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Transversal Competences and Employability: The Impacts of Distance Learning University According to Graduates' Follow-Up

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Abstract: Since higher education qualifications and digital transition are considered key factors for economic development and individual opportunities, distance learning has been presented as a solution to improve the labor force's skills and employability. However, such links were seldom studied systematically in specific contexts, and doubts exist regarding online programs. Based on the results of three successive follow-up surveys to the graduates of the Portuguese distance learning public university (*Universidade Aberta*), from 2011 to 2018 ($n = 1358$), our article examines the graduates' perception of acquired transversal competences, in relation to employability and social mobility gains. The statistical analysis points out a positive perception of transversal competences development, especially analytical capacity, autonomy, and communication, although some concerns were raised regarding digital skills, teamwork, job search skills, and social capital. The impacts on employability and socioeconomic mobility are positive for most students, but variable according to analyzed competences, and tend to occur mostly through internal mobility rather than through job search skills or entrepreneurship. Although exploratory, such findings allow some final considerations regarding the effective ability of higher education distance learning to enhance economic growth and employability, through transversal competences, as well as to sketch some suggestions to improve such ability.

Keywords: competences; skills; distance learning; online education; higher education; employment; social mobility

1. Introduction

The rapid expansion of higher education in recent decades has been associated, on one hand, with public investment in economic and social development and, on the other hand,

with individual (and family-based) projects regarding their education, professional careers and well-being. In Portugal, such growth was particularly fast: according to the official census, there were less than 50 thousand citizens with a higher education degree in 1970, and more than 1.2 million four decades later (www.pordata.pt accessed on 15 October 2021). The mostly poor, rural and illiterate society, kept up by the dictatorship ruling the country until 1974, has changed pervasively, through a process of democratization, urbanization and modernization, including a massive expansion of educational pathways.

In broad terms, the benefits of such educational improvement may be found in the major increase in most social and economic indicators. However, as in many other countries, some doubts were raised on the effective impacts of higher education, especially regarding the growth slowdown and the improvement of the unemployment rate, during the first two decades of the 21st century. Therefore, research on higher education effects, particularly on employability, has been fostered. Employability is here conceived not only as the ability to be employed, since this may be not connected with education at all, but as “the set of achievements—skills, understandings and personal attributes—that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy” [1]. This means a concern with life projects and pathways, before, during and after higher education, conceiving students as “learners-in-transition”, rather than “learners-in-formation”, and knowledge is developed in specific contexts [2].

Educational reforms, particularly in Europe, since the 1990s have been guided by the recommendations of international organizations, emphasizing the centrality of education and its capacity to guarantee employability, to avoid social exclusion, and to promote citizenship and personal development. As a prescriptive “recipe”, these organizations point out a perspective of education for the 21st century, focused on transversal competences and lifelong learning, associated with the entire life cycle and with all contexts and spheres of life (life-wide).

Although there is strong pressure on EU governments to shape their education and training policies in line with supranational recommendations and guidelines, national education and training systems continue to be influenced by a broader social, economic, political, and cultural context. Therefore, there is no single prevailing model of education and training policies. In this sense, emergent trends are naturally and inevitably complex.

Although the concept of lifelong learning is vague and commonly used with different meanings, its definition by the European Commission is based on the idea that “all learning activity is undertaken throughout life, to improve knowledge, skills, and competencies within a personal, civic, social and/or employment-related perspective” [3]. This definition includes all forms of education and learning, whether formal, non-formal, or informal. However, this concept has been especially used in the frame of the European Employment Strategy, seeking to materialize responses to the specificities of the labor market. In this context, educational institutions (universities, in particular) and companies are questioned to practice active cooperation to respond effectively to these needs.

