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# MODELS AND PRACTICES OF ELEARNING USE AT THE CATHOLIC UNIVERSITY OF MOZAMBIQUE: A CASE STUDY

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## Abstract

Bearing in mind that the world is increasingly dominated by technology, learning in the online context is gradually accompanying its development regarding the use of learning as a primary factor for distance learning. This paper presents the study conducted to analyze the models and practices of the use of e-learning whose affirmation in the educational system constitutes one of the biggest challenges for Higher Education Institutions, mainly concerning distance education using platforms as an instrument for learning.

To achieve the objectives, the research uses students, tutors, monitors and the online Pedagogical Director of the Institute of Distance Education of the Catholic University of Mozambique as the focal point. Through a mixed methods approach using questionnaires and interviews, research has as a key element of the use of eLearning in the teaching and learning process. As for the origin of the data, they are merely primary. The results obtained allow us to conclude that the eLearning platform, as well as the interaction tools, are not explored by students, having as the main cause the lack of evaluations such as tests and works and forums that culminates in the lack of incentive for students participation, another factor is the lack of mastery of e-learning platforms, a weak signal from the internet and the lack of knowledge in online teaching, which has as difficulty pointed out, the lack of continuous training. Both tutors and students are unaware of the real importance of user interaction tools. It is hoped that the results of this study may demonstrate to students and tutors at the Distance Education Institute of the Catholic University of Mozambique the importance of using Information and Communication Technologies in learning and that they arouse interest in the practice of using eLearning as an indispensable element in distance learning and teaching using eLearning platforms as a medium.

Keywords: Distance Education; eLearning; Models and practices of the use of eLearning; Higher Education; Mozambique.

## 1 INTRODUCTION

With the development of information and communication technologies (ICT) and the emergence of the internet, new ways of learning have emerged and the traditional classroom has given place to the virtual environment, the so-called learning platforms, giving space to teaching with mechanisms that, allow the use of several tools through which tutors and students interact and new forms of knowledge construction take place. Thus, providing new ways of building knowledge through new virtual learning environments and breaking the traditional paradigms with the physical separation between the tutor and the student.

At the Instituto de Educação a Distância (IED) da Universidade Católica de Moçambique (UCM), the distance education offer is characterized under two types of models: i) the semi-attendance (hybrid) and, ii) the online. The learning management is done through the Moodle platform and WebEx system, including synchronous and asynchronous moments. The moodle platform serves as a repository of learning material such as modules, brochures, links, videos, self-evaluation tests, learning objects, and various communication tools for interaction (forums, chats). On the WebEx platform, synchronous sessions take place where tutors and students interact in real-time.

However, in distance education, the different forms of using the tools to appropriate knowledge and learning, determine the quality of the teaching and learning process. Hence the relevance of researching which are the models and practices of elearning usage at IED and, on that basis, characterise its functionality, identify the communication tools employed, know the main difficulties and assess the degree of satisfaction in using the elearning platform. With a qualitative research approach of descriptive

nature, a case study was conducted, resorting to a variety of procedures and instruments of data collection (questionnaires, document analysis, observations and bibliographic research) and content analysis techniques for data analysis and interpretation.

This research was developed in the scope of the Master's Degree in eLearning Pedagogy (Universidade Aberta, Portugal).

The next subsection will present the theoretical background supporting this study.

## **1.1 Distance Education's main features and modalities**

[1] define distance education as "planned learning that normally takes place in a different location from the place of instruction, requiring special course design and instructional techniques, communication through various technologies, and special organisational and administrative arrangements" (p.2). [2] argues that this separation leads to special patterns of stakeholder behaviour profoundly affecting both teaching and learning. With such separation, a psychological and communicational space to be bridged arises, a space of potential misunderstanding between teacher and student interventions. The primacy of space-time flexibility is a characteristic of distance education that has been proving to be a fundamental means of fostering opportunities for several individuals worldwide.

[3] presents three models of Distance Education: the blended-learning, mobile learning and the electronic-learning.

Regarding the blended-learning or b-learning, this model unites the communication and information technologies with face-to-face or virtual moments, in what we can call a hybrid model, where students, in addition to face-to-face and distance situations, fulfil a compulsory in-person course load in decentralized hubs of the institution. These moments are composed of tasks, assignment presentations, assessments, videoconferences, and mentoring with tutors, among other activities. [4] for

[5] consider mobile learning or m-learning as that which uses mobile and wireless technologies, such as mobile phones, smartphones, and laptops with wireless network connections, as well as applications of (Radio Frequency Identification) in teaching. However, there is still a great restriction about this learning Model due to the resistance to new technologies and because it is necessary for innovation in didactic-pedagogical practices, as well as, that teachers are trained to use this new technology.

