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WIDENING PARTICIPATION IN A CHANGING LANDSCAPE: HOW OPEN AND DISTANCE EDUCATION RESEARCH AND POLICIES ARE TRANSFORMING PORTUGUESE HIGHER EDUCATION PRACTICES

ABSTRACT: Evidence-based European and national policies are having a very large impact in the development of the Portuguese higher education system, helping shape institutional strategies and teaching and learning practices. This has been demonstrated in the major transformational experiences undertaken by higher education institutions (HEI) in recent years.

This phenomenon results mostly from the combined impact that changes in legislation, funding and quality evaluation have in institutional leadership decision-making and the academic communities' perceptions. This push and pull effect is critical for accelerating educational change. On the one hand, policies are informed by emerging research trends and innovation developments. On the other hand, they redirect research efforts and commission innovation outputs, leading to the transformation of educational practices. This transfer of knowledge process is however challenging and is not always successful.

An important factor which has influenced evidence-based institutional policies and practices in Portugal is international comparability. The feedback provided by international independent review bodies, most notably the OECD has consistently influenced Government policy and indirectly driven to institutional change, as well.

In this chapter, an example of this complex process is analysed. We focus on how the European and national policies, based on research evidence, but also on international comparability of results, have contributed to accelerate the development of open and distance education in Portugal. In addition, we also look at how this effort has been put in test and affected both positively and negatively by the emergency response to the challenges of the Covid-19 crisis.

We conclude with a prospective analysis on teaching and learning futures and how the expansion of open education and its convergence with adaptive learning and artificial intelligence will continue driving the digital transformation of Portuguese higher education practices.

Keywords: institutional policies, open education, distance education, online learning, digital education, institutional change, digital transformation

1. Introduction

Evidence-based European and national policies are having a very large impact in the development of the Portuguese higher education system, helping shape and change institutional strategies and teaching and learning practices. This has been fully demonstrated in the major transformational experiences undertaken by higher education institutions (HEI) in recent years.

The implementation of the European Higher Education Area, also known as the Bologna process, which disseminated a student-centred approach and imposed a standard credit transfer system (ECTS), led institutions to the widest revision of curricula and teaching practices in decades. More recently, the internationalization of Portuguese HEIs, fostered by student exchange and special recruitment schemes, was again driven by European and national policies. The same has been occurring with the introduction of open science and open education. Currently, the European and national digital agenda is once more pushing forward HEIs to engage in a process of deep transformation.

This phenomenon results mostly from the combined impact that changes in legislation, funding and quality evaluation criteria set by external accreditation bodies have in institutional strategic decision-making. Notwithstanding, these policies also inspire and support the development of grassroots movements in the academic communities which uptake innovative practices.

This push and pull effect is critical for accelerating educational change. On the one hand, policies are informed by emerging research trends and innovation developments. On the other hand, they redirect research efforts and commission innovation outputs, leading to the transformation of educational practices. However, this transfer of knowledge process is challenging and is not always successful.

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notably the OECD, have consistently influenced Government policy and indirectly driven to institutional change, as well.

In this chapter, an example of this complex process is analysed. We focus on how the European and national policies, based on research evidence, but also on international comparability of results, have contributed to accelerate the development of open education and are driving the digital transformation of HEIs in Portugal. In addition, we will also look at how this effort has been put in test and affected both positively and negatively by the emergency response to the challenges of the Covid-19 crisis.

2. Improving retention and attainment: a national challenge

2.1. The Portuguese Higher Education Landscape

As a result of the rapid expansion of the higher education system in the 1980's and 1990's following the democratic revolution of 1974, the Portuguese higher education institutional landscape is much diversified and rather complex. Large institutions co-exist with much smaller ones and their strategic and operational focus range from the local and regional to the international.

Portuguese higher education (HE) is organized in a binary system that integrates university education and polytechnic education. The first is provided by universities and is research oriented. As for the second, it is assured by polytechnic institutes, which are similar to the UK post-92 universities and can provide both undergraduate and postgraduate programmes of study. They focus on professional oriented vocational and advanced technical training. Both kinds of institutions can be public or private (MCTES, 2007).

