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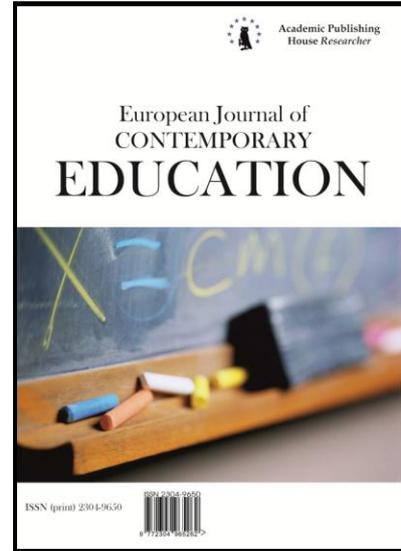
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Rapid E-learning Development Strategies and a Multimedia Project Design Model

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Abstract. The purpose of the study is to discuss e-learning design strategies which can be used for multimedia projects as a design model. Recent advances in instructional technologies have been found to be very important in the design of training courses by using rapid instructional design (ID) approaches. The approaches were developed to use in training and developing e-learning projects as well as multimedia design tools. For this reason, this paper will clarify the basic e-learning development techniques, such as ID processes, and the present innovative multimedia design models in addition to traditional instruction design models. In this approach, rapid course development techniques were presented and considered as other ways of e-learning design techniques, such as job training, rapid synchronous e-learning, rapid asynchronous e-learning and online learning with multimedia design models. In the literature, developments in and considerations of multimedia learning are scrutinized.

To design effective, efficient and engaging multimedia learning environments, instructional and meaningful e-learning models, which can be defined as integrated e-learning and multimedia projects design models, were developed and discussed. In this paper, firstly, rapid e-learning training development strategies and their characteristics are defined. Secondly, ID systems' stages are presented as a generic model that includes several phases, such as analysis, design, development, implementation and evaluation. In this process, these ID phases were adapted into e-learning and multimedia learning design by using ID models and approaches. As a result, the paper is based on research findings and resources in the field of instructional technologies and e-learning design tools for multimedia learning in order to indicate rapid instructional development strategies more effectively.

Keywords: Rapid instructional design; multimedia design; development strategies.

Introduction

Recent advances in instructional technologies have been found to be very important in the of design training courses by using rapid ID approaches. There are several instructional systems design (ISD) models which can be used as effectively and efficiently in classroom learning as well as part of training for organizations, such as in training needs assessment (Carr-Chellman, 2011; Rossett, 1987). Moreover, they also indicate new approaches to designing learning for K-12, higher education, and even for corporate settings. These procedures cover all generic ISD stages to add value for instructional strategies that are supported by appropriate objectives, tests, integrated technology, e-learning tools and classroom activities. In this case, the definition of ID for learners and teachers is simply a process by which instruction is created for classroom use through a systematic and systemic process of setting goals, creating learner objectives, analysing students' characteristics, writing tests, selecting materials, developing activities, selecting media or materials, and implementing and revising the type of lessons (Carr-Chellman, 2011; Seels & Glasgow, 1998). Each of the steps will be used in the rapid design for e-learning development that considers how to integrate technologies for designing multimedia projects and which uses rapid ID approaches as well.

ADDIE model, as a generic model, provides several steps with other instructional design (ID) models and methods, such as Dick, Carey & Carey model, R2RD2, Reeves multimedia design model, Morrison, Ross and Kemp model, Smith and Ragan, and 4C/ID as well as rest of ID models. It is important that, theoretically, all of the ID models in education is based on the steps of ADDIE model and carries their characteristics for designing instruction. That is, ADDIE model is a prior instructional design model for designers, teachers and developers in education, industry and business. Each of ID models can be used for developing e-learning instruction and distance learning after having enough information as practitioner and researcher in ID career. For this reason, this paper explains basic e-learning development techniques as an ID process and presents innovative multimedia design models in addition to traditional instruction design models. The models are based on the five phases of ISD, such as analysis, design, development, implementation and evaluation, sometimes referred to as 'ADDIE', and indicates that the phase used and discussed here - development - comes after design and before implementation. Each phase in the model described as the Spider Web Model is interconnected with all the other phases to create multimedia projects and e-learning courseware, and in conducting types of e-learning environments (Piskurich, 2011). The processes can be worked and determined at a much higher - even at community or political - rapid e-learning level. There are many tasks in designing instructional materials that can be effectively used in rapid e-learning development and multimedia design projects by using newly developed ID models (İpek, Sözcü & Ziatdinov, 2013). Recently developed models have been defined in education, such as the integrated e-learning design approach (Watson, 2005), the DDD-E model for designing, producing and assessing multimedia projects in education (Ivers & Barron, 2010), and the instructional design for teachers (ID4T) model for improving classroom practice (Carr-Chellman, 2011), as well as rapid ID and learning ID for fast and accurate e-learning (Piskurich, 2006, 2009, 2011).