The electronic-learning or elearning is an online modality through technological means, and its milestones are divided into modules, using the most diverse resources such as email, texts, images, videos, and chat rooms, among others. The interaction is, above all, asynchronous, although nowadays it can include, occasionally, synchronous moments. It seeks to explore in a more updated way the development of new pedagogical methodologies allied to online media [6]. [7] define eLearning as a form of distance education that employs computational and audiovisual resources to promote learning. It is one of the distance education modalities that provide technology-based learning suited to the needs, availability and pace of users. That is, it is characterised by using the internet for content distribution, through eLearning or Learning Management System platforms. According to these definitions, it can be said that eLearning is the most recent stage of development in the context of distance education and its field of action is the internet, which provides autonomy and active learning to the student, implies the space-time separation between tutors and students and the technology mediates the teaching and learning process. Thus, the adoption of eLearning, besides the use of technology, requires the transformation of the mentalities of the stakeholders involved.

## **1.2 Distance Education at IED - UCM**

The history of distance education at UCM dates back to the year 2000 in regions of Mozambique where accessing education is difficult. At first, the courses were aimed at teacher training in the semi-attendance (hybrid) modality with emphasis on rural areas where the need was greater, allowing them to continue their studies without moving from their jobs. As time went by the course spread to all citizens interested in attending higher education at a distance.

To broaden its offerings, the UCM created 2003 the IED (Distance Education Institute) with the purpose of training teachers in Psychopedagogical components [8]. In 2012, it started teaching in the online modality, initially opening the doors to the degree course in Computer Science Teaching. The IED-UCM offers two learning modalities at a distance:

- 1 Semi-attendance/hybrid model: learning is student-centred, supported by modules, tutors and the physical libraries present in the basic units of the institution and the Resource Centres. For this

modality, there are 4 sessions per year (2 tutorial sessions and 2 exam sessions). During the tutorial sessions, the tutor does the follow-up, which consists in answering by telephone, internet or physically the students, or giving feedback, reinforcing the self-learning process. Thus, the tutor clarifies doubts, directs content, promotes problematizing dialogue, moderates, accompanies the discussions in the study groups and updates the pedagogical content.

- 2 Virtual/online model: this learning model uses as LMS the moodle platform that allows the interaction between students and tutors. Besides the Moodle platform, it also uses the Cisco WebEx videoconferencing platform where tutors interact in real-time with students. The WebEx platform is the main tool for direct interaction.

The UCM institutionalized the elearning in 2009 and thus began to use Moodle as an LMS. In this context, the IED was committed to implementing a learning environment characterised by high levels of interaction between teachers and students to help manage teaching and learning. One of the main advantages of the e-learning platform is that it concentrates all the information relating to the subject in a single space and has open code, allowing any user to modify and adapt the environment according to their own needs. It presents a series of subjects related to the course, the tutor is responsible for enriching the subject platform with didactic material, videos, links, and brochures among others, it works at acceptable levels. The Moodle course homepage is customisable, in terms of visual appearance, organisation and arrangement of information blocks, which gives tutors great flexibility to organise the material and make them more attractive and functional. From the main page the student will find various items such as "my courses, private files, settings, activities, announcements, events, calendars etc). Opening a course in Moodle takes you to the course home page, where you will find information related to the course, such as tutor information (name, email and contact details) and course content. The course activities are taught using resources that provide students with the necessary autonomy and the development of their capacity for initiative. Thus, in a given subject, a student can perform the following activities: Chat, Forum and Quiz.

According to the IED Online Tutor Guide [9], the online tutorial session is a moment of synchronous interaction between the student and the tutor, in which the tutor explains the content to the students and the students present their doubts if any after the explanation. The online sessions take place using the WebEx video conferencing platform where tutors interact in real-time with students. Tutors are connected to the session following an email invitation from the technical team two days in advance. The sessions per subject last two hours after working hours. The online tutor and the students receive from the pedagogical direction the calendar of all the planned activities of each modular plan. The course of the subjects follows in general three moments: online sessions, interregnum moments and exam sessions.