A study on the different meanings of the operationalization of lifelong learning, in the specific political contexts of the EU members, concluded that EU documents have two main levels [4]. The first one is an ideological framework pointing to economic purposes balanced with arguments linked to social cohesion and human development. The second refers to the operational level having more restrictive perspectives. One of the main discussions in recent decades refers to the meaning of *lifelong learning* and how this idea seems to be far away from the initial philosophical framework. This is one of the main tensions in the debate on this topic: on one hand, a more prevalent economic perspective; on the other hand, a humanist orientation which tends to become rhetoric. Thus, most of the reflections are based on economic concerns and the importance of knowledge and skills for economic development, moving away from a humanistic perspective of education where the main objective of development is the construction of just and cohesive societies in which people are the main source of wealth.

In a context of accelerated changes through digital technologies that blurs the boundaries between education and social life, people and institutions need to be in permanent “recycling” to better manage and monetize their knowledge and skills. The knowledge of society brings a new reality that leads individuals to constantly update and reconvert their skills, transforming the true meaning of the educational process. For Gert Biesta, these transformations mean the education process being faced as a set of economic transactions, where the learner is seen as a consumer with needs to be satisfied by educational institutions [5].

Across Europe, the higher education system has passed through a major change in the last two decades, not only regarding an integration of different traditions, rules and diplomas in a common European framework, but also concerning a new conception and organization of higher education, under the Bologna process. Despite some criticism, regarding its scientific foundations and capitalist bias [6], as well as considerable differences in its national and institutional interpretations [7], “learning outcomes” became a key element of curricula re-structuration, including a new focus on “transversal competences”, in combination with the subject-specific contents traditionally taught in higher education programs [8].

According to UNESCO’s definition, widely used by EU and national governments worldwide, transversal competences are “skills that are typically considered as not specifically related to a particular job, task, academic discipline or area of knowledge and that can be used in a wide variety of situations and work settings (for example, organizational skills)” [9]. Although this is still an open concept, not always defined and operationalized in the same way, the literature has shown that skills such as “problem-solving”, critical thinking, self-management, inter-personal abilities (including teamwork), global citizenship, and media and information (or ICT) literacy are commonly listed in institutional reports, as well as in most research on this topic.

For instance, a large project involving many Portuguese universities has shown that some transversal skills (*analysis and problem solving, creativity and innovation, adaptation and flexibility and planning and organization*) ranked above specific-subject skills, both in recent graduates’ and employers’ opinions of the most valued skills for the labor market in the next 5 years [10]. Another study ran at the University of Porto found some differences between fields of study, considering that social sciences, commerce and law students mostly value communication, interpersonal and planning skills, while STEM students prioritize problem solving, innovation, ICT and subject-specific skills [11].

At the same time, taking advantage of the remarkable improvement and access to information and communication technologies, “distance learning” has been considerably developed, and has become an opportunity to attend higher education, in many countries, especially for those working on a full-time basis and/or located in remote areas. If the ability of such e-learning programs to foster some skills, such as ICT literacy, is widely acknowledged, many concerns prevail regarding its effectiveness to cultivate other skills, namely interpersonal abilities, as well as some subject-specific knowledge [12,13]. Such discussion was recently boosted, since most higher education institutions massively adopted e-learning practices, on a temporary basis and in many cases with a lack of expertise in this field, due to the COVID-19 pandemic. A recent survey has shown, despite a huge diversity of perceptions among Portuguese students, a main belief that this was a helpful solution for an emergency, but also a strong preference for face-to-face regimes and many concerns about learning effectiveness during the online period [14].

Across the world, e-learning has been presented as a decisive tool to foster key competences and employability. Its flexibility and ability to promote a faster knowledge transfer between universities and workplaces are apparent [15], especially when practical-based learning is promoted in the curricula [16]. The UK Open University has improved these features through a modular multidisciplinary approach, enabling students to create their own curriculum, and assess its impact through its employability framework, composed of the following competences: problem solving, communication, collaboration, numeracy, digital

and information literacy, initiative, self-management, self-awareness, commercial/sector awareness, and global citizenship [17].

