



Modernization and Internationalisation of Iranian HEIs via collaborative TEL-based curriculum development in engineering and STEM

GUIDELINES FOR RESEARCH

STATE OF THE ART OF HE FOR TEL

Institutional and National Report (UAb)



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UNITEL WP1
Guidelines for Researching the State of the Art of HEIs
in Engineering and STEM studies for TEL

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ACRONYMS

ARCS	Attention, Relevance, Confidence, and Satisfaction
CDIO	Conceiving, Designing, Implementing, and Operating
ECTS	European Credit Transfer and Accumulation System
ENQA	European Network for Quality Assurance
EU	European Union
EUA	European Universities Association
HE	Higher Education
HEI	Higher Education Institution
ICT	Information and Communications Technology
IR	Iran
NARIC	National Academic Recognition Information Centers
PC	Partner Countries
PD	Professional Development
QA	Quality Assurance
SES	Socio Economic Status
STEM	Science, Technology, Engineering and Mathematics
TEL	Technology Enhanced Learning
VLE	Virtual Learning Environment
WCAG	Web Content Accessibility Guidelines



Report Structure

The use of the report template is obligatory. Please use the following format of contents:

Chapter 1. Institution Information

- Name of the partner
- Names of respondents, positions, departments
- Provide a short introduction describing the methodology you used and the number and types of sources
- *Please keep your answer short, maximum 1 page*

Name of the partner

Universidade Aberta P3

Names of respondents, positions, departments

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Provide a short introduction describing the methodology you used and the number and types of sources

Triangulation between institutional sources - university website and intranet pages, university strategy and action plan, university core documents (e.g. General Regulation of the University's Educational Offer, [Universidade Aberta's Pedagogical Model for Distance Education](#), [Virtual pedagogical model: development scenarios](#)); national policies/government regulations, namely from the Portuguese Higher Education Evaluation and Accreditation Agency - A3ES); interviews with department coordinators.

Chapter 2. Existing practices for curriculum planning



2.1. Policies and guidelines in use for curriculum planning

- *How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.)?*
- *What kind of goals are set in the organizational strategy and other governing documents for overall curriculum planning and development?*
- *Are the needs of working life and the industry somehow described in the governing documents? If they are, please describe, how?*
- *Is TEL/online learning part of the overall strategy for your institution's development and how?*
- *Do you foresee laboratory activities within curriculum planning?*
- *Which kind of laboratory activities do you use? (e.g. in presence, virtual, remote labs etc.).*
- *In case you use virtual/remote labs can you please describe them in terms of technological infrastructure and pedagogical model applied?*
- *Has the COV-19 pandemic affected your curriculum planning practices? In which way? (please describe any changes that occurred after covid pandemic broke out).*

How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.)?

Public higher education institutions in Portugal, such as the Open University (UAb), have not only pedagogical, scientific, administrative and financial statutory autonomy, which is recognized by Article nr. 76, number 2, of the Portuguese Constitution, but also enjoy cultural, patrimonial and disciplinary autonomy. This is assured by the statutes of each institution according to its respective mission statement and nature. Thus, given its pedagogical autonomy, universities have the capacity to produce the study plans, choose the subject of the curricular units (CUs), define the teaching methods, affect resources and choose the learning assessment methods and processes. With regard to the scientific autonomy enjoyed by higher education institutions, it enables them to determine, program and carry out research and other scientific activities. The scientific and pedagogical autonomy enjoyed by universities is translated into the right, in the face of the law, to create cycles of studies aimed at conferring academic degrees¹.

The creation of a course must take into account, mandatorily, what is stated:

- in the statutes of UAb, the only public distance learning university in Portugal, with regard to its mission - "the creation, transmission and dissemination of culture, knowledge, arts, science and technology, at the service of society, through the articulation of study, teaching, learning, research and service provision";
- in the UAb's Strategic Plan 2019-2023, which are based on four principles: innovation, transparency, credibility, ethics and openness;
- in the General Regulations of the Educational Provision of the Open University;
- in the UAb's Quality Manual
- in the document *Script for application for previous accreditation of a New Cycle of Studies taught at a distance*, made available by the Agency for Evaluation and Accreditation of Higher Education (A3ES) and whose submission in the Agency's online platform is mandatory before a new degree can be provided.

¹ [Law No. 62/2007 of 10 September](#)

This script presents a wide range of items that allow you to plan a new course, in its various aspects, namely:

- General characterization of the cycle of study;
- The institution's research program and objectives.
- Curricular development.
- Faculty;
- Non-teaching personnel;
- Material and technological means;
- Integration in the national training network of the area (evaluation of the employability of graduates per cycle of similar studies based on official data; evaluation of the ability to attract students);
- Data protection policy;
- Comparison with European study cycles of reference in the area.
- Swot Analysis

For each course or curricular unit(CU) which is part of the study plan of the new degree it is necessary to fill out a form that includes the following elements:

- Responsible teacher and workload in the CU;
- Learning objectives and their compatibility with distance learning (knowledge, skills and competences to be developed by students);
- Justification of the modular design of the contents, the methodologies and the teaching and learning activities, in order to support both the curricular development, as well as the articulation between synchronous and asynchronous distance activities, and the face-to-face sessions;
- Syllabus;
- Demonstration of the coherence of programmatic contents with the learning objectives of the curricular unit;
- Specific teaching and learning methodologies of the curricular unit articulated with the pedagogical model (with indication of the number of students per class/group for the relevant typology of contact hours, and with reference to the material and technological means used in each typology);
- Assessment;
- Demonstration of the coherence of teaching methodologies with the learning objectives of the curricular unit;
- Mandatory bibliography and other learning resources specific to DE.

The proposal to create a degree or study cycle is taken to the Coordinating Council of the respective UAb's Department, or more several Departments in the case of a joint degree, to propose the creation, transformation and extinction of courses and approves the respective study plans. Next, the proposal is reviewed by the Pedagogical Council of the university, in which the students representatives have a seat. The body is heard before the Scientific Council also produces a recommendation. Finally, the Rector is asked to approve the proposal. Only the Rector has the ability to decide on the creation, transformation, suspension and extinction of degrees and other formal courses.

If the degree to be provided involves another Portuguese higher education institution, the proposal for its creation must also be approved in that institution's governing, scientific and pedagogical bodies in accordance with its respective rules and procedures.

Quality monitoring in Teaching and Learning takes place at various levels, articulating the evaluations carried out and the production of semester and/or annual reports. The monitoring process includes the following levels:



- Curricular Units (UC) - It is up to the professor responsible for the UC to prepare a self-evaluation report of the UC - Curriculum Unit Report (RUC) - in which an overall analysis of the functioning of the UC is carried out and a definition of an improvement plan whenever there are unsatisfactory results.
- Degree – At the programme level's self-evaluation, the course coordinator is responsible for preparing the Course Self-Evaluation Report (RAC), based on the reports of the UC and other elements (e.g. survey results), and includes a critical analysis of the key aspects for the success of the course. The structure of the RAC is defined by the Rector. This report is the subject of an opinion by the Monitoring and Improvement of Study Cycles (CAM), and it is up to the Quality Evaluation Council (CAQ) to comment on the aspects it deems relevant. These reports are approved by the Rector and its results are part of the Institutional Activities Report and the RASIGQ.
- Department – The Department Director is responsible for the preparation of the Activity Plan, where the objectives, activities and indicators should be presented, aligned with the strategic objectives of the institution, as well as the preparation of the Activity Report that should integrate an analysis of the main activities, based on the indicators and goals defined.