The Portuguese Catholic University enjoys a special status as it operates as a non state public institution. HEIs belonging to private entities and cooperatives can operate if recognized by the Ministry of Science and Higher Education (MCTES). There is a public open university (the Univer-

cidade Aberta - UAb) which dedicates to distance education and delivers all of its provision online using a specific e-learning pedagogical model.

HEIs enjoy scientific, pedagogical, cultural and disciplinary autonomy. As such, they have the ability to define, program, design and execute research and other scientific activities. Similarly, they may draw up the curricula, define curricular unit objects, define teaching methods, affect resources, and choose knowledge assessment processes.

The evaluation and accreditation of HEIs, public and private, and their programmes are assured by a national Quality Assurance agency (Agência de Avaliação e Acreditação do Ensino Superior – A3ES). The A3ES is an independent body *vis-à-vis* Government and institutions. In addition to the accreditation of programmes it also sets a maximum enrolment capacity for their operation.

Funding of the HE system is based on a three-way relationship between State and the HEIs, the Students and HEIs, and the State and the Students. Public institutions receive Government funding only for 1st cycle programmes, based on a per capita calculation. This favours the HEIs with more capacity to attract students. Students also pay a small tuition fee. The funding of the other two cycles depends on student tuition fees alone.

2.2. Systemic challenges and opportunities for quality enhancement In Portuguese higher education

Throughout the years participation in HE has been consistently growing in Portugal. A significant indicator is the shift in the attainment levels of its young adult population (25 to 34 years old). The age cohort completing HE has risen from 13% in 2000 to 35% in 2016 (OECD, 2017). In spite of such impressive development, retention and attainment remain a major problem which limits socio-economic development. The attainment rates are still below the OECD average, as well as EU and national targets for 2020 and 2030. As acknowledged by the Portuguese Government it is a critical goal for the higher education system to widen access further,

while also ensuring that an increasing number of students complete their studies and obtain their degrees.

In 2016 a study group set by the MCTES examined a range of constraints to raising higher education access and attainment, among them being the limited pathway from secondary professional education to HE. Since then, the Government has included the revision of the higher education admission system as a policy goal in order to broaden the student recruitment base.

Portugal also underperforms in what concerns completion rates to the average in OECD member countries. According to the data available, this is not consistent across the system as significant differences can be detected between different institutions and study programmes. Public institutions, universities, more competitive programmes, and 1st cycle degrees tend to have lower dropout rates than others.

Another major area for improvement in what regards educational excellence is student support. Study programmes in Portugal typically require extensive instructional contact and students are provided with limited access to academic support and guidance services when compared with other European systems. Moreover, HEIs serving students at high risk of attrition have not in place effective tools to systematically track, contact, and support students who experience academic difficulties. Adequate support to students making the transition to HE is also needed as often recommended by independent international review panels.

This suggests how important it is for Portuguese HEIs to develop and implement technology-enhanced systems to monitor students' performance and to signal difficulties thus effectively supporting early intervention and promoting student success. Systematic information on students' academic performance (including particular deficiencies and gaps) could also lead to positive changes in upper secondary institutions' practices. Based on solid data, they could evaluate, review and recalibrate schools' curriculum and teaching practices in accordance. It is known how the transition from secondary education to university education is problematic and requires intensive support (Marland, 2003; Kottmann et al., 2019).

Similarly, in order to meet these systemic challenges, it would be helpful to promote open access to a limited part of HEIs provision in form of open educational resources (OER) and to develop massive open online courses (MOOCs) as the OECD reviewers have suggested. These practices could make a significant difference in student success (OECD, 2019). This recommendation reinforced the idea that Portuguese HEIs should clearly embark on a consistent and strategically driven bridging process between non formal, informal and formal learning.

Portugal's HEIs hardest challenge though is to meet such an ambitious reform agenda with its current academic staff. Although well prepared scientifically and active in international research, the faculty at Portuguese HEIs is of an advanced age, with 45,3% over 50 years old (PORDATA, 2020) and most lack specific pedagogical training. Academic staff training also seldom reflects the diversity of requirements across student groups and institutions and increasing flexibility of the educational offer. The typical example is the training on online learning received which has mostly been delivered in-person in physical environments.