A comparison between universities in Spain has shown that by teaching students to use educational platforms, the open university (UNED) allows them to exercise social skills, and skills such as management of information and content creation, which have an impact on training for future employment [18]. Other follow-up studies with graduates of the Oberta from Catalonia reveal that (perceived) graduation benefits in the labor market are greater in age ranges from 36 years and up, although the economic payoff is higher in the younger cohort, since older students are often “highflyers”, earning good salaries at the time they enter university [19,20]. Research in different countries has stressed that e-learning is often chosen to secure employment and promotions, rather than improve skills [21], leading to some skepticism and difficulties for younger graduates to access the labor market [22].

In Portugal, *Universidade Aberta* (UAb) was launched in 1988, being the only higher education institution devoted to “distance learning”. Around 7800 students attend one of the 40 study programs in this public institution. Since 2008, all of its bachelor’s, master’s and PhD programs have followed a common “Virtual Pedagogical Model” (VPM), grounded on research on this field and implemented through previous training to all professors and tutors. VPM refers to a multidimensional construction that represents a vision of learning, including: a pedagogical architecture (based on organizational and technological aspects, and subjects); lines of force (student-centered learning, flexibility of access to learning, diverse interaction, and education that promotes digital education); and theoretical principles in line with one or more educational theories (constructivism) [23]. In that sense, it is a general frame of reference for educational activities and, simultaneously, an organizing instrument of teaching and learning practices in online environments.

Former research on this institution has shown that problem solving and planning are the most valued skills for employment among students, while professors and lecturers highlight creativity, problem solving and negotiation [24]. It is important to bear in mind that although UAb holds programs in different fields of study, social sciences is the area with the higher number of students. Another analysis, focused on the field of environment/sustainability, has shown high levels of satisfaction and expertise of subject-specific content, but pointed out that “particularly interpersonal competences and competences related to the application of knowledge to practical situations, were not yet sufficiently developed” [25].

In light of the abovementioned research, the present article addresses how UAb graduates perceive their own skills, in relation to their educational experience at this institution and their employment path afterwards. The main goal is to contribute to public knowledge on the ability of higher education, especially through e-learning methodologies, to foster transversal competences and, therefore, citizens’ employability.

2. Materials and Methods

2.1. Participants

Participants in the study were all graduates who answered the *Survey on Universidade Aberta Bachelor Graduates’ Work and Life Pathways* (SUABGWLP) in the three editions held in 2015, 2017 and 2020, respectively. The choice of the cohort was defined, for each edition, under the condition of having a period between 1.5 to 4.5 years after completing their bachelor at UAb, a time gap considered appropriate to track effects in work and life paths.

The total number of graduates in the institution and the number of answers to the questionnaires were the following: in the first round, the 1691 graduates from 2011, 2012 and 2013 were contacted, and 521 replied to the questionnaire with an answer rate of 30.8%; in the second round, from the 1079 graduates in 2014 and 2015, 420 participated, (answer rate of 39%); and, in the third round, from a total of 1194 graduates in 2016, 2017 and 2018, 417 replied (answer rate of 35%).

Reflecting the demographics of UAb students, the overall sample (3 editions aggregated) was composed of 1358 graduates (answer rate of 34.3%), 95% living in Portugal, and 57% being women. It is also noted that 35% obtained a bachelor's in social sciences and 87% were working on a full-time basis during their studies.

Comparing the three editions, as well as other reports on UAb, similar characteristics, by age, gender, residence, level of education at entrance, and professional activities, are apparent.

Although it is a distance learning institution, there is some concentration of graduates in the Lisbon and Tagus Valley, both as a home territory (39%) and as a residence during the course (43%) (Table 1). So, the geography of the university is still relevant (its headquarters are in Lisbon) and students' choice is mainly associated with time flexibility, enabling to combine higher education with work (and family) life.

Table 1. Region of residence during the study cycle.