The number of meetings is composed of 3 online sessions: **1<sup>st</sup>. session** – aims to familiarize the student with the general objectives of the subject, the tutor gives the presentation of the subject, the methodology to be used, guides the contents to be studied and the self-assessment activities, clarify the interaction strategies and creates the forum, which the main purpose is to introduce the student to the subject and should be linked to the student's knowledge and understanding of the subject; **2<sup>nd</sup>. session** - aims to make the student take charge of his learning process in an active way, the tutor focuses on clarifying doubts, giving feedback on the activities carried out so far, providing the guidelines in preparation for the exam, and creating the discussion forum, where he/she clarifies doubts, follows up the discussions and updates the teaching content; the **3<sup>rd</sup>. session**: aims to provide guidelines for the exam, where the student exposes existing doubts, interacts individually or in groups, with the content, their peers and the tutor, strictly according to the objectives recommended in each unit and where the tutor creates the forum, to discuss the contents presented and guide the preparation for the exams. In the **interregnum moment**, the tutor follows up, which consists in answering by phone, internet or physically (if possible) the students with learning difficulties, giving feedback, reinforcing the self-learning process, elaborating, configuring and monitoring activities, following up on the intellectual growth, through evaluative activities, clarifying doubts, correcting activities, moderating and following up the discussions in the forum or Chats. Unlike the other activities (100% online), the **exams** are given face-to-face. They take place at the end of each modular plan, with two defined periods (normal and recurrence) and as an institutional rule, the student takes the exam at the place where he registered (resource centre) and these are corrected locally and the marks are launched on the platform where the whole academic process can be visualized.

In the online context, knowledge construction is not only made of technology, interactions are online, mostly performed asynchronously by email, chats or forums. Tutors are deeply involved in the teaching process, as learning facilitators and competence assessors, and should have active participation with the subjects involved [10]. Both the tutor and the students have fundamental roles when it comes to good interaction that promotes collaborative learning. [11] proposes a model of online activity

development that somehow frames the role of the tutor and the students in this learning environment. This model is clear and objective about the fundamental steps in the creation and development of the learning community and the roles of learners and tutors in each of the steps, promoting interaction in achieving the objectives (evident in the model) that are progressively more complex and difficult to achieve, on the way to student autonomy. It is noteworthy that in this model, for the student to be able to act confidently from individual and more targeted activities and move on to group activities, the tutor should increase the level of interaction using different strategies, promote confidence and encourage exploration of ideas.

By way of the conclusion of the theoretical foundation, it should be noted that the study was conducted based on the virtual learning model that characterises learning in IED-UCM. The conceptual framework of the study rests on the definition of distance education and the characterization of its modalities, namely, in its last generation – elearning - which comprises all forms of teaching and learning activities that are supported by the use of electronic tools such as forums, video conferencing and email.

In Mozambique, the first records of the implementation of distance learning date back to 1977, when the expansion and access to educational services became one of the main priorities of the Government after independence. As time went by and due to the need to widen access to education in remote areas by exploring new ways of teaching, the Mozambican Government, through the National Education System Law, adopted distance education as a way of teaching because it was recognised that its virtues could be used to meet the needs of dispersed human resources and investment in their training. Despite its dissemination all over the world and also in the African continent, this modality started to be implemented in the country in 2001, due to its high importance for the progress and sustainable development of the country. Therefore, several higher education institutions started to adopt it, as is the case of the IED-UCM.

IED operates under two modalities of teaching and learning, namely: i) the semi-attendance, which has as learning support the printed didactic material and ii) the virtual or online, in which mediation occurs through technological means, and uses asynchronous learning management platform Moodle and resorts to the use of tools such as forums for interaction, and the synchronous video conferencing platform Cisco WebEx.

In this teaching-learning process, the role assumed by the tutor is that of facilitator, moderator, mediator, motivator, and student mentor in the learning path, assisting in the execution of activities, giving constant feedback on the teaching-learning process and providing constructive criticism, helping in decisions and ensuring that learning is effective and meaningful. The online student is characterised as someone disciplined, proactive, organised and flexible, who manages his own time and space in which he intends to study, enabling him to develop the ability for autonomous learning, a sine qua non condition for the success of any distance learning experience.

In the following sections, we will describe the methodology used, present and analyse the results obtained, and conclude with some final considerations.