Teaching performance, transparently and objectively evaluated, is not a key element for the evaluation and promotion of academics either. The uptake of effective pedagogical approaches for skills development and greater co-operation with employers and outside actors has been strongly recommended by the international panels (OECD, 2019).

3. National policies for open and distance education

3.1. Regulating and fostering distance higher education

Distance education programmes are offered by several HEIs, most particularly the UAb. In 2018/19 the UAb provided 11 distance learning undergraduate programmes and 29 distance learning master and doctoral programmes in various fields of knowledge. The institution enrolled 4,983 students in 1st cycle undergraduate programmes, about 2.3% of the nation's 219,615 undergraduate students (PORDATA, 2020),

and an additional 1,019 students in the other postgraduate programmes. A total of students enrolled, corresponding to 1,6% of the country's total, to which should be added 2,478 more from lifelong learning non formal courses.

Portugal's public polytechnic institutions offer another eight distance education programmes (DGES, 2018). When compared with other European countries, there is a small number of HE mature students who combine work and study. On average, 18% of new entrants in higher education were older than 25 years old across OECD countries, compared to only 9% in Portugal (OECD, 2017).

With the purpose of stimulating the expansion of online learning provision in public universities, the Government issued in 2019 the Legal Framework for Higher Distance Education (Decree-Law 133/2019, a.k.a. RJESaD). Only a few countries have issued specific legislation on distance higher education and eLearning so far. The most notable cases being Italy and Brazil.

The discussion which led to the approval of this legislation which is original in Europe, was initiated a decade earlier, following a request from the UAb. Being the dominant force in distance education provision, the institution feared that the entry of new players in an unregulated sector could lower the quality standards. At that time, a provision in the general legislation regulating HEIs has been made stating that a dedicated distance education act should follow up.

This understanding was later shared by the national quality assurance body. The A3ES felt such regulation was paramount to provide them with a clear framework for evaluating new degrees delivered online. Following the publication of the revised Standards and Guidelines for Quality Assurance in the European Higher Education Area - ESG (ENQA, 2015) specific quality standards and criteria have been developed in order to allow for European quality assurance agencies to appropriate evaluate eLearning delivered programmes (Huertas et al, 2018).

The RJESAD presents a holistic view on how the sector should be regulated, combining a number of requirements for providers, programmes and courses and also a set of criteria to organize quality assurance. In

addition, the RJESAD establishes a new specific role for the UAb within the HEI national public system. According to the legislation, the UAb should become the national research and resource centre for distance and eLearning. All of the other HEIs wanting to provide distance and eLearning are expected to partner with the UAb for developing their programmes and courses. The UAb is bound to have all of its provision delivered in partnership in order to receive public funding.

The RJESAD has major implications as it promotes an innovative operational model based on institutional collaboration and resource sharing. The creation of consortia between HEIs and other public institutions and organizations from civil society is favoured. The provision of joint degrees is suggested to become standard practice. The principles of unbundling HE services are clearly applied. In this scenario, institutions are expected to specialize their contributions, either by providing scientific knowledge and expertise, or by assuring the teaching and learning design and management of the courses.

Even though this could be observed as a courageous and visionary choice, its implementation calls for a major transformation of the Portuguese HEIs operational practices. As such, legislation as the RJESAD must be used as a policy tool. However, there are some risks associated to redesigning the role of UAb in the national spectrum. By having a special section of the law dedicated to UAb, and therefore, leaving the other HE institutions out, this might lead to unnecessary tensions between the institutions.

3.2. The role of open education

The RJESAD imposes a new strategic ambition for the distance higher education system by setting a target of 50.000 students enrolled by 2030. This would correspond to a level of penetration similar to the leading European countries in this sector, like Spain and the UK. Surprisingly, the legislator did not extend the new regulatory framework to open education and massive open online courses (MOOC).

Nevertheless, the current Government's action programme (2019-23) explicitly commits to promoting MOOC certifications and promises to stimulate the enrolment in global MOOC platforms. It goes as far as including a specific reference to the EdX and Coursera MOOC platforms. This policy is supported by a specific national initiative on digital competence (the INCoDe.2030) which funds some MOOC initiatives.