Region: NUTS II	1st Ed. (2015)		2nd Ed. (2017)		3rd Ed. (2020)		Aggregated Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
North	90	17.8	82	19.9	109	26.4	281	21.1
Centre	67	13.3	68	16.5	31	7.5	166	12.5
Lisbon and Tagus Valley	198	39.2	154	37.3	179	43.3	531	39.9
Alentejo	50	9.9	31	7.5	23	5.6	104	7.8
Algarve	29	5.7	12	2.9	15	3.6	56	4.2
Azores Auton. Reg.	27	5.3	23	5.6	23	5.6	73	5.5
Madeira Auton. Reg.	23	4.6	22	5.3	14	3.4	59	4.4
Africa	9	1.8	10	2.4	10	2.4	29	2.2
America (N&S)	5	1.0	1	0.2	1	0.2	7	0.5
Asia	3	0.6	0	0.0	0	0.0	3	0.2
Europe	4	0.8	10	2.4	8	1.9	22	1.7

Note: nonresponse rates: 3.1% (2015), 1.7% (2017) and 2% (2020), respectively.

In terms of age distribution, in the three editions, respondents were usually aged between 40 and 54 years, with the highest concentration in the age group 40–44 (around 27%) for the two first editions and 45–49 years old (around 22%) for the third edition (Table 2), reflecting the ageing trend in Portuguese society. So, they completed their bachelor diploma in an intermediate stage of their active life.

Table 2. Age at the survey.

Age (years)	1st Ed. (2015)		2nd Ed. (2017)		3rd Ed. (2020)		Aggregated Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
25–29	2	0.5	7	2.0	6	1.8	15	1.4
30–34	29	7.5	21	6.1	19	5.8	69	6.5
40–44	107	27.6	93	27.0	73	22.5	273	25.9
45–49	100	25.8	71	20.6	80	24.6	251	23.8
50–54	91	23.5	74	21.5	64	19.7	229	21.7
55–59	43	11.1	54	15.7	50	15.4	147	13.9
60–64	13	3.4	20	5.8	23	7.1	56	5.3
≥65	2	0.5	4	1.2	10	3.1	16	1.5

Note: nonresponse rates: 3.1% (2015), 1.7% (2017) and 2% (2020), respectively.

Regarding gender distribution, the population was mostly female (57.1%, $n = 707$, in total of 1238 responses) in all age groups, except for those aged 60 and over, reflecting a trend in higher education as a whole, although great variation existed between fields of study (graduates in Management, Informatics, History, European Studies were mainly men). Regarding their field of study, social sciences is the most common bachelor's degree at UAb, while STEM registered some increase (Table 3).

Table 3. Scientific area of study cycle.

Scientific Area of Study Cycle	1st Ed. (2015)		2nd Ed. (2017)		3rd Ed. (2020)		Aggregated Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Social Sciences and History (SS&H)	203	39.2	180	43.1	181	45.6	564	42.3
Management (Mgm)	66	12.7	55	13.2	55	13.9	176	13.2
Education (Edu)	77	14.9	59	14.1	50	12.6	186	14.0
Science, Technology, Engineering and Math (STEM)	25	4.8	30	7.2	31	7.8	86	6.5
Arts and Humanities (A&H)	147	28.4	94	22.5	80	20.2	321	24.1

Note: nonresponse rates: 0.6% (2015), 0.5% (2017) and 4.8% (2020), respectively.

Most of these graduates (95%) entered the bachelor's degree with an upper secondary education diploma, with some expression of those who did so through vocational education or prior learning recognition (13%). It should be noted that 6% already had another degree and 4% a bachelor's degree, while 34% had already attended higher education without completing their course. Most (86%) worked full-time during their degree, 67% in intermediate positions (40% in administrative jobs).

2.2. Instrument

The survey consisted of a structured questionnaire, designed by a team of professors and researchers of the different departments, distributed by e-mail to all graduates. It was based on prior surveys already in use in other Portuguese universities, although taking into consideration both the specificities of the institution: distance learning experience and students' profile (most of them, adults working on a full-time basis). Therefore, our focus was on the relationship between higher education and other life dimensions, rather than on the education–work transition.