Throughout the discussions of the ID models for e-learning design and technology, the basic ideas for designing fast and rapid design were discussed. For this purpose, the goal of the study is to discuss e-learning design strategies that can be used for multimedia projects as a design model. Recent advances in instructional technologies have been found to be very important in designing training courses by using rapid ID approaches. The approaches were developed to use in training and developing e-learning projects as well as multimedia design tools.

What is the meaning of 'rapid design'?

Instructional design is a systematic process that takes a long time to complete all procedures and solve learning problems. In addition, there is a need for alternative solutions because of several learning problems in educational and technological process. When comparing conventional e-learning and rapid e-learning approaches, there are differences between both approaches. There are three types of e-learning, Which can be classified as rapid, traditional and strategic e-learning (Bersin, 2005, 2004a, 2004b). The process provides contributions and motivational movement with learners (Kapp, 2004). E-learning is not only informing web page faster but also includes development, attention and providing retention steps for learning as well. For this, knowledge management and design e-learning with limited budget and resources require new tools,

technologies and procedures which can be defined as rapid e-learning (De Veries & Bersin, 2004). The definitions deal with considering investment, resources, content design and speed of the process as a new approach for rapid e-learning (Türel & Gürol, 2005). To do this, instructional design models should be used for this type e-learning development. e, ID process has a power for developing this performance and providing learning process faster as a rapid ID approach.

The instructional media development process is as important and a vital strategy in instructional e-learning design and technology as multimedia project development. Recently, the design of game-based learning, problem solving and virtual worlds have all been accepted as new topics in the field of instructional design and technology (IDT), and extensively revised by scholars in the field (Reiser & Dempsey, 2012). The characteristics of ID models were defined as traditional ID models, such as ADDIE, and include analysis, design, development, implementation and evaluation steps, while the model is based on a systematic product development concept. The concept of systematic product development has existed since the formation of social communities. Creating multimedia projects and products using the ADDIE process remains one of today's most effective tools. In addition, the steps in ID models can be applied for the same purpose as well as new approaches in ID models. According to the characteristics of ID, the ID process is defined as follows. They are: ID is learner-centred, goal-oriented, focuses on meaningful performance, assumes that outcomes can be measured in a reliable and valid way, is empirical, iterative and self-correcting in addition to employing team work. There are related issues such as time wasting, a lack of economic and investment returns, and various other factors. The fact is that new approaches for designing materials and instruction are needed. To reduce time wasting, costs and return in investment problems, rapid ID development strategies and processes have been offered to provide high quality ID levels with multimedia design and e-learning projects, which can be developed as a fast and appropriate training development (Piskurich, 2006, 2009). These procedures have been identified as powerful as conventional ID model concepts, and well-known and very effective and efficient ID models, such as: Dick et. al., 2005, 2009; Gustafson & Branch, 2007; Merrill, 1983, 1994, 2012; Morrison, Ross & Kemp, 2004; Morrison, Ross, Kalman & Kemp, 2011; Reigeluth, 1983; Seels & Glasgow, 1998; Smith & Ragan, 2005.