## 2 METHODOLOGY

Having built the theoretical framework of this study to answer the stated problems and objectives, this section will explain the methodological procedures used to carry out our research.

The study seeks to answer the following question: *What are the models and practices of the usage of the eLearning platform in the teaching and learning process at the Institute of Distance Education?* Hence, from the main question arise the following sub-questions pertinent to the study: i) How is the practice of using eLearning in the Online Teaching and Learning Process evaluated? ii) What are the interaction tools used by teachers and students in the online Teaching and Learning Process? iii) How is the functionality of the eLearning platform evaluated in the Online Teaching and Learning Process? iv) What are the main difficulties that tutors and students face when using the eLearning platform?

The study is framed within a mixed research approach [12] focused on the study of a case, whose unit is the IED-UCM, focusing on analysing the models and practices of the usage of the eLearning platform. As data collection techniques we used questionnaires, direct non-participant observation, interviews and document analysis. For the analysis and interpretation of data, descriptive statistics and content analysis were used.

Non-participant observation [13] started at the moment when researchers were aware of the real importance of following the course of the activities performed on the platform to understand the research

The population for the study was made up of the students and tutors of the 3rd and 4th year<sup>1</sup> of the Degree "Ensino de História" course, the course monitors and the Online Pedagogical Director, due to their relevance, substantial contribution and presentation of characteristics that meet the research objectives, enabling that through them we can access detailed knowledge about the subject under study and collect information that can answer the questions raised. Thus, this is a non-probability sampling technique by convenience.

A total of 20 questionnaires were sent by email to students and 8 to tutors, and the interviews were sent to 3 monitors and the Pedagogical Director online. However, from these numbers, only 12 students, 7 tutors, 3 monitors and the Pedagogical Director of the online courses participated in the study. Anonymity and confidentiality were observed in the completion of the questionnaires and the answers to the interviews.

Questionnaires were sent by email to students and tutors to assess their perceptions regarding the usage of the eLearning platform, to cover all participants. The questionnaires were designed based on open and closed questions taking into account the objectives of the study. The questionnaire addressed to students is made of 6 categories. The questionnaire addressed to tutors is made of 8 categories. Both questionnaires had a total of 21 open-ended and closed-ended questions.

The interview consisted of a structured [14; 15] script to collect all the information about the use of the Moodle and Webex platforms, where the subject to be studied (the usage of the eLearning platform in IED) was introduced. The script development process was subject to validation assumptions. Before its application, an email was sent to the stakeholders with a request to participate in the study. The script presents 4 categories with a total of 12 questions for the monitors and 5 categories with a total of 15 questions for the Pedagogical Director.

The document analysis was used to gather information in documents produced and provided by the institution where the study was carried out, such as the Curriculum Plan of the course, the manual of the online platforms, the Online Tutor Guide, the Performance Evaluation Manual, among others, to find out the pedagogical and technological guidelines. It is worth mentioning that the IED, for the online modality, does not yet have consistent and physical documents that support a pedagogical model to be followed.

All data collection instruments were submitted to the Ethics Committee of the Laboratory of Distance Education and eLearning (UID 4372/FCT), which approved them.

### 3 RESULTS

This section will briefly present and discuss the main results obtained from the collected data analysis. Data analysis techniques applied were descriptive statistics and content analysis.

#### 3.1 Online environment and training in online teaching

Concerning the *students'* training in the use of the platform, 41.7% stated that during the course attendance, they had an online ambience; 58.3% stated negatively which shows the fact that many students have difficulties in the use of communication tools. The IED pedagogical model contemplates an online environment for students for a period of two weeks where they learn how to use the platform in all its aspects. It is important to mention that not always the attendance of an online environment course guarantees the necessary mastery for the use of the platform, it is necessary that the student knows and masters the ICT. Concerning *tutor* training in online teaching, 85.7% had training in online teaching, while 14.3% said they had not. The results of the questionnaire indicate that most of the tutors have not had training in online teaching, but they have had training in how to teach at a distance, which enabled them to become online tutors. In IED, the tutors are divided into the two modalities available, and most of them teach in the semi-attendance regime, hence the reason why most of them have training in how to teach at a distance. There is little investment in continuous training, they do not have defined digital competencies to act in distance education because they have not undergone adequate training for the context and therefore present difficulties in the handling of tools to act safely and masterfully.