Having originally started as a proof of concept of the connectivism educational theory, MOOCs obtained worldwide recognition as a content distribution tool used by the leading US universities. In Europe MOOCs also became a political driver for higher education policy and institutional strategy (Jansen et al., 2015). In fact, MOOCs have activated the discussion on open and online education across the continent in universities and in national ministries. This paved the way for the development of a specific program of the European Commission aiming to enhance the adoption of open education in Europe (European Commission, 2013). This policy legacy was continued leading to the new Digital Education Action Plan (European Commission, 2018).

4. The impact of Covid-19: adjusting to a strange new normal

Distance and online learning confirmed their critical importance in 2020. As soon as COVID-19 was declared a global pandemic by the World Health Organization, most schools and campuses were shut down because of strict social distancing measures. UNESCO estimates that 1,6 billion students from 138 countries worldwide were affected by this emergency at the moment of crisis. In this unprecedented context, the continuation of formal education activities became a top priority in the global political agenda. The solution found for this enormous challenge was the massive implementation of remote teaching and learning.

Unfortunately, due to the global scale and speed of this forced and unexpected transition, educational institutions weren't given much time to consider existing research and best practice. Moreover, the inequalities in access to technology which still divide our societies, coupled with low

levels of digital competence, presented a huge obstacle for the dissemination of internet-based education. These limitations conditioned the quality of teaching and learning practices carried out not only in Portugal but also across the world (Hodges et al., 2020). During this crisis, academics and teachers in schools struggled to manage interaction with students and showed unfamiliarity with digital assessment.

Most academics were untrained for online learning and didn't have the necessary digital literacy, or the competence and skills needed to deliver high quality online-based teaching (Gewerc et al., 2020). As a result, they resorted to replicate face-to-face teaching practices using web conferencing and synchronous communication platforms, leading to digital fatigue and work overload. In Portugal it was registered a 3,956% increase in the number of Zoom meetings during the 1st quarter of 2020 in regard to the previous period¹. The educational advantages of asynchronous online learning seemed to have been lost in these emergency remote teaching practices, as Bates (2020) rightly notes. As a result, the majority of stakeholders have expressed since then strong criticism towards distance education. The basic argument being made is that it doesn't assure universal access to quality education. This relates to the low levels of digital readiness of the educational system and its actors, which unfortunately led to poor results.

Although the UAb proved to be much better prepared for this emergency scenario, it still had to struggle with unforeseen challenges. The virtual classrooms remained open and activities kept running as usual. However, similarly to all other universities, the entire faculty, support staff and student body were now teaching, working and learning from home; many in poor conditions, most needing extra care and attention. Good and fluid communication became paramount as well as an increased attention to mental health and well-being of faculty and students. Although academics used appropriate designed pedagogical approaches, students

¹ Source: FCCN. <https://www.fccn.pt/estatisticas>.

See also <https://www.fccn.pt/a-utilizacao-do-colibri-foi-crucial-para-substituir-as-aulas-presenciais>.

experienced digital fatigue and forms of depression due to the social context and family environment. Moreover, the UAb had to move the student assessment system entirely online almost overnight which proved to be a challenging task.

If education systems weren't prepared for this emergency, neither was the EdTech expert community. In spite of the solid body of research and best practices accumulated throughout the years, such an unexpected scenario had never been considered. For instance, there was no robust theoretical and practical knowledge on how to organize distance learning for non-adult populations, particularly young children (Bates, 2021). This massive experience has raised a number of new issues and problems which need to be addressed by policy and research (Hodges et al., 2020; Gewerc et al., 2020).

The Covid-19 emergency response represented a critical test to the open and distance education policies in Portugal. Despite the evident limitations of the remote education solutions applied, the pandemic has made it possible to accelerate and greatly expand the ongoing movement of digital transformation of HEIs. A good example was provided by the University of Aveiro which launched an ambitious digital transition programme involving all faculty and engaging R&D units specialized in EdTech². Research and innovation were called to play a key role in this process.