The questionnaire is composed of 5 sections: sociodemographic profile; bachelor experience; skills self-assessment; impacts on life and work path; prospects. The formulation of the questions was as clear and rigorous as possible, to avoid possible misunderstandings or divergent understandings by the respondents. Some questions are of linked type, programming the various "paths" in the questionnaire according to the answers given. This avoids, for example, that graduates are faced with questions that do not apply to their case.

The questionnaire consists mostly of closed questions, in which the types of answers vary between the dichotomous type (Yes/No) and multiple choice, classified by degree of importance, satisfaction or agreement on a scale from 1 (most positive) to 4 (most negative).

In order to not discourage students from filling out the questionnaire, the section on the impacts of the degree was placed in the beginning, since it is the main topic of this programme, while the sociodemographic section was placed in the end, since it typically generates more missing values.

The questionnaire was similar in the three editions to enable comparisons, but some minor clarifications were introduced in light of the experience, in order to obtain more complete and reliable answers, in cases where difficulties were detected. A specific question was added, related to employability to provide requested information in the context of evaluation processes for higher education degrees.

It took on average 25 min to complete the survey, and students were allowed to answer only the questions they wished and to save their answers to proceed later. Ethical aspects were attended, including guaranteed anonymity. Participation was totally voluntary, and each participant could quit the questionnaire at any moment [26].

2.3. Procedures

In the 1st edition, all bachelor's graduates in 2011, 2012 and 2013 were invited to participate in the survey, data were collected in June–September 2015 and a public report with the main results was launched in January 2016 [27]. In the 2nd edition, the invitation

was sent to all former bachelor's students graduated in 2014 and 2015, data were collected in April–June 2017 and the descriptive report was published in March 2018 [28]. Additionally, in the 3rd edition, all bachelor's graduates in 2016, 2017 and 2018 were contacted to answer the survey, in May–July 2020, and the main results were reported in March 2021 [29].

Some specific procedures were undertaken by the team to prevent non-responses and difficulties in the process: (1) the articulation between the project team and the Informatics Services of the UAb, in order to guarantee the quality and continuous availability of the questionnaire, in technological terms; (2) testing of the instrument, on the computer platform, by the Observatory team before its availability to students; (3) the involvement of the alumni, in order to widen the dissemination of the questionnaire and the call for its completion by graduates; (4) the provision of a specific e-mail address for clearing up doubts and quickly responding to questions raised about the questionnaire, through the Academic and Curriculum Management Office; (5) the issuance of a “reminder” with a small extension of the response time, in order to boost response rates.

All graduates of each cohort were contacted by e-mail and invited to answer through a LimeSurvey questionnaire. Assistance was assured by e-mail and telephone. In the 1st edition, a reinforcement phone call to graduates of some programs was necessary to achieve the intended participation rate. With all procedures, it was possible to reach a response rate between 31% and 39%, achieving the criteria of representation in the different fields of study. The analysis was conducted on a single database, including the answers to the three editions of the survey. Cases that did not answer at least one question were removed. The cases of incomplete response were maintained, as they contain useful information for some of the indicators. Non-responses were all converted into omitted cases so as not to be counted in the total responses.

This article focuses on data related to employability and transversal competences, comparing the three editions to provide a longitudinal analysis. Some other analyses have been presented by our team in articles and papers in recent years.

Based on the abovementioned literature, graduates were requested to assess the level at which their bachelor's enabled them to develop the following competences at work:

- Fundamental knowledge of the field of study;
- Analysis and synthesis;
- Communication;
- ICT literacy;
- Teamwork;
- Job searching;
- Professional work methods;
- ICT skills;
- Critical thinking, planning and innovation.

Fundamental knowledge of the field of study is not a transversal competence, but it was used in order to make comparisons with the remaining ones. As noted above, employability is a more complex concept than only the possibility of being (un)employed. This is especially the case in a population such as UAb graduates since the vast majority were already employed when they accessed higher education. In the 2nd and 3rd editions, we included a specific question about the effect of their graduation on employability conditions. Still, since such effects may be diverse, we chose the answers on the effect of graduation on the following items:

- Employability conditions (2nd and 3rd editions);
- Occupational status;
- Work stability;
- Work mobility (start working or change job);
- Education–occupation adequacy;
- Career progression.