Integrated e-learning dimensions and rapid design

ID is a systematic process that is employed to develop education and training programmes in a consistent and reliable fashion. It is a complex process that is creative, active and iterative (Gustafson & Branch, 2007). In addition, it is a process for solving instructional problems by the systematic analysis of the conditions for learning. To do this, one makes decisions relating to each step in the ISD process (Seels & Glasgow, 1998). Although there are many definitions of the field, recently ID and instructional technology have been defined as fields of IDT (Reiser, 2007). These definitions contain instructional technology as instructional media and human performance with ID practices in recent years. ISD is based on the premise that learning should not occur in a haphazard manner but that it should be developed in accordance with orderly processes and have outcomes that can be measured. Basically, ISD defines what is to be learned, plans an intervention that will allow learning to occur, measures learning to determine if the objectives are met, and repeats the intervention until the objectives are met. ISD procedures and their application have evolved through practice and research and the expansion of the theory. Integrated e-learning as a concept can be seen in Figure 1 (Jochems, van Merrienboer & Koper (2005).

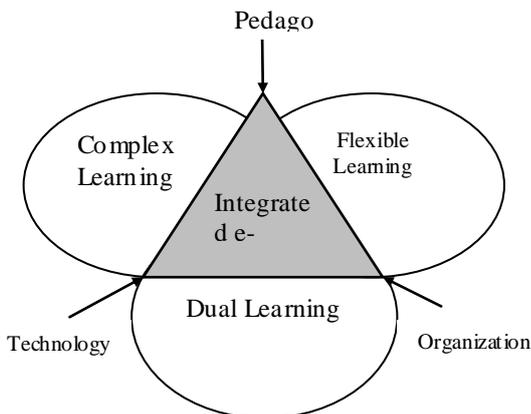


Figure 1 An Educational Systems Approach to Integrated E-learning

Many models of ISD processes have been developed. Although there are many ISD models, a generic model can be extracted from their common features. The choice of model for a particular instruction changes according to the learning environment, the subject matter or the strategies to be applied, etc. ISD models can be used with different learning and teaching approaches and theories wherever there is no strict rejection of them. For example, a 4C/ID model can be used in conjunction with constructivist theory for teaching complex technical skills. Regardless of the model chosen by the designer, most of them follow the processes of analysis, design, development, implementation, and evaluation. These steps are also used for designing e-learning courses. The e-courseware covers more than one course lesson in its capacity. A design model for an e-learning course is defined as the “VPODDDA” e-learning planning cycle, which initiates vision, profile, objective, design, development, delivery and assessment phases for the e-learning planning process (Waterhouse, 2005). The process can be integrated with the IDT models’ strategies for designing e-courseware or its modules (see in figure 2).