The legal framework for Distance Learning in Portugal changed with the publication of the Legal Regime of Distance Higher Education (Decree-Law No. 133/2019, 13 September) which, in terms of quality assessment, introduces a number of requirements for the design of new provision and additional criteria to be consider in the evaluation of study cycles taught at distance.

All university courses of a formal nature are the subject of cyclical evaluation by the Higher Education Evaluation and Accreditation Agency (A3ES) which credits them for 1, 3 or 6 years, according to the degree of compliance with the various parameters determined by A3ES, that may not approve the courses.

When submitting an already existing programme for accreditation, or when reformulating it, feedback on each CU which is part of the study cycle is collected in every academic year, at the end of each semester. This conducted through (pedagogical) surveys which are produced and launched under Vice-Rector Innovation and Quality's supervision, with the support of the university's quality assurance office. Additionally, the Coordination of the Cycle of Studies collects feedback from the students, either formally or informally which is shared by them in a specific forum in the online learning environment. Finally, teachers collect feedback within the course activities, usually at the end of the semester.

What kind of goals are set in the organizational strategy and other governing documents for overall curriculum planning and development?

The key goals for the overall planning and development stem from the [Universidade Aberta's Pedagogical Model for Distance Education](#) four pedagogical principles which are as follows:

1. Student-centered learning;
2. Flexibility;
3. Interaction;
4. Digital inclusion.

This reference document which plays a critical role in the university's organization of the teaching and learning processes states in this regard: "The variant of the pedagogical model for the 1st study cycle is based on three core elements that make it possible for the teacher to organize and structure learning in each curricular unit and for the students to know their role and responsibilities: the **Curricular Unit Plan** (PUC – Plano de Unidade Curricular), the



Formative Activities Plan (PAF – Plano de Actividades Formativas) and the **Learning Card** (CAP Cartão de Aprendizagem).

[...] The implementation of the model in the 2nd study cycle takes into account the distinct nature of this cycle - post-graduate studies - where students are already relatively autonomous and master some essential skills. It is important to stress that students' work should have innovative characteristics and evolve with a high level of autonomy.

In this context, the model's variant for this cycle relies on a structuring element: the **Learning Contract**. This instrument acts as mediator between the academic requirements typical of this study cycle and the students' needs and interests. In effect, it defines the necessary level of structure in the context of a group learning environment and, at the same time, incorporates a certain degree of flexibility adjustable in function of the student's personal rhythm and needs.

[...] This variant of the model to be applied to the 2nd cycle should be extended to [...] 3rd cycle programs, although with a lower number of students per class - 10-15, at most – given the greater personalization required by these programs.” (Pereira et al, 2008, pp. 17, 29)

Are the needs of working life and the industry somehow described in the governing documents? If they are, please describe, how?

Some examples of references to working life and the industry issues in the governing documents are presented below:

“Internally, UAb promotes a decentralized organizational structure, which favors a larger contact and proximity with society and with its students and trainees.

National agreements” (<https://portal.uab.pt/en/redes-nacionais/>)

“The UAb is dedicated, by its mission, to play a relevant role in meeting the targets set by the European Union and Portugal with a view to achieving the Europe 2020 strategy, in particular by contributing to higher training and qualification, both in 1st, 2nd and 3rd cycles, as well as in the broad scope of lifelong training, creating conditions for the modernisation of labour markets, with a view to increasing employment rates.” (UAb Strategic Plan, 2020, p. 4)

“[...] it is imperative to strengthen the leadership of the Open University as a reference university for flexible, scalable and compatible training models with different domains and activities of the digital society and with active policies to update knowledge in a lifelong learning perspective, through the incorporation of procedures, technological and pedagogical resources aimed at increasing competitiveness and improving services.” (UAb Strategic Plan, 2020, p. 5)

The Lifelong Learning Unit of the Universidade Aberta develops professional training courses, and post-graduation programs, in different scientific areas, targeted to respond to working life and/or industry specific needs.

Is TEL/online learning part of the overall strategy for your institution's development and how?

Online Distance Education is the core business of UAb for over a decade. Having started as paper-based distance education university, from 2007 onward, UAb became a fully online university as part of a vast process of strategic transformation. In just 3 years, all of the educational UAb provision both formal (1st Cycle - Bachelor's Degree; 2nd Cycle - Master' degree; 3rd Cycle - PhD) and non formal (Lifelong Learning) was redesigned according to an innovative virtual pedagogical model (known as MPV) developed in house with the support of a panel including the



top international experts in eLearning which became a reference in the field. This was accompanied with a high number of other ambitious innovation programmes which included the complete retraining of all faculty in online teaching and tutoring, and also the creation of an advanced R&D lab - the Laboratory of Distance Education and eLearning (LE@D).

Later, UAb also pioneered with the design and implementation of the world's first institutional pedagogical model for MOOCs. Following up to this the university has conducted a cyclic review of its pedagogical model and practices based on the continuous output of its R&D lab. Consistent evidence collected through the years has shown the success of UAb's transition to online distance education and the creation of innovative educational practices. The objective data collected regarding students' studies and their satisfaction regarding the university's work also confirm the model's positive role.

State-of-the-art research in DE, which is a priority for UAb, is developed in close coordination with LE@D, the R&D lab which is funded by the Foundation for Science and Technology (FCT). Its large portfolio of research projects, most of them internationally-funded, explore emerging topics and advanced areas such as open education and MOOCs learning design, digital assessment, gamification, mobile learning, digital skills development, learning analytics, accessibility support technology in virtual higher education, virtual mobility.

UAb's entire educational provision (formal /graduated and non-formal /non-graduated), is available on the virtual learning environment which is based on a Moodle platform, in which different plug-ins were integrated in order to meet the specific needs of the MPV. The technological infrastructure for teaching-learning activities is robust and is properly certified. The Technological Support Services to Teaching (SSTE) manage and ensure the technical-pedagogical support of the platform, supporting online teaching and school activities.

Do you foresee laboratory activities within curriculum planning?

Curriculum planning, specifically in certain CUs or courses, do include the use of laboratory activities, namely, virtual laboratories. This is foreseen in UAb's pedagogical model, which states: “[...] the difficulties in promoting, at a distance, certain skills in domains that require real physical interaction either with people, instruments or procedures, has given rise to innovations in the fields of Simulations, Virtual Laboratories and Remotely Controlled Laboratories highly relevant to distance education. However, these innovations still demand high investments and, in some situations, as is the case with some artistic activities, for example, face-to-face sessions may be needed to complement online learning.” (Pereira et al, 2008, p. 28)

Virtual laboratory activities are conceived to foster a sense of community, as follows: “The virtual campus is key for academic experience, providing a sense of belonging to a community, something that should be emphasised with students by promoting content and mobile learning technologies, the use of virtual laboratories or other resources and strategies that facilitate both learning and a sense of belonging.” (Quintas-Mendes et al, 2019, p. 22)

Which kind of laboratory activities do you use? (e.g. in presence, virtual, remote labs etc.).