Bachelor's programs were aggregated in the following fields of studies, considering the different university departments:

- Social Sciences and History (SS&H);
- Management (Mgm);
- Education (Edu);
- Science, Technology, Engineering and Math (STEM);
- Arts and Humanities (A&H).

One should be aware that variations may be explained partly by the university experience, partly relating to the economic situation: the results of the 1st edition are framed by the economic downturn and the austerity policies, from 2010 to 2014, linked to the great financial crisis of 2008; the following editions encompassed a period of economic recovery, but the 3rd was already affected by the beginning of the COVID-19 pandemic.

3. Results

3.1. Transversal Competences

Regarding the competences developed during graduation (Table 4), most students held positive perceptions (levels 3 or 4 on a scale of 1–4). The highest values (above 80%) were achieved in “fundamental knowledge of the field of studies” and “analysis and synthesis” while the lower values (below 60%) were observed in “teamwork”, “job searching” and “ICT skills”. Considering the economic and social changes during the last decade, the level stability shall be emphasized, although an increasing trend from the 1st to the 3rd editions is evident, especially in skills related to communication, ICT, job searching and professional work methods.

Table 4. Competences developed at university, according to graduates' perception, by edition.

	2015		2017		2020		Aggregated Sample	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Fundamental knowledge of the field of study	382	80.3	333	82.5	302	82.3	1017	81.6
Analysis and synthesis	411	85.4	366	89.7	324	87.3	1101	87.4
Communication	355	74.1	312	76.8	299	80.8	966	77
ICT literacy *	267	62.6	267	66.8	272	73.5	838	67.1
Teamwork	227	47.9	212	53	197	54.1	636	51.4
Job searching *	200	47.7	194	55.7	193	58.1	587	53.4
Professional work methods *	261	60	244	66.5	251	73.2	756	66
Problem solving	325	72.5	295	78	270	77.4	890	75.7
ICT skills *	206	47	201	53.2	209	60.8	616	53.1
Critical thinking, planning and innovation	352	77.2	317	83.2	275	78.3	944	79.5

Source: SUABGWLP—1st, 2nd and 3rd editions. (*) statistically significant differences between editions at a significance level of 5% (chi-square test and comparison of column proportions).

The chi-square test was applied to investigate these differences and it was concluded, at a significance level of 5%, that there are statistically significant differences in ICT literacy, job searching, professional work methods and ICT skills (marked with * in Table 4.)

Although all programs follow the same pedagogical model, graduates' perceptions of achieved transversal competences vary according to the field of study (Table 5): analysis and synthesis, critical thinking, planning and innovation, and communication skills obtain especially high values among graduates in Social Sciences and History, Arts and Humanities, and Education; ICT literacy and skills, in Education and STEM; job searching in Management; and teamwork and problem solving in Education.

Table 5. Competences developed at university, according to graduates' perception, by field of study.

	SS&H		Mgm		Edu		STEM		A&H	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Fundamental knowledge of the field of study	421	81.6	131	79.4	142	83.5	69	84.1	242	81.8
Analysis and synthesis *	461	88.5	133	80.1	162	94.7	66	81.5	261	86.4
Communication *	414	79.8	106	63.9	138	81.2	53	65.4	240	79.7
ICT * literacy	328	63.9	101	60.8	137	80.6	58	70.7	199	66.8
Teamwork *	239	47.0	73	44.5	112	65.5	44	55.0	161	54.4
Job searching	233	52.8	97	62.6	83	55.7	39	51.3	128	48.9
Professional work methods	306	65.9	106	67.1	108	70.6	48	64.0	178	63.8
Problem solving *	362	75.7	115	71.4	140	89.2	56	72.7	206	72.0
ICT skills *	223	47.8	91	56.2	105	65.2	49	63.6	136	49.1
Critical thinking, planning and innovation *	384	80.0	126	76.4	139	85.8	60	75.9	223	78.0

Source: SUABGWLP—1st, 2nd and 3rd editions (aggregated values). (*) statistically significant differences between fields of study at a significance level of 5% (chi-square test and comparison of column proportions). Legend: SS&H—Social Sciences and History; Mgm—Management; Edu—Education; STEM—Science, Technology, Engineering and Mathematics; A&H—Arts and Humanities.

