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MODULE 3: THE PROCESS OF E-LEARNING IMPLEMENTATION

POLYTECHNIC INSTITUTE OF PORTO

ANA LÚCIA TERRA
MARIA JOSÉ ANGÉLICO
CRISTINA LOPES
MANUEL MOREIRA DA SILVA
ÓSCAR BERNARDES
CÉLIA TAVARES
IOLANDA VALENTE

Introduction

E-learning, also known as online learning or digital learning, can be described as the use of technology to deliver educational content and training programs remotely. The implementation of e-learning has become increasingly popular in recent years, as it provides learners with greater flexibility and access to education.

The process of implementing e-learning can vary depending on the specific needs of an organization or educational institution (Clark & Mayer, 2011). However, the implementation of e-learning typically involves a multi-step process that includes needs assessment, technology selection, content development, implementation, delivery, and evaluation. This process supports those who design e-learning services and content.

The effectiveness of e-learning programs can be measured through assessments, surveys, and focus groups to gather feedback from the learners and measure the impact of the program.

This paper systematizes structured, robust and solid guidelines for a sustainable approach to the effective design and implementation of e-learning, and the presentation of a module on e-learning implementation is the core of this chapter. Focusing on the implementation of e-learning, this module is intended to deconstruct into five learning units the activities that are needed to develop an e-learning course, from identifying the organisational requirements, presenting instructional design methodologies, explaining pedagogical techniques and demonstrating the use of digital tools to enhance learning experiences.

For this purpose, e-learning is understood as a way of learning in which technology plays a vital role in supporting the interaction between learning partners (students, teachers and academic staff) in order to improve, or at least favour, the cognitive and social processes of learning (Basak, Wotto, & Bélanger, 2018).

One of the primary benefits of e-learning is that it enables learners to access content from anywhere, at any time. This can be particularly beneficial for individuals with hectic schedules or that live in remote areas where access to traditional classroom education is limited.

Methodologies to implement e-learning

There are several methodologies that can be used to implement e-learning, depending on the specific needs and goals of the organization or educational institution. Here are some of the most commonly used methodologies:

1. ADDIE: The ADDIE (Analysis, Design, Development, Implementation, Evaluation) model is a systematic approach to instructional design that is widely used in e-learning. It involves conducting a needs analysis, designing instructional materials, developing content, implementing the program, and evaluating its effectiveness (Allen, 2006).

2. Agile: The agile methodology is a flexible, iterative approach to software development that is also used in e-learning. It involves breaking the development process into small,

manageable chunks, and testing and evaluating the program at each stage (Battou, Baz, & Mammass, 2017).

3. SAM: The SAM (Successive Approximation Model) is another iterative approach to instructional design that is well-suited to e-learning. It involves developing a prototype, testing and evaluating it, and refining the program based on feedback from users (Wolverton & Guidry Hollier, 2022).

4. Rapid Prototyping: The rapid prototyping methodology involves developing a basic prototype of the e-learning program and then testing and refining it based on feedback from users. This approach is well-suited to organizations that need to quickly develop and deploy e-learning programs (Boulet, 2009).

5. Kirkpatrick Model: The Kirkpatrick model is a popular framework for evaluating the effectiveness of e-learning programs. It involves four levels of evaluation: reaction (how learners respond to the program), learning (whether learners have acquired new knowledge or skills), behavior (whether learners apply what they have learned), and results (the impact of the program on the organization or educational institution) (Smidt, Balandin, Sigafoos, & Reed, 2009).

The implementation of e-learning typically involves a multi-step process that includes needs assessment, technology selection, content development, implementation, delivery, and evaluation. This process supports those who design e-learning services and content.

Regarding needs assessment, the first step in implementing e-learning is to conduct a needs assessment to identify the goals, objectives, and requirements of the e-learning program. This involves identifying the target audience, the content that needs to be covered, and the desired outcomes.

On technology selection, once the needs assessment is completed, the next step is to select the appropriate technology for delivering the e-learning program. This may involve selecting a learning management system (LMS), authoring tools, and other software.