In case you use virtual/remote labs can you please describe them in terms of technological infrastructure and pedagogical model applied?

UAb includes in its Science courses presence laboratory, virtual laboratory, and remote laboratory activities.



With regard to virtual laboratories, there is one for programming. UAb uses VPL – (Virtual Programming Lab), coupled with its e-learning platform (virtual learning environment), which provides students with a complete programming environment, and the faculty the means to create and evaluate code development exercises.

The university also uses virtual reality environments. OpenSimulator is a virtual reality server based on open-source technology, as alternative to Second Life. The server installed and configured in the UAb is used in the context of Virtual Reality CUs, where students can register and create their avatars and scenarios within their projects.

With regard to remote laboratories, there is a cluster to support parallel programming activities - used old computers to build a first cluster, a second cluster is starting. It supports assignments of just one course, on parallel computing. Used Linux and open source software, and requires a space with conditions to have a few computers always running.

The pedagogical model in courses that use these labs, does not change, the assignments are like any other, but exist these extra tools, to provide some automatic feedback, that helps in the evaluation process.

Has the COV-19 pandemic affected your curriculum planning practices? In which way?

The Covid-19 pandemic didn't have much impact in regard to curriculum planning practices. The only major change relates to final exams in the 1st Cycle of Studies. Due to the pandemic all exams, as well as Master and PhD vivas that were formerly organized in a face-to-face environment had to be conducted in a fully online mode. Hence, faculty's specific training on digital assessment was reinforced. That change had also some effects on curriculum planning, highlighting the development of competences to address authentic and complex tasks. These are more suited to exams conducted in a fully online environment, where students are encouraged to use various resources. This practice is to become the standard after the end of the pandemic.

2.2. Curriculum planning in practice

- *How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.)*
- *How are different stakeholders (e.g. teachers, students, businesses and other actors in society) and their needs taken into account in the curriculum development?*
- *How is the content of the course designed?*
- *In faculty level, does the curricula design reflect any specific pedagogical practices and innovation?*
- *In faculty level, what way is working-life relevance discussed in the curricula?*
- *What is the teaching staff-student ratio?*

How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.)?



See section 2.1 above. Departments follow different strategies to identify social/market emerging needs and opportunities as well as to meet public demand. In most cases, proposals emerge from Government orientations and benchmarking exercises with other public universities.

How are different stakeholders (e.g. teachers, students, businesses and other actors in society) and their needs taken into account in the curriculum development?

Some of the departments have external advisory committees where different stakeholders are represented. Students have representatives alongside teachers in the university's Senate as well. In addition, the General Council of the University, which is a top strategic oriented governing body, includes invited external advisors alongside student and teacher representatives.

How is the content of the course designed?

The design of the course content may be designed either by a specific UAb teacher or a team of Faculty members or even in the framework of a multi-institutional team. In the first case, the course authors have a broad autonomy in the design process, mostly making use of research output openly accessible. In the second case, the team procedures are determined by the terms of agreement between the institutions involved. Usually, the content materials are produced from scratch.

In both cases, the teachers involved in the creation of the new course determine the programme structure (many of the 1st cycle courses designed by UAb have a major/minor organization), the learning objectives, the skills and competences that students must acquire and develop, select the target group, set the access requirements and outline the syllabus, always bearing in mind that the course will be offered fully online and must apply the UAb's MPV directives.

UAb teachers have access to technological training on a regular basis, allowing them to have the necessary skills to integrate the use of new technologies in the design of courses, taking into account the pedagogical objectives they intend to achieve. Teachers have the support of Digital Production Services (SPD) that produces multimedia resources to support the teaching of CUs or with other pedagogical objectives.

Teachers, taking into account the objectives and competencies determined, choose the resources they will use, which should preferably be OERs. In the case of resources that are written text, the choice of OERs is the one that best suits the profile of the student of the UAb, which is mostly an employed adult, often with family responsibilities and, therefore, with little or no availability to go to a library. In addition, the economic aspect must also be taken into account, as in Portugal books are rather expensive. In addition to written texts, the teacher tries to integrate in the CUs other types of multimedia resources (videos, podcasts, etc.) that serve the purposes of the CU.

There is a team of instructional designers who works in close coordination with teachers, work to make clear the goals and objectives established by the teacher, chose the adequacy of contents, design learning activities and propose different forms of assessment.

In department level, does the curricula design reflect any specific pedagogical practices and innovation?



The curricula reflects the UAb's Pedagogical Model for Distance Education, and its Development Scenarios. Moreover, it is reinforced by the results of the R&D projects, namely those hosted by LE@D. It is also worth mentioning the existence of the following members of the UAb's Rectoral Team: vice-rector for research, knowledge transfer and scientific dissemination; vice-rector for teaching, training and academic organization; vice-rector for innovation and quality; pro-rector for pedagogical innovation and management.

In department level, what way is working-life relevance discussed in the curricula?

The competence gained with the degree also includes transferable skills needed in professional life in addition to the in-depth knowledge of the field and its methodology. These include, for example, problem-solving skills, critical thinking, information retrieval, analysis and application, entrepreneurial skills, and the ability to communicate and collaborate. These skills should be described in the curriculum in a similar manner as subject competence. Faculties are encouraged to strengthen the professional life relevance of education both in basic and doctoral degrees by involving professional and business life representatives in the curricula planning. Former students' collaboration is also used in the planning of education and services. The curriculum may include an internship at 1st Cycle of Studies level, at least as an option, although not mandatory.

What is the teaching staff-student ratio?

At course level, the teacher-student ratio is 1 teacher for up to 60 students (1st Cycle courses) and 1 teacher for 10-25 students (2nd and 3rd Cycles). At an institutional level, the teaching staff-student ratio is 1 teacher per 70 students.

Chapter 3. Designing and implementing a TEL course

3.1. TEL as a practice in your institution

- *Is TEL or online courses a usual practice in your university, or do you organize teaching like this only due to pandemic?*
- *How many, in what level? (e.g. graduate/postgraduate).*
- *Is TEL part of the overall strategy for your institution's development and how?*
- *Is there a strategy in your institution for digital innovation, TEL being a part of it? Is this strategy known within the institution at all levels?*

Is TEL or online courses a usual practice in your university, or do you organize teaching like this only due to pandemic?

See sections 2.1. and 2.2. above. Being a dedicated distance education HEI, online learning as UAb's core pedagogical practice. The pandemic had no significant impact on that respect. Moreover, the [UAb's Pedagogical Model for Distance Education](#) (Pereira et al, 2008), complemented by the follow up document [Development](#)



[Scenarios](#) (Quintas-Mendes et al, 2019), sets a TEL-based model of teaching and learning which also includes blended and hybrid learning situations.

How many, in what level? (e.g. graduate/postgraduate).

At all levels.

Is TEL part of the overall strategy for your institution's development and how?

Yes, taken as an encompassing concept, it can be said that TEL is part of UAb's DNA. Learning online is *per se* a form of learning enhanced by technology. Moreover, other technologies are used in combination in the Virtual Learning Environment. The UAb's Statutes refer that "due to its vocation and nature, the University uses, at all times, in its teaching activities, the most advanced methodologies and technologies of distance learning, instituting (...) as a distance learning platform, through the establishment of partnerships with other universities." This idea has been reinforced, assuming itself as a way to give an adequate response to current dynamics and requests, so as to foster innovation, in all organizational, administrative, scientific and pedagogical processes.