<sup>1</sup> It should be noted that in IED-UCM, by the time of this research (2019-2020) there were only the 3rd and 4th years of the degree course in "Ensino de História", hence the small number of the sample.

consider it good (71.43%). The platform is good and works at acceptable levels, demonstrates quality, is simple to work with and is worth the effort as there is space to deposit all types of learning material, contains many tools for learning and allows the different activities to be carried out at any time and in any place without restrictions. The activities are carried out using resources that provide the student with the necessary autonomy, accessing the contents, participating in forums and chats and taking self-evaluation tests. The students receive information about the course through a forum announcement. Online sessions take place using the Cisco WebEx video conferencing platform where tutors interact in real-time with students. There is a monitoring team that performs the administrative work of the platform, such as setting up the course, sending invitations to sessions, giving feedback, supervising the online sessions, supporting students and tutors, ensuring technical support, etc.

In sum, the reading of the results obtained reveals the need, for students and tutors, to expand knowledge and develop competencies about: a) distance education regarding the aspects of methodologies, strategies and pedagogical tools; b) pedagogical mediation in DE. With the students, it was verified that they do not dominate the computer and, consequently, the use of the internet. The lack of assessments such as tests and assignments, and the deficient exploration of forums, culminates in the lack of incentive for the student's participation in the eLearning platform. As for the teachers, the quality of the internet, the absence of interaction with the students and the lack of continuous training in online teaching are pointed out as aspects that negatively influence the usage of the platform. Therefore, to support students in distance learning in the e-learning modality, initial training of students and teachers is essential. Moreover, concerning teachers, it seems necessary for a continuous training program based on the matrix of competencies and skills organized according to the institutional, technological, pedagogical and management domains, and proficiency levels according to the roles and functions of these professionals.

## 4 CONCLUSIONS

### 4.1 Answering questions

The main objective of the study was to analyse the models and practices of the usage of the eLearning Platform in teaching and learning in the IED-UCM and how it is being used by students and tutors. In this way, the main findings made throughout the research will be presented in the form of answers to the five questions that guided the study:

#### 4.1.1 *What are the models and practices of eLearning usage in the teaching and learning process at IED-UCM?*

In the eLearning context, IED adopts the virtual/online model that uses as a learning management model the moodle platform used as a repository of didactic material, forum discussions and activities. The stages of synchronous interactions are divided into online sessions using the Cisco WebEx video conferencing platform. eLearning practices can be summarised as Chatting, Forums and Taking the self-assessment test. At IED, online learning is guided by socio-constructivist methodological principles that promote the gradual and collective construction of knowledge through mainly synchronous and asynchronous discussions among those involved in the teaching and learning process. Behar (2009), argues that in the technology-based teaching model it is important to take into consideration aspects such as the learning theory, target audience profile, subject objectives, the activities to be performed, the types of interaction proposed, motivation and the virtual learning environment is chosen to contemplate all the items arranged in the course organization.

#### 4.1.2 *How is the practice of the usage of the eLearning platform at IED-UCM evaluated?*

The eLearning practice at IED is reduced, the student's access to the existing information, however, it is visible the low adherence in several activities and the major cause is associated with the fact that the student's presence on the platform is not compulsory and that there is not, in the UCM Evaluation Regulation, criteria to evaluate the activities and the student's participation in the platform. In any education system the assessment component, either summative, formative or diagnostic, is fundamental to measuring the level of learning. In the case of distance education, it is important to review the question of the activities in the platform, and the component absence of work and tests should be highlighted as a shortcoming. The consequences of this phenomenon affect both tutors and students, revealing itself on the one hand as a powerful indicator of institutional inefficiency and, on the other hand, as a frustration of the expectations of students who seek the online modality and become disappointed with the quality of learning.



#### 4.1.3 *What interaction tools are used by teachers and students in the online teaching and learning process?*

At IED, the tools used for interaction are the forums, chats, email and video conferences, which serve to share existing information, clarify doubts, debate around the subject, give feedback on existing activities, and prepare the self-assessment test. This interaction is something that needs to be improved as the exploitation of these tools remains a challenge for online learning given that most students according to Moore and Kearsley (cited by Simão, 2018) enjoy the interaction with their instructor and peers, not only for instructional reasons but also for the emotional support that arises from this social contact. Contrasting the students' response in stating that they use the forums for interaction with the available data, it should be noted that interactions are limited. Students lack individual and collaborative study habits, do not consider themselves autonomous in learning, are very dependent on the tutor and prefer to use the WebEx video-conferencing platform for synchronous interaction with the tutor. In virtual learning environments, the use of tools is necessary to increase the interaction among students so that they can develop the exchange of opinions and information-generating knowledge, and this is only possible through synchronous or asynchronous communication interfaces. Therefore, the creation of these spaces of interaction is a way to require students to be more attentive, and active in the execution of the interaction tools, in the tasks and debates. Further, to phrase [16], we consider that

