines project requirements, identifies problems, and identifies acceptable alternative solutions. FEA is a process to identify the performance problem and whether a problem may be amenable to a solution by training, or whether you need a different solution. Using FEA in the current ISD model will help to determine the needs of prerequisite professional development or infrastructure through using LMS or student skills development, according to the conclusions of the human resource analysis and virtual environment Front-end Analysis will be conducted on different levels to ensure that the problem is well identified and the proposed model will solve or mitigate this problem. These levels are:

- Instructor Needs Assessment; this will focus on ICT skills and management of online courses by using Learning Management Systems.
- Student Needs Assessment; this will focus on learners analysis, instructional goals, and their performance assessment.
- Virtual Environment analysis; this analysis will able us to know to what extent these systems are available in a university because the implementation phase will be a Web-based delivery system.
- Learning Object analysis is used to identify their characteristics and their importance in the current ISD model.
- Instructional Analysis is applied to provide the areas of instruction to be included or omitted.

2.- Design, and Development phase; this is related to selection of rapid prototype, objectives, media, strategies, and the motivational strategies design that are suitable for designing and developing the material.

3.- Support services will be used in order to facilitate tasks of the team in using the ISD
model. There will be many ways to facilitate their task by using emails, blogs, forums, and social networks such as twitter and Facebook.

4- **Pilot testing** before implementation phase will be used in order to increase the validity of the courses by testing them before offering to wider students.

5- **Implementation phase** of the project and feedback, multimedia, and graphic interface design for quality of messaging and navigational logic into the course.

Prototyped material is to be submitted to instructors for revision and feedback.

6- **Evaluation phase:** This phase divided into two parts:

- Formative evaluation and Revised prototypes of the first part of ISD.
- Summative evaluation, feedback and interaction to express the value of the ISD model and online courses for both institution and students.

**Example of Designing a Learning Object**

According to Haughey & Muirhead (2005), learning objects are self-contained, context-independent units. Wiley (2003) and Farrell & Carr (2007) indicated that the objectives of integrating learning objects within e-content are to obtain better learning resources in instructional design and reduce the overall costs of digital resources to enhance the learning process. Principles of motivation will be used to design the learning objects in the current model. Using several principles of motivation will contribute to draw the attention of the learners. Screenshots of the design learning object are provided in this article, see the figures two, three, and four. These figures illustrated the main principles of motivation used in designing the object.

Schunk, et al (2008) define motivation as the process of goal-directed activity, which is roused and sustained. Motivation could influence when we choose to learn, how we learn, and what we learn. Much research shows that motivated learners are more likely to undertake challenging activities, engage deeply, and enjoy and adopt a deep approach to learning.

Using motivation principles in e-content has many obstacles and difficulties. Now that I have provided an overview of the various phases of the model I have proposed, I’d now like to talk some about the ways in which this learning objective effectively motivates learners.

Motivation plays a vital role in designing suitable learning objects for integration with e-content. According to Keller (2010), motivation design refers to the process of organizing resources and procedures to evoke differences in motivation. Keller (2004) stated:

In brief, we can say that in order to have motivated students, their curiosity must be aroused and sustained; the instruction must be perceived to be relevant to personal values or instrumental to accomplishing desired goals; they must have the personal conviction that they will be able to succeed; and the consequences of the learning experience must be consistent with the personal
incentives of the learner. (pp. 6–7)

Merrill (2002) and Keller (2008) illustrated how the first principles of learning motivation can be incorporated into several examples of designing e-content, which is based on learning objects. They describe the motivational design process, including its expansion to include self-regulatory strategies.

Keller (2008), Merrill (2002), Churchell (2009), and Schunk et al (2008) indicated that learning objects have impact on drawing learner attention, creating the relevance of the instruction to learning styles and learner goals, constructing confidence in regard to personal responsibility for outcomes, realistic expectations and, or making the instruction satisfying by managing learners’ intrinsic and extrinsic outcomes.

Many strategies have been used in designing the learning object to gain learners’ attention by using such things as different types of fonts, animation, and graphics. These tools could draw the attention of the target audience and encouraged them to participate in the activities of online courses (Corno, 2001; Chang & Lehman, 2002). The big challenge after gaining attention and building curiosity among learners is how to sustain them. The best solution of this issue is through using variability strategy. Keller & Suzuki (2004); Chan (2009); Keller (2008) indicated that in the current learning objective, font types, colors, and graphics are different from slide to other slides in order to sustain their attention. It is important to introduce changes of design at different levels of arousal and vary one’s approaches.

Designing learning objects by using some motivation principles attempts to build confidence that they will succeed in mastering the learning task beyond designing the learning object. Confidence is achieved by helping students construct positive expectancies for success and then experience success under conditions where they attribute their accomplishments to their own abilities and efforts rather than external factors such as luck or task difficulty (Keller, 2008). Using testimonial video clips to encourage learners will be helpful to build confidence; therefore, this principle used in different phases of designing the learning object.

Benefits and Challenges of Khlaif’s Model

The model will serve as both a systematic and a heuristic approaches to design professional development programs in the universities. These programs fulfill the commitment of the universities to integrate online courses with their new trends. The model will take into account the existing resources, and skills of the target audience. The proposed ISD model will work as a framework to mitigate the aforementioned problem in the introduction section. The nature of the problem is due to lack of a framework for designing online courses. Hence, the solution proposed in this paper is an instructional development model (ISD model). Therefore, it appears to be the best way to address the deficiencies in skills and knowledge of designing online courses.
The main challenges of Khlaif’s model is the incorporating between the motivational strategies design and the instructional strategies. These strategies have essential roles to draw the attention of the learners and to sustain it on online courses. Despite this challenges the model’s pros outweigh its cons.

Conclusion

The current paper attempts to demonstrate a variety of ways in which learning objects and motivational design strategies can be incorporated systematically into the design and delivery of instruction in distance learning. In some cases (Keller, 2000) the process has become efficient enough for even the busiest of faculty to integrate within their course planning activities.

We need many more studies on the topic, especially exploring the incorporation between several models to ensure that we will get appropriate outcomes which will have a positive impact on the performance of the learners in distance education. However, the current model begins such an endeavor by providing detailed accounts for how teachers and administrators might begin implementation. In conclusion, both previous research and new development in the field of instructional design illustrate the validity of learning objects when combined with a systematic design process based on instructional system design and motivational principles.

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Figure 1 The Proposed Model

Fig 3 ASSURE model

A. Analyze Learners
S. State Objectives
S. Select Media and Materials
U. Utilize Media and Materials
R. Require Learner Perticipation
E. Evaluate and Revise

Fig 4 Keller’s Model (ARCS Model)

Appendix A: LORI Instrument

Source: Click Here
References


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