One of the axes of action presented in the institution's Strategic Plan 2019-2023 points to the need to consolidate the competence and competitiveness of the UAb in the digital world [A COMPETENT AND COMPETITIVE UNIVERSITY IN THE DIGITAL WORLD], assuming the technological update, in this context, a particular relevance. It is intended as a university able to adapt to changes and respond to the current needs of society, incorporating the resources and technological developments to provide a better service and increase its competitiveness. This policy will strengthen the application of technology in the teaching-learning process with regard to the entire educational offer of the UAb (formal - all cycles - and informal).

Is there a strategy in your institution for digital innovation, TEL being a part of it?

Is this strategy known within the institution at all levels?

Yes in both cases.

3.2. Technology in use

- *What kind of technology are you using (e.g. platforms, videoconferencing etc.)*

The virtual learning environment is based on a customized version of Moodle. Most used features include forums, workshop, wiki, glossarium and hot potatoes test. Other technologies used by teachers in UAb courses include:

- Web 2.0 tools/software– e.g. Facebook, Twitter, Flickr, Instagram, Wikis, WhatsApp, podcasts/videocasts, and YouTube
- Mobile learning apps, Simulations, Virtual / Augmented Reality, Digital narratives apps, Learning analytics (Moodle Insights), Intelligent agents / Chat Bot (Watson technology from IBM), E-portfolios, Blockchains
- LimeSurvey, Zoom, Power BI, NVivo, SPSS, LaTeX, Urkund, H5P plugins
- Technologies associated with gamification designs (H5P and Game plugins, and apps to present online scores, badges etc.)

Zoom is only used for meetings with staff or special examinations, not in classes.



A concrete example of the combined use of these technologies can be seen in online teaching of mathematics and statistics. Due to the large scale of course classes which presents several challenges that need to be addressed through appropriate measures, the goal of these is three-folded: increase the motivation of the students in a not so beloved scientific topic; easily monitor the overall and individual progress, which becomes harder for large scale classes; and increase feedback speed in the learning process.

In this way, we have implemented the following items and concepts, based on a gamified design of the learning process, leading the students to more important tasks through progress and small rewards. These include:

- Progress score: at each time the student knows what percentage of talks he has concluded and this score progresses as he completes more and more tasks, in the given order;
- Online Challenges: at the end of each topic the student performs an online test to understand and monitor his progress. For each submission, the student receives automatic feedback related with his performance at an answer level, that is, for each correct or incorrect answer, the student gets appropriate feedback that directs him to the correct way of solving that particular question within the challenge;
- Badges: Challenges and other talks that are completed in a satisfying manner translate in medals that are then presented in the students profile. Though badges have no direct effect in the final grade, preliminary results show that students that try to get more badges have better performance than others.
- Narrative: along each topic there is the release of a new episode of the narrative. The narrative tells the story of a female student of the lecture that has the same issues that most adult students in day-to-day life have: she has to coordinate online studies with active professional and family activities, hoping that finishing the course will lead to better professional conditions. Moreover, the episodes are centred in real life applications of the topic being studied. This allows not only to revise the topic under studying and relate it to real problems, but also to create empathy between the students and the narrative's character, which has proven to engage students in study.

Most of these markers also give the teacher a general overview of how the overall class is progressing, while it is also possible to see if a particular student is getting behind.

Along these, evaluation has also been performed through online tests, which allows to generate different randomly generated tests between students while allowing also for fast and individual feedback.

The overall perception of the students with these methodology has been very satisfying and not only it has increased participation, it has also increased the average final classification.

3.3. Course development process

- *How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.) in TEL/online courses compared to face-to-face courses?*

UAb does not provide face-to-face courses.

3.4. Stakeholders involved and their roles and tasks

- *Do you involve students in TEL/online course design?*



- *How is the content of the course designed?*
- *Is there any technical support for teachers in course design? Is support given at university, faculty or department level?*
- *Are there any facilitators that support the learners? If there are, please elaborate: describe their role, tasks and the cooperation with the lecturer.*

Do you involve students in TEL/online course design?

Students are involved through their representatives feedback delivered in the following contexts:

1. Pedagogical Council meetings (2 student representatives per department);
2. Department's plenary meetings (two students designated by the Academic Association of the University, one of whom representing the students of the first cycle and the other the students of the second and third cycles);
3. satisfaction surveys (at degree and CUs levels).

How is the content of the course designed?

See section 2.2.

Is there any technical support for teachers in course design? Is support given at university, faculty or department level?

Yes. Technical support to teachers in course design is given at university level.

Are there any facilitators that support the learners?

If there are, please elaborate: describe their role, tasks and the cooperation with the lecturer.

Tutor

Apart from the teacher, students receive learner support from specially trained tutors. Patrons and mentors are also involved in providing support to learners. Tutor's role and selection requirements are subject of a specific internal regulation. Course students are divided in virtual classes, each up to 60 students (1st cycle) or 20 (2nd and 3rd cycles). The MVP determines that teachers should be responsible for at least one of those virtual classes. The remaining are distributed by a team of tutors, each of them in charge of assisting and collaborating with the coordinating teacher to support its respective students (Pereira et al., 2008, p. 23)

Tutors have the following role and functions:

- Follow up the work developed by the students in the virtual class, according to the guidelines defined by the teacher in charge of the curricular unit and expressed in the Tutoring Plan;
- Clarify doubts about the technical aspects related to the use of the e-learning platform;
- Correct and classify continuous evaluation assignments and exams, according to the guidelines and criteria expressed in the Tutoring Plan;
- Keep the teacher in charge informed about the development of the activities, in particular by reporting any anomalies

Patron / Mentor



This role is described by the MVP as follows: "The function of the patron has another important facet: guidance and counseling more focused on affective and social aspects, as an element of individualized support to the development of the student's personal learning project. From this point of view, the existence of the patron opens the door to the establishment of privileged affective relationships of an informal kind, based on mutual respect. It is also a way of assisting students in their adaptation to virtuality and to the methodology of distance education, defined by the pedagogical model; and of encouraging them to be active and motivated, capable of overcoming difficulties that might impair learning. A student support network based on peer interaction, i.e. a community, is thus brought to life. After the network of patrons has been set, each patron will be tied to a virtual class, accompanying its students throughout the school year or, when feasible, throughout their whole academic path."(Pereira et al., 2008, p. 27)

Course secretary

A member of the department's administrative staff is in charge of providing support to students in administrative issues.

Course teacher coordination team

Teachers can work alone or in teams providing support in pedagogical and scientific issues.

3.5. Protocol of course assessment

- *How do you evaluate the course: Is there a systematic institutional process / protocol? Are students involved at this stage?*
- *How is evaluation performed after the course is taught/delivered?*
- *How is data collected?*
- *Do students give feedback on teaching? If, please describe how.*
- *Who is informed about the evaluation?*
- *What measures can be taken for improvement?*

How do you evaluate the course: Is there a systematic institutional process / protocol? Are students involved at this stage?