*"The biggest challenge of virtual environments is to be able to build contextually rich virtual communities, in which collective and individual learning takes place, and where learners are responsible not only for their learning but also for the collective construction of spaces of belonging where collective knowledge is developed." [16, pp. 65-pp. 66]*

The IED must find mechanisms to ensure that these interactions take place by developing activities among peers and in groups, allowing the mastery of learning in this space.

#### 4.1.4 *How is the functionality of the eLearning platform evaluated in the process of teaching and learning online?*

The data analysed allow us to infer that the respondents consider that the platform is good, demonstrates quality, is simple to work with, there is space to deposit all kinds of material for learning and also that it contains many tools for learning and allows you to do the different activities anytime and anywhere without restrictions. At IED, the official learning platform is Moodle, which has a socio-constructivist approach to education as its philosophy. It works at acceptable levels, there is a homepage with information about the subject, the activities are taught using resources that give students the necessary autonomy, and access to content, and they can participate in forums, chats and take self-assessment tests. Although the platform works at acceptable levels, there is little multimedia material on the platform, which is limited to the modules of the subject, notes, etc. These are not very interactive and are not sufficient for the development of online learning and the improvement of digital skills. In virtual learning environments, the materials and resources must developed, should be interactive and highly structured [17], allowing a better academic performance by the students and, also, conveying the appropriate motivational stimuli.

#### 4.1.5 *What are the main difficulties that tutors and students face when using eLearning?*

One of the difficulties in using the eLearning platform has to do with the quality of the internet used in the country, besides being weak and expensive, its distribution in the country is not made equitably, and does not allow access to high-speed internet connections mainly for the citizens who live in remote areas of difficult access where most of the students who attend courses in this modality in the IED live. This problem still constitutes one of the great challenges that the Government of Mozambique has, besides guaranteeing access to quality internet to all citizens, it should promote, together with the operators that offer internet services, the widening of the network coverage and the reduction of internet costs. Another difficulty is related to the skills in the use of ICTs since the respondents have digital tools mostly computers and mobile phones, but they do not improve their digital skills, being the low participation and interaction in the platform related to the difficulties they present in their handling which is in line with what [18] verified in their analysis that the educational digital skills relate to the knowledge that teachers need to make appropriate judgments for the effective integration of ICTs in the teaching and learning process

Although tutors have experience in the area of teaching at the UCM, there is little investment in continuous training, and it is evident that tutors do not have the digital competencies to act in Distance Education and consequently, they present difficulties in handling tools. At the end of the research, it

became evident that the students have the perception of their difficulties in handling the digital instruments in the activities in Moodle and WebEx; it is also important that students have knowledge that enables them to be online learners,

It is known that in Mozambique the citizens' level of digital literacy is considered low. This problem is related to the poor access to technological resources and consequently their use which is limited due to the high costs of acquiring them and the use of the internet which is deficient. [19] highlights the importance of improving the quality of education due to the requirement of the digital era in the use of technologies to act in virtual environments.

## 4.2 Contributions of the study and limitations

This study is important in that it raises several questions about eLearning in terms of its usage.

There are several discussions regarding the use of the Moodle platform and its quality as a teaching platform, with one of the authors<sup>2</sup> being a member of IED – the unit of analysis of this case study – she felt the need to analyse the challenges that the Institution faces regarding the models and practices of the usage of eLearning to identify difficulties or less-values and propose strategies whose application may promote the improvement of IEDs' teaching quality.

It constitutes a step towards the improvement of the quality of Distance Education in the IED in particular and, it serves as inspiration for possible replications of this research and of the improvement strategies in other higher education institutions that offer this modality of teaching-learning and that are inspired by the difficulties identified. It can also become a reference point for new questioning about the future of eLearning in Mozambique, and the potentialities in the use of the technological resources in the search for a coherent decision about their usage for the construction of new methodologies.