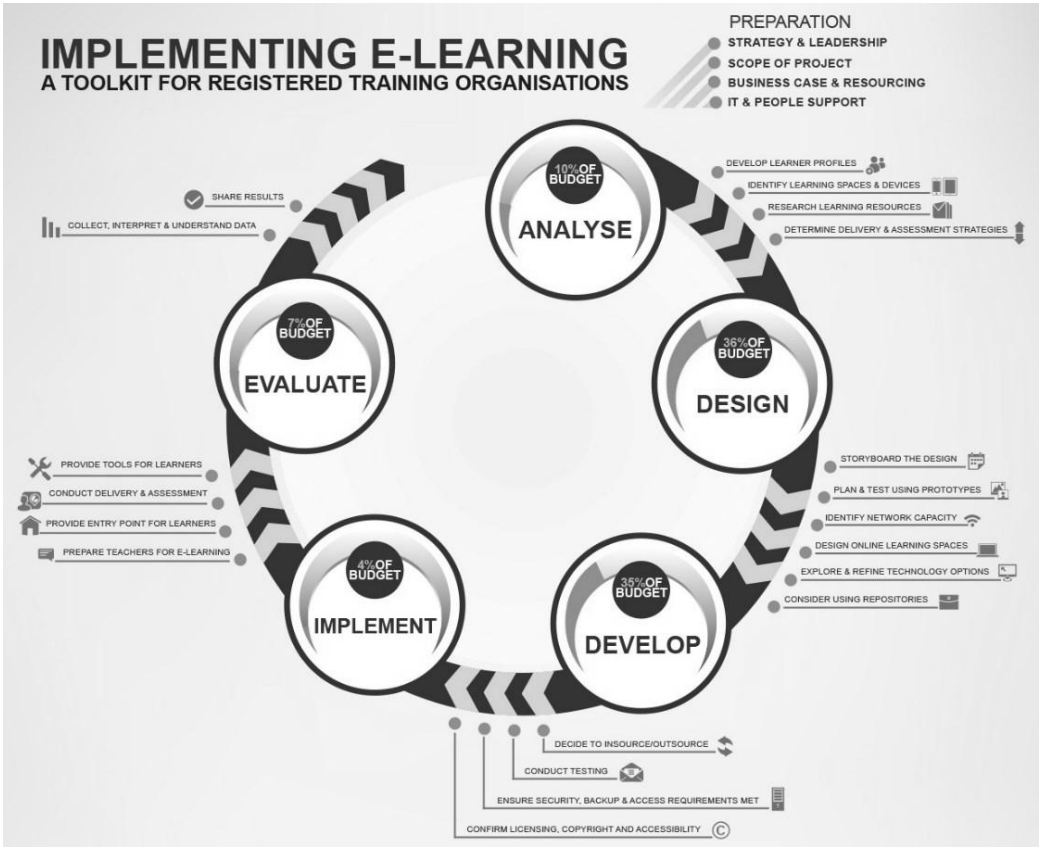
The next step is to develop e-learning content. This may involve designing instructional materials, creating interactive multimedia, and developing assessments.

The implementation step occurs after the content is developed, when the e-learning program is ready to be implemented. This involves setting up the LMS, uploading the content, and configuring the system to meet the needs of the users.

On the delivery step, once the e-learning program is implemented, it is ready to be delivered to the learners. This may involve providing access to the content through the LMS, scheduling online classes, or providing access to self-paced modules.

The final step in the process is to evaluate the effectiveness of the e-learning program. This may involve conducting assessments, surveys, and focus groups to gather feedback from the learners and measure the impact of the program.

In Digitools project, for the development of the training curriculum plan and the development of learning activities (instructional events) we used ADDIE methodology. According to Kurt (2017), to create an effective learning experience, the learning model ADDIE is one of the most used instructional design models, which is reflected in the next figure.



Source: Bates, A.W. (2019)

The *Analyse* phase helps identify learning goals and objectives. It also helps gather information about what your audience already knows and what they still need to learn. During this stage is when you'll conduct an in-depth training needs assessment to help you identify the gaps.

The *Design* phase helps us decide specific learning objectives, structure of the content, mental processes needed by traineers, knowledge or skills participants need to obtain, best tools to use, videos or graphics to create, the length of time for each lesson. Just to name a few of the essentials.