Yes. The process is described in the Quality Manual. At degree level, self-evaluation is carried out by the course coordinator. He's responsible for the preparation of a Course Self-Evaluation Report (RAC), which should be based on the reports of the various CUs and other elements. It should include an analysis on the fundamental aspects related to teachers and students performance and overall success of the degree. The structure of the RAC is defined in the Rector's office. This report is subject to review by the Committee for the Follow up and Improvement of the Study Cycles (CAM). It's up for the Quality Evaluation Council (CAQ) to issue a recommendation on the aspects it considers relevant. Students are involved as student surveys are a major part of the evaluation process.

How is evaluation performed after the course is taught/delivered?



Programmes are evaluated at the end of each semester, and at the end of each academic year. The evaluation is carried out by the course coordination. The annual evaluation involves producing a report that focus on a set of standard items(an online template for this report is provided by the quality assurance office). The evaluation is based on the information collected in the institutional student surveys, and also on the analysis of data collected by the administrative services.

How is data collected?

Learning analytics is collected in Moodle and in other UAb databases. Student input is retrieved from online surveys which are also submitted in the virtual learning environment.

Do students give feedback on teaching? If, please describe how.

Yes, items on teaching practices and teacher's performance are included in student surveys.

Who is informed about the evaluation?

The whole UAb community and its stakeholders, as well as the general public – the results of the surveys are made available at the UAb portal/website -

https://portal.uab.pt/qualidade/inqueritos/?doing_wp_cron=1645098267.0254259109497070312500

The data collected internally, and stored in institutional databases, is made available to the Rector and its team, and/or the departments' directors who share the results with the course coordinators; in addition, the course coordinators share them with the teachers.

What measures can be taken for improvement?

The results of the evaluations are discussed in plenary meetings of the department, and in meetings between the course coordination team and all the programme teaching staff. Whenever needed, concrete measures for improvement are proposed and analyzed in such meetings, based on the following input:

- Course analytical reports;
- Student surveys results;
- Quality assurance agency external evaluation reports and recommendations, which are binding.

3.6. Identification of TEL /online quality practices or patterns of quality

- *Is your Institution using Quality standards/frameworks for TEL/online?*
- *If no, what are the reasons?*
- *Are you planning to use one in the future?*
- *If yes, which are they?*
- *What quality areas do they cover? How long have you been using them?*
- *Does your Institution collect data in order to evaluate TEL/online programs?*
- *Is there a strategy on the use and purpose of learning analytics within the institution?*



- *Does your institution consider ethical norms and government policy with respect to data protection and the privacy of students?*

Is your Institution using Quality standards/frameworks for TEL/online?

Yes. Both from an internal and external nature, as well as at pedagogical and technical levels.

If no, what are the reasons?

Are you planning to use one in the future?

Not at the moment, to our knowledge.

If yes, which are they?

At external level (MPV and Quality Manual). At external level (Distance Education legal framework, Quality Assurance Agency guidelines, E-excellence benchmarking and other quality labels checklists)

What quality areas do they cover? How long have you been using them? -

Does your Institution collect data in order to evaluate TEL/online programs?

Yes

Is there a strategy on the use and purpose of learning analytics within the institution?

Some approaches are being tested, but there is not yet a specific institutional policy for LA.

Does your institution consider ethical norms and government policy with respect to data protection and the privacy of students?

Yes. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and Directive 95/46/EC (General Data Protection Regulation); at the national level, the norms of the National Data Protection Commission = *Comissão Nacional de Proteção de Dados* (CNPD)- Portugal

3.7. Process of continuous improving of educational provision

- *Are TEL/online programs reviewed, updated, and improved and how?*
- *Are there any Institutional policies, structures, processes, and resources in place to guarantee the successful teaching and learning process of students with special educational needs?*



- *Is there an institutional policy and code of practice to ensure academic integrity and freedom and ethical behavior?*
- *Are there any electronic security measures set by your institution's policy/code of practice?*

Are TEL/online programs reviewed, updated, and improved and how?

As part of the regular self-evaluation of degrees, complying with the indications set in the UAb's Manual of Quality, and by the national accreditation agency for HE (A3ES).

Are there any Institutional policies, structures, processes, and resources in place to guarantee the successful teaching and learning process of students with special educational needs?

Yes, the Student Regulation with Special Educational Needs of Universidade Aberta. Moreover, the initiative of the Vice-Rector for Teaching, Training and Academic Organization - The admission to the UAb students with special educational needs (NEE Students) justified in the past the creation of the "Accessibility Project", which has allowed the monitoring of life academic performance of these students and promote their inclusion in the UAb. It is now necessary to adopt appropriate measures and practices from a regulatory point of view that can contribute to equal opportunities and to their full social and academic integration. Thus, the Working Group - SEN is created with a view to preparing regulatory instruments that define general guidelines and concrete guidelines regarding the support to be provided to students with special educational needs, permanent or temporary, who attend or will attend the UAb.

On the other hand, the Vice-Rector for Innovation and Quality has set a Plan for the Digital Strengthening of Assessment, to respond to the need to reflect on the existing conditions for students with special educational needs and/or with difficulty in accessing the Internet.

Is there an institutional policy and code of practice to ensure academic integrity and freedom and ethical behavior?

Yes. UAb has an institutional policy on this subject and the Student Disciplinary Regulation (Regulamento Disciplinar dos Estudantes da Universidade Aberta) is the specific code of practice that regulates academic integrity, freedom and ethical behaviour. There is also an ethics committee that evaluates UAb's processes and operations as well as a research and innovation ethics committee. At departmental level there are additional codes of practice with clauses on academic integrity and ethical behaviour.

Are there any electronic security measures set by your institution's policy/code of practice?

Yes. The PESI, UAb's Specific Information Security Policies, are a valuable tool aiding in the responsible use of learning resources, as well as in the identification of good practices for the use and exploitation of the various information systems. You can consult them, whenever necessary, through the "Virtual Campus" block. (requires authentication)» (<https://elearning.uab.pt/>)



3.8. Professional development of teachers and instructional designers

- *In faculty level, do people involved in designing/ developing/ evaluating TEL/online programs have specific expertise in academic and technical aspects and which?*
- *Is the teaching staff involved in designing/ developing/ evaluating educational programs familiar with the advantages/disadvantages of using TEL/online in particular course contexts?*
- *Is the teaching staff trained and proficient in the use of learning technologies and (e-) assessment methods?*
- *Are there any particular training activities for new staff?*
- *Has the institution developed procedures to identify the support requirements of the teaching staff?*
- *What workshops are available for your teachers to attend? (for example: professional development, enhancement of faculty competence in skills, enhancement of faculty competence in pedagogy and enhancement of faculty competence in TEL)*

In faculty level, do people involved in designing/ developing/ evaluating TEL/online programs have specific expertise in academic and technical aspects and which?

Yes. Online programmes are designed, developed and evaluated by teaching staff with the support of support teams specialized in learning design and in technology. All teacher staff has received advanced training in the use of media technology for academic purposes and most conduct regular research and innovation activities in the field

Is the teaching staff involved in designing/ developing/ evaluating educational programs familiar with the advantages/disadvantages of using TEL/online in particular course contexts?

Yes.

Is the teaching staff trained and proficient in the use of learning technologies and (e-) assessment methods?