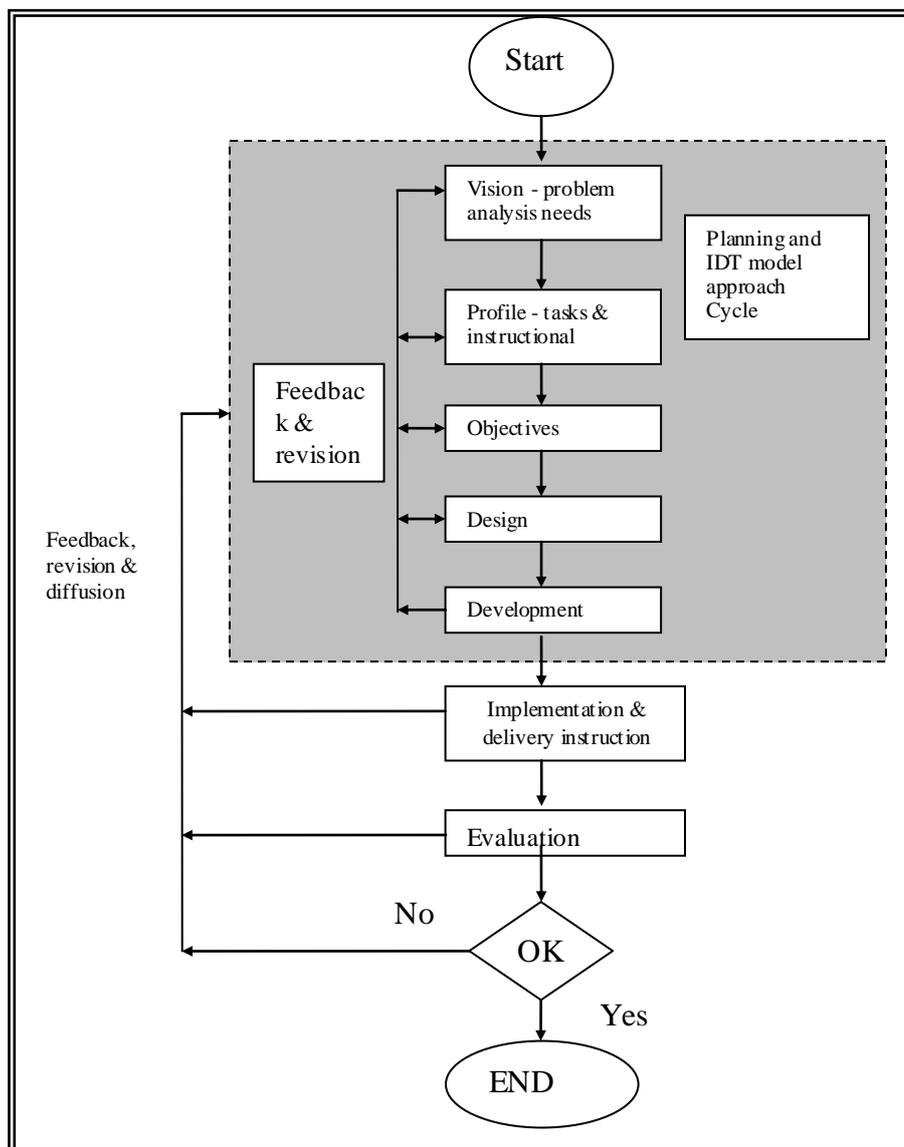


Figure 2 Instructional Design Model for Integrated E-learning

E-learning and integrated e-learning design procedures should focus on IDT models’ strategies or ISD approaches. To get high-level value for teaching with e-learning, IDT strategies present very important methods to make the design clear and the steps easier for learners and

developers engaged in an e-learning process. Generally, the IDT process begins with a needs assessment and a definition of the problem or objectives. The steps in such a model are given below.

Multimedia projects design and rapid e-learning

There are several multimedia design methods and models which can be defined such instructional design models in the field of instructional design and technology (IDT). The models can be effectively used for designing multimedia projects such as video, animation, simulation, e-learning games, and tutorials as individual and cooperative learning (Alessi & Trollip, 2001; Ivers & Barron, 2010). Although there are several ID models, the paper indicates and discusses one of ID models to use with cognitive and constructivist approach in learning process. There are also shared components for each model, separately. Therefore, the study focuses on DDD-E model to design materials for e-learning and distance learning. Frequently, distance education seems as an umbrella for all e-learning technologies, tools and procedures. Thus, it was defined very important process to explain enough in detail for using ID models as a rapid ID approach. For this reason, DDE-E model was selected and discussed to use in ID process for developing rapid e-learning as an example for this purpose and instructional need. The basic components of the model were given as follows.

A multimedia design model can be defined as a DDD-E model that consists of **Decide**, **Design**, **Develop** and **Evaluate** stages (Ivers & Barron, 2010). The purpose of each statement is given and discussed below. The procedures and activities in the model are given in Figure 3.

Decide deals with determining the project's goals and brainstorming for instructional multimedia design. Because each e-learning stage is not instructional e-learning which is not indicated as instructional activity, work and creativity in class (Merrill, 2012). The step also includes instructional research activities in design. Decide stage also deals with motivation and brainstorm activities. And decisions about any content are also related to individual learner characteristics and needs assessment analysis. From starting to model, there are evaluation steps for each component that includes feedback, interactions and different type of multimedia programs for learners and distance education process.

Design activities comprise creating flowcharts for projects and instructional materials development processes in multimedia projects, as well as designing screens in special learning. The step also includes developing storyboards and scripts in instructional software and material development. Design process includes goals that are systemic and systematic process as indicated in instructional design method. The ID method contains fundamental components of the instructional design process. Similar definitions can be found in other instructional system design models like ADDIE or the Kemp model (Edmonds, Branch, & Mukherjee, 1994). The quality of design activities provides advantages and disadvantages for distance education. As e-learning materials, software programs, multimedia projects and tests can be effectively used with rapid e-learning environments.