In the *Development* phase, the course is created, taking into account the prototype/storyboard. Each element of the course should be developed according to the design phase.

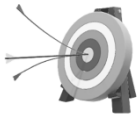
The *Implementation* phase is where the actual learning takes place.

The last phase in the ADDIE Model is *Evaluation*. After the eLearning course is designed, developed, and implemented, you want to make sure it's doing its job. This phase is about gathering important information to see if the course needs to be revised and improved.

Most often in the world of eLearning, this means exporting your file and uploading the course to an LMS (Learning Management System). During the export process, make sure you work with your client to know the exact settings they prefer for tracking.

There have been many books written about the ADDIE model (see for instance, Morrison, 2010; Dick and Carey, 2005).

Module aims



By the end of the module on the process of e-learning implementation, the learners will have basic knowledge and skills to configure the four key areas of an e-learning course (management support and policy, design and planning of the course, content creation, and support to e-learning activities) and the 17 actions that need to be developed to design, create, put in action and evaluate an e-learning course in any subject-specific teaching context.

Learning outcomes

By following the activities proposed in learning units, the learner will be able to:

- To define the requirements from organisational context related to the support of the management team and the definition of a policy framework to shape e-learning initiatives.
- To summarise the activities that are needed to develop an e-learning course, which include the analysis of the learning needs, learning objectives and course sequences, instructional methods and evaluation strategies.
- To explain aspects related to the preparation and delivering of e-learning content, including the use of adequate and creative pedagogical techniques, using media and digital tools to enhance learning experiences.
- To identify all technological features (asynchronous and synchronous tools) and services (teacher and student training on e-learning tools, repository on educational resources, etc.) that are needed to support e-learning activities.

Resources and working means

Pedagogical methods used in the module will include project-based learning, flipped classroom and students' readings.

Computer resources needed to go through the material and solve the tests imply an internet connected device, namely a laptop, desktop computer or a tablet.

Information sources and bibliography include the *Guide for best practices: subject-specific teaching in digital education* and the *Analytic Program Model*, both documents created within Digitools project. For further references, we recommend to see also Ketmanto, Pratami, Hasibuan, & Jacob (2019), Dijkstra & Goeman (2020) and Redecker (2017).

Module structure

This learning module has been organized in five Learning Units (LU), applying reading contents: 2 hours (0,2 ECTS), task and activities: 3 hours (0,3 ECTS). The total time necessary will be 25 hours.

LU 1. The design of an e-learning course

Content

1.1. Introduction

An e-learning programme requires thinking about principles for action that consider existing models and create new strategies that enhance the process. This LU will focus on the requirements from a macro and organisational context related to the support of the management team and the definition of a policy framework to shape e-learning initiatives. Aspects related to the awareness of the participants involved and to the specifics of the thematic area will be also considered. The type of knowledge and learning that need being transferred and generated, and the technology and infrastructure are both approached in this LU.

1.2. Learning unit objectives

By the end of this LU, successful learners should be able to:

- To explain the need and the role of an e-learning model to work as a reference that frames the design of an e-learning course within the broader context of a Higher Education Institution [HEI].
- To identify the roles and needs of the several individuals that will take part in the e-learning course, including students, academic staff, technical staff and librarians, among others.
- To confer the technological features needed to implement the e-learning course, both in terms of digital infrastructure and digital skills from the participants.
- To be aware of the need to adapt/align the type of knowledge and learning that have been transferred and generated to the needs and expectations of learners, academic and technical staff and the organisation expectations and conditions.

1.3. Learning unit content

- The role of an e-learning model as a reference to the design of an e-learning course.
- Identifying the roles and needs of e-learning participants (students, academic staff, librarians and technical staff.

- Basic of the digital infrastructure and digital skills needed by the e-learning course participants.
- How to meet the expectations of learners and academic staff in an e-learning course.

1.4. Applications

Experience discussion.

Create a checklist of aspects to consider on the design of an e-learning course.

LU 2. To plan an e-learning course

Content

2.1. Introduction

This learning unit focuses on all the activities related to the analysis of the learning needs, learning objectives and course sequences. This step is essential to ensure the effectiveness of the e-learning course. Understanding student needs, identifying appropriate objectives, learning activities and their sequence, as well as adapting available technical solutions, all are crucial aspects to create an effective and engaging course.