Yes.

Are there any particular training activities for new staff?

Yes.

Has the institution developed procedures to identify the support requirements of the teaching staff?

Yes.

What workshops are available for your teachers to attend? (for example: professional development, enhancement of faculty competence in skills, enhancement of faculty competence in pedagogy and enhancement of faculty competence in TEL)



Several workshops and seminars are available, as highlighted in the news section of the UAb portal; there is also training provided by the UAb Library Services. In addition to these workshops and seminars, internal training is provided to the teaching staff by the institution.

Chapter 4. Industry relevance

4.1. Policy and action plan for industry-relevance

- *Are industry needs considered when developing the learning model and the curricula design?*
- *How is industry and other stakeholders involved in the process? Are there specific needs considered for STEM education in your institution when transferring courses to technology enhanced learning or online learning? If so, please explain how.*

Are industry needs considered when developing the learning model and the curricula design?

At the UAb, university-industry collaboration an important strategic goal. This is translated in the fact that one third of the members of the General Council are invited high profile personalities coming from different sectors of society, namely the business community. Departments have their own ways of collaborating with the industry and promoting knowledge and innovation transfer. These are based both on formal agreements with organizations, institutions and companies as well as on personal informal ties and connections. The Sciences and Technology Department specifically collaborates with local, national and international companies. Students can be involved in R&D projects (usually in the framework of their PhD research) with the industry/companies.

Fostering the scientific, technical and cultural exchanges with similar national and international institutions is a goal of utmost importance at UAb. Over the years, UAb has established hundreds of protocols and partnerships with national and foreign institutions with special focus on research and development activities, especially in the area of distance education and eLearning.

Worldwide, UAb is present in different international networks in Europe, Africa, America and Asia. It covers mostly the Portuguese-speaking area, including Macau. Within the European space, it promotes mobility within the framework of the Erasmus+ Program and participates in different R&D projects. UAb is also a founding member of the largest European network in digital education, the European Distance and eLearnig Network (EDEN), apart being a member of the European Association of Distance Teaching Universities (EADTU) since its creation. Within the Portuguese-speaking space, UAb is a member of the Association of Portuguese-language Universities and of the Lusophone Network for Distance Education by hosting one of its Distance Education Centre – CE@D.

It should be noted the list of protocols and partnerships established with higher education institutions and companies as well as the activities carried out in East Timor (training of teachers, educational agents and officials of the Timorese public administration). In Asia, UAb was a founding member of the International Asia Open University, offering degree programs and post-graduate degrees in Chinese, English and Portuguese.



The University has developed a network of small units called Local learning Centres that promote lifelong learning local initiatives. Currently there are 18 Local Learning Centres in Portugal (mainland and islands).

How is industry and other stakeholders involved in the process?

Are there specific needs considered for STEM education in your institution when transferring courses to technology enhanced learning or online learning? If so, please explain how.

The [Lifelong Learning Unit of the Universidade Aberta](#) develops [professional training courses](#), and [post-graduation programs](#), in different scientific areas, delivered in eLearning and targeted to respond to working life and/or industry specific needs.

UAb's strategic plan states: "UAb is dedicated, by its mission, to play a relevant role in meeting the targets set by the European Union and Portugal with a view to achieving the Europe 2020 strategy, in particular by contributing to higher training and qualification, both 1st, 2nd and 3rd cycles, as well as in the broad scope of lifelong training, creating conditions for the modernisation of labour markets, with a view to increasing employment rates." (UAB Strategic Plan, 2020, p. 4)

4.2. Infrastructure

- *Is the technical infrastructure aligned with the teaching methodology, learning activities, and e-assessment methods? If so, please explain how.*
- *Does the mentioned infrastructure and used online tools support student active learning and collaboration?*

Is the technical infrastructure aligned with the teaching methodology, learning activities, and e-assessment methods? If so, please explain how.

Yes. With the transition to an online distance education environment, the technical infrastructure was updated accordingly; probably the virtual campus is its most important milestone. "The virtual campus was developed following the launch of VPM and consisted of an innovative and structural concept for a global vision of students' relationship with the Universidade Aberta. The virtual campus provides the online environment where all interaction between students and the UAb takes place. [...] The core component of this campus is a customised version of the LMS Moodle, which is permanently monitored and updated by a team of teachers and specialised technicians. This is a web system that, in addition to providing activities and content, promotes contact in virtual space between students and teachers. The LMS boasts different tools and features that facilitate various training and assessment activities within a virtual class environment. The Moodle includes the following features:

- resources (documents, videos, URLs, pages);
- asynchronous communication forums;
- tests (quizzes), with various types of questions;
- submission of papers;
- lessons, which provide flexible learning paths;
- surveys, to collect opinions and votes;
- wikis, for collaborative content production.



[...] The LMS is part of the rest of the virtual campus, communicating with other systems, such as the academic management system, where it gleans information regarding student enrolment and where it sends final assessment grades.”(Quintas-Mendes et al, 2019, pp. 21-22)

Does the mentioned infrastructure and used online tools support student active learning and collaboration?

Yes. Indeed, active learning and collaboration are central to the MPV.

4.3. Assessment of learning

- *Are (e-)assessment methods fit for purpose, allowing students to demonstrate the extent to which the intended learning outcomes have been achieved?*
- *How are they designed?*

Are (e-)assessment methods fit for purpose, allowing students to demonstrate the extent to which the intended learning outcomes have been achieved?

Yes.

How are they designed?

The e-assessment methodology is based on the production by students of a number of evidences of learning outcomes achievement. The students may choose between a continuous assessment mode, which implies producing no less than 3 papers, and a final exam. Several e-assessment tools are used from portfolios to learning analytics. The e-assessment methodology is based on evidence-based research produced by LE@D and is validated by the Scientific Council.

The Learning Card (CAP) which is based on the “credit card” metaphor is a credit accumulation points system working as a kind of currency representing the results of learning performance assessment. It aims to value the student’s personal learning process. It is a personalized device that aggregates the results of what the student produced throughout the learning process in an organized and systematic assessment registration tool.

4.4. Functionalities of the technical infrastructure

- *Does the virtual learning environment, VLE (if any) support specific pedagogical methods and tools?*
- *Is the VLE based on non-proprietary web standards and is it updated to reflect technological changes? How often?*
- *Does the technical infrastructure ensure the accessibility of the TEL/online programme by students with special educational needs and how?*



Does the virtual learning environment, VLE (if any) support specific pedagogical methods and tools?

Yes. Moodle was chosen based on the compliance of its features with the principles of the virtual pedagogic model (MPV).

Is the VLE based on non-proprietary web standards and is it updated to reflect technological changes? How often?

Yes. Moodle supports open standards, and is interoperable by design to enable integration of external applications. UAb takes the next version of Moodle in use regularly.

Does the technical infrastructure ensure the accessibility of the TEL/online programmes by students with special educational needs and how?

Yes. The technical infrastructure applies the Accessibility Guidelines for Web Content (WCAG 2.0 criteria; standard EN 301 549). In addition, there are Guidelines for Creating Accessible Documents and templates provided.

4.5. Use of virtual and remote laboratories

- *Does the institution provide students with an e-library?*
- *Does the institution have virtual labs?*
- *Does the institution have remote labs?*

Does the institution provide students with an e-library?