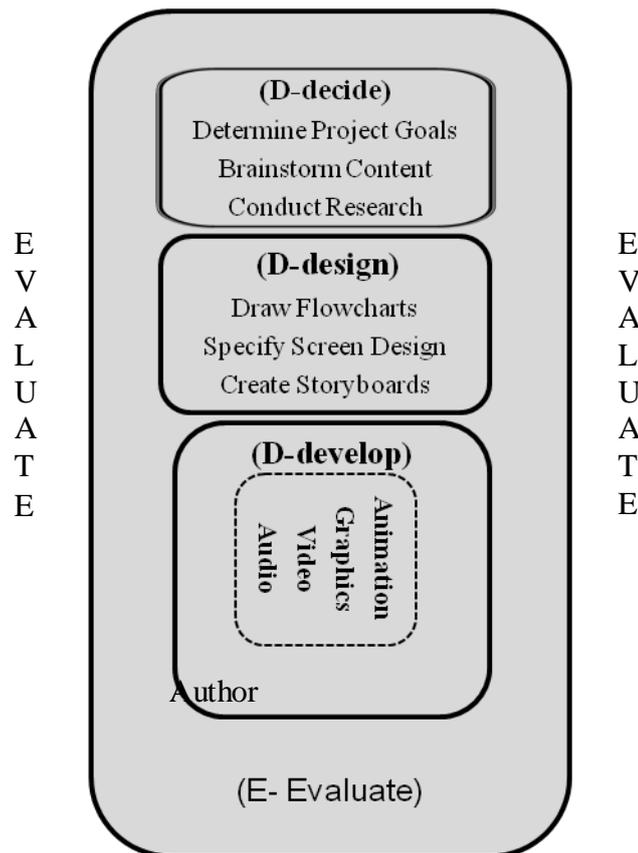


Figure 3. The DDD-E Model (adapted from Ivers & Barron, 2010)

Develop is one of the most important stages for multimedia projects design, which includes using an appropriate author programme to develop animation, graphics, video and audio. At this stage, all activities in developing process can be used for using instructional materials in real e-learning environments. Well designed e-learning materials and multimedia projects such as audio, animation and simulation programs provide high level learning contributions in distance learning for implementing and using materials with rapid e-learning design.

Evaluation is the last stage and includes evaluation strategies for each level of the **DDD-E** model for multimedia projects design. After constructing each multimedia project design activity, designers and educators should evaluate all the processes and product design steps to develop high-level multimedia products for students, teachers and businesses. At this stage, formative evaluation such as interval review, small group try out, pilot analysis and operational try out (in real environments) and summative evaluation should be effectively used for ID process and e-learning performance or distance education process.

For this reason, rapid ID should focus on IDT models and their approaches to developing interactive multimedia projects for online and distance education. The situation should include technical, instructional and material-based support. Using rapid design or development strategies in learning environments should be also covered by delivery systems so as to develop training courses more quickly and more effectively.

Conclusions

Rapid training development strategies for designing e-learning and distance education also require several delivery systems. The use of rapid design as a technique can be delivered by different systems and learning environments, which can be seen as follows:

For the classroom, the development instructor offers guidance for meeting the instructors' requirements.

On the job training (OJT), operating and technical manuals, and the use of SMEs.

For asynchronous e-learning, rapid prototyping, scripts and storyboards - hired consultants and authoring tools and systems can be used as rapid development techniques for multimedia projects design.

For synchronous e-learning, re-purpose classroom activities, borrow ideas from others, use SMEs well - training and discussion group techniques should be used effectively.

For online learning, for example, holding a synchronous first class and learning contracts as a foundation can be used to develop rapid design.

For online learning and rapid e-learning, all ID models such as DDD-E model, ADDIE model and the rest of systematic ID models should be used effectively and efficiently. Thus, all learning theories for ID process provide new opportunities with multimedia design projects and rapid e-learning development tools.

As a result, blended learning, self-directed learning and performance aid delivery systems should be used for effective rapid multimedia projects design. ID models are also used as a part of rapid design for mobile e-learning (m-learning) and e-learning activities as well. All the activities mentioned above should be provided with simulations, knowledge management, beta tests and pilots for m-learning as well as other multimedia learning design projects.

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