5. A dive into the digital education futures: how Portuguese higher education institutions will open up

The 'Battle for Open' (Weller, 2014) is an ongoing process across HE. In recent years open education has become a major part of the Open Science movement (Burgos, 2020). This represented the convergence of open learning and OER, open source, open access, open publication, open data, open peer review, open innovation, and open licensing with

² See <https://www.ua.pt/pt/noticias/11/62858>.

new trends, as scientific social networking, and citizen science (Fecher et al., 2015).

The policy of open science is grounded in the principle that education and research, supported by public funding, should not only be available for all, but should also stimulate everyone's participation (European Commission, 2016). An open knowledge ecosystem is thus being built with important implications on how the HE research and innovation landscape is organized and operates (European Commission, 2018; Burgelmann et al., 2019).

Portuguese HEI's are therefore called to embrace openness in this broad perspective which implies a significant transformation of their organizational cultures, as well as educational practices and internal procedures. From institutional governance, policies and strategic planning to technological infrastructure, teaching and learning practices, faculty support and professional development (Castaño-Munoz et al., 2016). In order to be successful, research recommends that a holistic and bottom-up approach should be adopted (Inamorato dos Santos, et al., 2016).

Notwithstanding, future mainstreaming of open education and MOOCs also requires that researchers develop more sustainable learning design models. As the emergency response has shown, online pedagogical models should be grounded in solid research and distance education theory and fully explore the affordances of asynchronous communication. Moreover, in order to facilitate a wider implementation, these models need to go beyond comprehension or networking to develop critical thinking, analysis and evaluation, thus leading to effective 'transformational learning'.

Similarly, open educational practices (OEP) should be also designed in such a way as to promote larger flexibility and personalization of learning, differentiating content, activities and assessment according to individual needs and expectations. The combined use of learning analytics, adaptive technology and artificial intelligence will enable to accommodate an increasingly larger heterogeneity of students/learners and also to decrease dropout dramatically. Nevertheless, the consolidation of OEPs requires an increase participation of students/learners in co-designing, managing, and assessing their own learning experiences.

OEPs, and MOOCs in particular, will expectedly provide a more authentic learning experience, much more connected with real contexts, as a true part of students' digital life experience. This will be surely empowered by the use of extended reality technologies combined with 3D printing. However, OEPs will also embed a more gamified and challenging learning experience. New blended forms of learning assessment and recognition will be consolidated. Open certification (ex: digital open badges) will be combined with formal credits both for the university awards and for admission purposes. Employer recognition of ePortfolio based certificates will also be consolidated.

The ongoing digital transformation of HEIs will enable them to become hubs in the knowledge network and to be part of the emerging landscape of the new smart cities. It is critical that this redesign leads to a larger integration of non-formal (ex: MOOC), informal and formal learning. There is also a need to redesign teacher training models to increase focus on innovation and disruptive change and on enabling teachers to exercise practice in unfamiliar and innovative settings. The use of immersive online-based training practices should be widespread.

In this emerging context in which OEPs will be a disseminated practice, what will be the role of the open universities and in particular of the UAb in Portugal? Open universities through scale and flexibility “[...] can in terms of social policy provide a pressure valve to release frustration about educational opportunity; can deliver large scale opportunities for professional development that support improvement in quality of service and economic growth; and can support the development of an educated citizenry and so nourish self-fulfilment and democracy” (Tait, 2013, pp. 5-6). Their core mission is to educate for individual transformation and social change.

As such and following the policy goal set in RJESAD, the UAb will most probably evolve to become a fully open network-based collaborative environment, unbundling their processes and outsourcing services, sharing resources and developing a true knowledge digital ecosystem. By unbundling teaching and learning processes and outsourcing services (Teixeira et al., 2019), as well as ‘rebundling’ them into new forms

(Czerniewicz, 2018), according to different contexts, the UAb will gain flexibility, critical dimension, and resource capacity. This will equip these institutions to respond promptly to a rapidly changing environment, thus carrying on their mission of providing quality learning opportunities for all. But, by doing it in such a way, it must go against an important part of the open universities' DNA and tradition, which is to continuously grow bigger in size (Christensen & Eyring, 2011). The new approach should be to cooperate within networks. The transition to such a disruptive innovation-based model requires vision, time, detailed planning, and consistent development (Teixeira et al., 2019).

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