Yes. Students have access to an eLibrary (<https://catalogo.biblioteca.uab.pt/>), as well as an institutional open access repository, as well as an institutional open access repository (<https://repositorioaberto.uab.pt/>)

Does the institution have virtual labs?

Yes. An example is the virtual programming lab. The VPL - Virtual Programming Lab coupled with the e- learning experience at UAb offers students a complete programming environment, and professors the means of creating and evaluating code development exercises.

Does the institution have remote labs?

No.

Chapter 5. TEL quality practices and support



5.1. Staff professionalization

- *Has your institution procedures for recruiting and hiring teaching staff?*
- *Do you offer pedagogical training for teaching staff? Do you have courses specific for technology-enhanced learning? How is it organized?*
- *How is the teaching staff coordinated during course delivery?*
- *Do you have support materials available on the intranet for online learning and teaching?*
- *Is pedagogical training mandatory for teaching staff?*

Has your institution procedures for recruiting and hiring teaching staff?

Yes. Teaching staff has to be recruited through international call for tenders.

Do you offer pedagogical training for teaching staff?

Yes.

Do you have courses specific for technology-enhanced learning? How is it organized?

Yes. Teacher training focus on online pedagogical and technological aspects. Some workshops/seminars may be held F2F, but usually courses are delivered through the UAb eLearning platform. Courses are organised in the framework of LE@D and conducted by one of its expert teams under the general supervision of Vice-rector Innovation and Quality.

How is teaching staff coordinated during course delivery?

All programmes have a coordination team including two or three Faculty members. There is permanent communication between the teaching staff and the coordination team who follows up activities: The coordination team reports on a regular basis to the Department director.

Do you have support materials on the intranet for online learning and teaching?

Yes. The technical help desk service provides support materilas. There is also a hub with “new graphic image of UAb courses and accessible document templates” and a Digital Tools Repository, which includes support/suggestions for the following tools: Cooperation and Sharing; Communication and Synchronous Cooperation; Social Participation and Self-Publishing; Instructional Drawing; Concept Map; Media Capture and Playback; Curation; Search; Animation; Media Compression; Bibliographic Reference Management and Generation Management; Gamification; Moodle.

Is pedagogical training mandatory for teaching staff?

Yes.



Chapter 6. Opportunities and challenges for adoption of TEL practices

- *After describing the current state of art in previous chapters, identify opportunities and barriers for transformation of education. Put them in order: **the most important first.***

6.1. Opportunities

- Online learning contributes to achieve the sustainable development goals, namely to decrease the carbon footprint;
- Open and flexible education contributes to widen access to quality higher learning opportunities for all;
- Digital learning is critical to support the digital transition in Europe.

6.2. Barriers

- **Regarding students:** The need to adjust to a new learning culture and to increase digital competencies.
- **Regarding teachers:** Teacher training needs to be reorganized in order to focus on continuous digital competency development which require constant updating.
- **Regarding the university:** The need to conduct an holistic digital transformation process requires additional funding and a deep change in vision, policies and organizational culture. .

Please notice that the following chapter 7 is meant for the Iranian coordinating institution, and the EU institutions to answer.

Chapter 7. National Policies

- *This chapter is obligatory only for EU partners and the Iranian coordinator.*

7.1. TEL practices in Higher Education in Portugal

- *Please describe the relevant documentation on this (max 2 pages).*

In May 2020, the Council of the European Union proposed the following country-specific recommendation to Portugal, with regard to education and training: “support the use of digital technologies to ensure equal access to



quality education and training” OECD (2020). Education Policy Outlook, p. 8
<https://www.oecd.org/education/policy-outlook/country-profile-Portugal-2020.pdf>

Digital education policies and practices

The [National Digital Competences Initiative 2030](#) (INCoDe.2030, 2017), a cross-sector approach to enhancing digital competencies, has five areas of action: inclusion, education, research, qualification and specialisation. INCoDe.2030 has aimed to reach 20 000 enrolments in digital literacy programmes by 2020; invest 2% of gross domestic product (GDP) in Research and Development (R&D) by 2025; and ensure 80% of the population have basic digital skills by 2030. In education, measures include integrating digital skills and resources into teaching, developing digital resources, extending the information and communications technology (ICT) curriculum and designing an ICT reference framework for younger students. The first two, in particular, helped Portugal implement distance learning during the COVID-19 pandemic.

Responding to the need to promote high-quality higher education in Portuguese throughout the world, and the need to invest in adult qualification, the Government approved the legal framework for distance higher education with Decree-Law no. 133/2019 of 3rd September. This legislation establishes a clear framework of principles and rules for the accreditation, organization and operation of distance higher education, supported by the cooperation of Universidade Aberta (Open University) with other institutions. The framework is only applicable to study cycles in which the distance learning courses account for over 75% of the respective study cycle’s total credits, taking into account the characteristics of the cycle itself.

https://eacea.ec.europa.eu/national-policies/eurydice/content/national-reforms-higher-education-53_en

Digital Infrastructure policy

The Portuguese state has a dedicated agency, the FCCN, which is the Scientific Computing Unit of the [FCT - Foundation for Science and Technology](#). It aims to contribute to the development of Science, Technology and Knowledge in Portugal.

The unit provides high-speed Internet connectivity and IT services to the Portuguese higher education and research system. More than six hundred thousand students, researchers and staff can rely on the national education network every day. Cost efficiency is in the DNA of FCCN's operation so it is committed to providing common, replicable and shareable solutions to meet the needs of our user community. The unit provides a set of shared digital services that aim to support the development of education and science in Portugal, contributing to the excellence of national education and research.» <https://www.fccn.pt/en/quem-somos/>

7.2. Approaches and Methods for Quality Assurance

- *Please describe the main evaluation principles (max 2 pages).*

For the description of the quality assurance of higher education in Portugal, see:

https://eacea.ec.europa.eu/national-policies/eurydice/content/quality-assurance-higher-education-53_en

Approaches and methods for quality assurance

"The A3ES quality assurance approach is based on an external quality assurance model, a combination of internal quality assurance system, self-evaluation and external evaluation, in which the HEI’s internal monitoring and evaluation processes are analysed and used in the external quality audit and accreditation process. It adheres to



standards defined in the European standards and guidelines (ESG), transposed into national legislation that establishes educational institutions as those primarily responsible for the quality of the education provided.

Every HEI is responsible for defining the internal evaluation model. Each has a duty to adopt a quality assurance policy for their study cycles, ensuring appropriate procedures, promoting a culture of quality and quality assurance, as well as developing and implementing a continuous quality improvement strategy.

There are core regulations stemming from the law regarding internal evaluation that HEIs must comply with. Among the general requirements of higher education institutions (Law no. 65/2007, 10th September, Art. 40) is ensuring teacher, researcher, and student participation regarding how the establishment is governed through the general council. Students should represent at least 15% of general council members. In terms of the legislative structure that formalised the HEI evaluation system, student participation takes other forms, such as their presence on the advisory council, in the self-evaluation processes associated with institutions' internal quality assurance systems, and external evaluation via external evaluation teams (*Comissões de Avaliação Externa - CAE*).