As for future work, we consider that research on this domain is still lacking, mainly in countries from Africa, including on the development of effective e-mentoring systems and teachers' digital skills.

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## REFERENCES

- [1] M. Moore & G. Kearsley. *Educação a Distância: uma visão integrada*. Cengage learning, 2007.
- [2] M. G. Moore. "Theory of Transactional Distance" in *Theoretical Principles of Distance Education*. (D. Keegan) London: Routledge, pp. 22 – pp.38, 1993.
- [3] M. Padilha. Os modelos de educação a distância no Brasil: a Universidade Aberta do Brasil como um divisor de águas. *Reflexão e Ação*, Vol. 21, no. 2, pp. 82- pp.103, 2013. Retrieved from: <https://online.unisc.br/seer/index.php/reflex/article/view/344>
- [4] F. Mateus & J. Orvalho. "Blended-learning e aprendizagem colaborativa no ensino superior". *VII Congresso Ibero-americano de Informática Educativa*, pp. 216 – pp. 225, 2014.
- [5] E. Schlemmer. "Ambiente virtual de aprendizagem (AVA): uma proposta para a sociedade em rede na cultura da aprendizagem". In *Aprendizagem em Ambientes Virtuais: compartilhando ideias e construindo cenários*. (C. Valentini & E. Soares Eds.), EDUCs, 2005.
- [6] M. Gomes. "ELearning: reflexões em torno do conceito". *Actas da IV Conferencia Internacional de Tecnologias de Informação e Comunicação na Educação – challenges'05*. Braga: Centro de Competências da Universidade do Minho, 2005.
- [7] P. Salvador, et al. "Objeto e ambiente virtual de aprendizagem: análise de conceito". *Revista Brasileira de Enfermagem*, vol. 70, no. 3, pp.599 – pp.606, 2017. Retrieved from: <https://doi.org/10.1590/0034-7167-2016-0123>

<sup>2</sup> M. Salite

- [8] Universidade Católica de Moçambique. Manual de Avaliação do Desempenho do Pessoal Docente e Investigador da UCM. 2016.
- [9] Guia do tutor online. *Plataforma Moodle*. Universidade Católica de Moçambique, 2018.
- [10] L. Amante, A. Quintas-Mendes, L. Morgado & A. Pereira. "Novos Contextos de Aprendizagem e Educação Online". *Revista Portuguesa de Pedagogia*, vol. 42, no. 3, pp. 99-pp.119. 2008. Retrieved from: [https://doi.org/10.14195/1647-8614\\_42-3\\_6](https://doi.org/10.14195/1647-8614_42-3_6)
- [11] Salmon, G. E-moderating: A guide to tutoring and mentoring on line, London: Kogan Page, 2000.
- [12] J. Creswell & V. Plano Clark. *Designing and Conducting Mixed Methods Research*. Los Angeles: Sage Publications, 2012.
- [13] M. Marconi & E. Lakatos. *Técnicas de Pesquisa*. São Paulo: Editora Atlas, 2011.
- [14] R. Yin. Estudo de caso. Planejamento e Métodos. Bookman, 2001.
- [15] J. Morgado. O estudo de caso na investigação em Educação. De Facto Editores, 2012.
- [16] A. Afonso. *A Gestão das Comunidades de Aprendizagem enquanto Geradoras de Contextos de Aprendizagem (um estudo de caso)*. (doctoral dissertation). Coimbra: Universidade de Coimbra, 2009. Retrieved from: <http://hdl.handle.net/10316/12155>
- [17] J. Lagarto. Ensino a Distância e formação contínua: uma análise prospetiva sobre a utilização do ensino a Distância na formação contínua de activos em Portugal. (doctoral dissertation). Lisboa: Universidade Aberta, 2002.
- [18] F. Roda & L. Morgado. "Mapeamento da literatura sobre competências digitais do professor: tendências em progresso." *RE@D – Revista de Educação a Distância e eLearning*, vol. 2, no. 1, pp.46 – pp.61, 2019. Retrieved from: <https://doi.org/10.34627/vol2iss1pp46-61>
- [19] C. Joanguete. Política Pública Moçambicana sobre a Inclusão Digital. *Revista académica Redmarka*, vol. 7, no. 3, pp.61 – pp.82, 2011. Retrieved from: <https://dialnet.unirioja.es/descarga/articulo/4126640.pdf>