2.2. Learning unit objectives

By the end of this LU, successful learners should be able to:

Understand and classify students learning needs.

- Define the concept of e-learning objective.
- Be aware of Bloom's revised taxonomy and use it to write measurable objectives.
- Define and apply different kinds of e-learning methods according to the learning objectives.

2.3. Learning unit content

2.3.1. – Identifying the target audience and users' learning needs

2.3.2. – Defining learning objectives and Bloom's taxonomy on knowledge

2.3.3. – Categories of teaching and learning methods

2.4. Applications

Quiz on learning objectives and methods of teaching and learning.

LU 3. To create an e-learning course

Content

3.1. Introduction

This learning unit embraces aspects related to the preparation and delivery of e-learning content, including using adequate and creative pedagogical techniques and using media and digital tools to enhance learning experiences.

3.2. Learning unit objectives

By the end of this LU, successful learners should be able to:

- Distinguish different types of learning content (e.g. facts, concepts, principles, attitudes, etc).
- Apply the most effective instructional techniques for content development.
- Use storytelling to deliver content in an e-learning course.

3.3. Learning unit content

3.3.1. – Learning content types

3.3.2. – Instructional techniques

3.3.3. – Storytelling as an effective way to deliver content

3.4. Applications

Quiz on learning content types and instructional techniques.

LU 4. To implement an e-learning course

Content

4.1. Introduction

This learning unit focuses on improving students' participation within the e-learning course and on the evaluation procedures. Communicating regularly with learners while nurturing their motivation and participatory roles in the learning process is a critical factor for the success of e-learning. On the other hand, assessment methods should be linked to the expected learning outcomes.

4.2. Learning unit objectives

By the end of this LU, successful learners should be able to:

- Choose the more appropriate activities to promote students' involvement and active communication with all the participants within the e-learning course.
- Fit evaluation methods with course content, learning objectives and students' profiles.

4.3. Learning unit content

4.3.1 – Communication methods and technologies to support e-leaners

4.3.2 – Evaluation methods

4.4. Applications

Design a communication plan to promote students participation within an e-learning course.
Quiz on evaluation methods.

LU 5. To evaluate and improve an e-learning course

Content

5.1. Introduction

The evaluation process takes place throughout the e-learning implementation process. It determines the effectiveness of added value and e-learning course efficiency. The improvement step allows the evaluation and review, and validate the expertise needed by the individuals and the organization involved in the e-learning course to determine whether the chosen options have generated the desired outcome.

5.2. Learning unit objectives

By the end of this LU, successful learners should be able to:

- To identify methodologies and criteria to evaluate an e-learning course.
- To identify the dimensions of the evaluation of an e-learning course.
- To present the results from the evaluation of an-learning course.

5.3. Learning unit content

5.3.1 – Dimensions for the evaluation of an e-learning course

5.3.2 – Methodologies and criteria to evaluate an e-learning course

5.3.3. – Presenting the evaluation of an e-learning course

5.4. Applications

Create a checklist to evaluate an e-learning course.

FINAL ASSESSMENT

The students could create a guide to implement an e-learning course related with a specific subject in which they have knowledge and targeted within their own institution.

Conclusions

An e-learning model is necessary to ensure that e-learning courses are aligned with the institution's overall mission and vision, and that they meet the needs of diverse learners and stakeholders. The model also helps to ensure that e-learning courses are consistent in terms of quality, design, and delivery, and that they are supported by appropriate infrastructure, policies, and resources. When designing the model, there is the need to involve all stakeholders in the development and implementation of the e-learning model, including managers, academic staff, and learners. It is also important to attend the need for ongoing evaluation and refinement of the model to ensure that it remains relevant and effective in the rapidly changing landscape of e-learning (e-Learning Pedagogical Support Unit, 2019).

Understanding the importance of knowing student needs, identifying appropriate learning objectives, and selecting appropriate learning activities and their sequence in the design of effective e-learning courses are key aspects of a module on the implementation of an e-learning course. It is quite important to align learning objectives with student needs and interests, and provide practical guidance for identifying appropriate learning objectives and selecting appropriate learning activities (Clark & Mayer, 2011).

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