Internal evaluation takes place annually and its results must be made available to the A3ES. In turn, the A3ES provides a set of internal evaluation recommendations for HEIs in its evaluation manual (e.g., measures to prepare the institution for internal evaluation and the self-evaluation report). The broad participation of stakeholders in the diagnosis, implementation, evaluation and review – at every stage of the quality cycle - is important and, for example, the use of SWOT exercises involving students, teachers, employees and employers in the institution's diagnosis is valued."

7.3. Mission statement and strategy of the National Evaluation and Accreditation Agency

- *Please describe the relevant documentation on this (max 2 pages).*

The national evaluation and accreditation agency (Agência de Avaliação e Acreditação do Ensino Superior - A3ES) is the competent authority to evaluate and accredit higher education institutions and their study cycles. The Agency is an independent body vis-à-vis state and institutions and aims to promote and ensure quality in higher education.

"The mission of A3ES is to contribute to improving the quality of Portuguese higher education, through the evaluation and accreditation of higher education institutions and their study programmes, and to ensure the integration of Portugal in the European quality assurance system of higher education." <https://a3es.pt/en/about-a3es/mission>

The evaluation and accreditation regime to be developed by the A3ES) is defined in Law no. 38/2007, of 16th August. See <https://a3es.pt/en/about-a3es>

For a description of A3ES' strategic planning for 2021-2024, see <https://a3es.pt/en/about-a3es/strategic-planning/strategic-planning-2021-2024>



7.4. Future National Policies practices, efforts, initiatives, frameworks that relate to TEL quality

- *Are you aware of any plans to design new policies?*
- *If yes, are National-wide stakeholders involved in developing TEL criteria (policy makers, National or regional authorities, associations etc.)?*

Not necessarily. In Portugal, the activities of higher education institutions, science agencies and research institutes are coordinated by the Ministry of Science, Technology and Higher Education which acts as the main financial source of public institutions as well. The Ministry interacts continuously with higher education institutions, science agencies and research institutes and holds agreement negotiations with them.

In the Portuguese higher education landscape, modularity and availability of digital courses and guidance services will certainly be increased and new pedagogical approaches introduced. The number of degrees and non formal courses that can be completed digitally will be increased to improve access to education and boost international student recruitment.

The approval of the new EU digital education action plan will most probably influence the emergency of new digital higher education national policies in Portugal. As a new Government is set to take over in the country in first semester of 2022, this trend might have a significant push in the political agenda.

The most important national stakeholder involved in developing TEL criteria in the higher education sector are public universities and the Rector's Council which represent them. The quality assurance agency A3ES is playing also an important role. Amongst these institutions, UAb for its expertise plays a major role in the process.

7.5. Needs for National Policies practices, efforts, initiatives, frameworks that relate to TEL quality

- *Which area(s) of legislation pose a significant challenge to the application of TEL quality methods?*
- *What should be improved? Please provide any recommendations you may have regarding policy reforms (at all levels) that would help your organization establish TEL quality processes.*
- *Please provide any ideas you may have regarding reforms in educational policies (at all levels) that would help your organization establish TEL quality processes.*

Which area(s) of legislation pose a significant challenge to the application of TEL quality methods?

Given Portugal has a specific legal framework for distance higher education and also dedicated legislation to support digital learning and open science, the only challenge left is to coordinate this with all the other legislation regulating higher education processes.



What should be improved?

Please provide any recommendations you may have regarding policy reforms (at all levels) that would help your organization establish TEL quality processes.

The integration of open education in the open science policies and its connection to the distance education legal framework. This refers in particular to the increasing interdependence between non formal, informal and formal education.

Please provide any ideas you may have regarding reforms in educational policies (at all levels) that would help your organization establish TEL quality processes.

A major issue is the opening up of certification and the fostering of integrating non formal learning opportunities with formal higher education. In particular, UAb is promoting the use of microcredentials and open badges.

Please provide any ideas you may have regarding reforms in educational policies (at all levels) that would help your organization establish TEL quality processes.

In the [Action Plan for Portugal's Digital Transition](#) key goals are prioritized; e.g. "Expanding the training offer of higher education institutions and bringing them closer to companies, ensuring a response to the specific needs of the labour market in the field of digital skills" (page 15).

7.6. Training Needs for TEL Quality

- *Are there any training curriculums for TEL/(online teaching practices in general)?*
- *Which should be the top 5 educational objectives of a training curriculum in TEL/online teaching practices?*
- *Who should be trained for TEL/online practices?*

Are there any training curriculums for TEL/(online teaching practices in general)?

Yes. UAb has developed dedicated training curricula on online education for teachers and tutors.

Which should be the top 5 educational objectives of a training curriculum in TEL/online teaching practices?

1. To develop online communication, interaction and collaboration skills and incorporate dynamic learning activities, which promote the development of new digital skills of students required in different learning situations;
2. To critically reflect on pedagogical practices, presenting proposals for improvements and transformation in teaching practice and student learning in online, hybrid and blended learning;
3. To integrate evidence from current research in the field of educational design into pedagogical practice;
4. To analyze existing assessment strategies, namely by creating innovative assessment approaches;
5. To develop digital competencies and skills in the use of digital tools applied to different contexts of online learning.



Who should be trained for TEL/online practices?

The target groups that should receive specific training include teachers and tutors, senior managers and directors, learning designers and support staff, but also students. Each of this target groups have different training needs and training should be organized differently. Most importantly, training should be conducted online and have an immersive nature.

References:

European Commission (2019). *Education and Training Monitor 2019: Portugal*.

https://education.ec.europa.eu/sites/default/files/document-library-docs/et-monitor-report-2019-portugal_en.pdf

EURYDICE. *Quality Assurance in Portugal*. https://eacea.ec.europa.eu/national-policies/eurydice/content/quality-assurance-higher-education-53_en

Estatutos da Universidade Aberta. <https://portal.uab.pt/wp-content/uploads/2018/04/Estatutos-da-Universidade-Aberta-revistas.pdf>

Manual da Qualidade da UAb: Por uma universidade abeta ao mundo, inovadora e sustentável.

<https://portal.uab.pt/wp-content/uploads/2021/06/Manual-da-Qualidade-da-UAb-2021.pdf>

OECD (2020). *Education Policy Outlook: Portugal*. <https://www.oecd.org/education/policy-outlook/country-profile-Portugal-2020.pdf>

Pereira, A.; et al. (2008). *Universidade Aberta's Pedagogical Model for Distance Education. A University for the Future*. Universidade Aberta.

https://repositorioaberto.uab.pt/bitstream/10400.2/2388/1/MPV_uaberta_english.pdf

Plano Estratégico 2019-2023 [Strategic Plan] (2020). Universidade Aberta. <https://portal.uab.pt/wp-content/uploads/2020/08/Plano-Estrategico-2019-2023.pdf>

Portugal Digital: Moving forward. Moving with a purpose. <https://www.portugal.gov.pt/gc22/portugal-digital/plano-de-acao-para-a-transicao-digital-pdf.aspx>

Quintas-Mendes, A.; et al. (2019). *Virtual Pedagogical Model. Development Scenarios*. Universidade Aberta.

https://repositorioaberto.uab.pt/bitstream/10400.2/8539/1/MPV01_ENG.pdf