As in the previous table, the chi-square test was applied and globally identified significant differences between undergraduate degrees, namely in analysis and synthesis, communication, ICT literacy, teamwork, problem solving, ICT skills, critical thinking, planning and innovation. We should bear in mind that these results are conditioned to the field of study.

3.2. Employability

Considering the indicators explained above, data analysis showed that most graduates feel that their bachelor's at *Universidade Aberta* improved their employability situation, and this indicator increased from 2015 to 2020 (Table 6). This improvement happened more often through career progression within the same organization, although more than one-third have also experienced job mobility. Such a positive trend among the different editions may be explained by progress in the bachelor's programs, a wider recognition of this university in the labor market and/or a general development of the socioeconomic context (for instance, career progression in public administration was blocked during economic crisis). According to 70% of the students, the higher education diploma was a key element for such progress, although 40% also pointed out as fundamental the competences acquired in the graduation. One should be aware that some effects may take longer (than 1.5 to 4.5 years) to succeed, and that labor conditions improvement was not a target for around 7% of these graduates.

Table 6. Effects of graduation on employability, according to graduates' perception, by edition.

Bachelor at UAb Improved My	2015		2017		2020	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
employability conditions	NA	NA	221	59	251	70
occupational status	204	49	174	53	201	59
work stability	141	37	92	33	121	41
work mobility	174	37	128	33	182	49
education–occupation adequacy	352	75	307	80	298	81
career progression	241	55	213	59	240	73

Source: SUABGWLP—1st, 2nd and 3rd editions. NA—not available.

Some differences between fields of study were apparent (Table 7). Management and STEM graduates were those who reported a wider improvement of employability conditions, occupational status, career progression, work stability, and adequacy regarding their

studies. Progression was not so spread among graduates in Education, Arts and Humanities. Still, adequacy levels between higher education studies and current occupation are higher in all fields, so that initial conditions should be taken into account: most graduates in management (61%) worked for the private sector, where mobility and progression are faster, but also precarious, so improvements may be quicker; while most graduates in education (58%) and arts and humanities (62%) were in the public sector, so that stability or mobility were not an issue for a higher number, but progression may also take longer to occur. In STEM, there is a more balanced situation between public and private sectors, but a higher demand on the labor market may explain the more positive results.

Table 7. Effects of graduation on employability, according to graduates' perception, by field of study (%).

Bachelor at UAb Improved My	SS&H		Mgm		Edu		STEM		A&H	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
employability conditions	205	65	73	73	57	56	38	69	89	60
occupational status *	231	51	98	65	71	50	44	56	127	52
work stability *	137	35	69	50	41	35	27	37	76	35
work mobility *	206	41	76	46	61	36	40	49	94	32
education–occupation adequacy *	387	77	150	90	127	78	64	79	220	76
career progression *	195	43	86	54	50	33	39	51	96	37

Source: SUABGWLP—1st, 2nd and 3rd editions (aggregated values). (*) statistically significant differences between fields of study at a significance level of 5% (chi-square test and comparison of column proportions). Legend: SS&H—Social Sciences and History; Mgm—Management; Edu—Education; STEM—Science, Technology, Engineering and Mathematics; A&H—Arts and Humanities.

Regarding the statistical evidence of the observed differences, there are significant differences in all indicators except for employability conditions. We note, however, that there is a difference of 16 points between the highest (management) and the lowest scores (education). Education, arts and humanities and social sciences and history form a homogeneous subgroup in the remaining indicators.

3.3. Relationship between Competences and Employability

Once we compare the perception of employability progress, according to transversal competences developed over the course of study (Table 8), a clear pattern emerges: employability improvement rates are much higher among those who acknowledge a significant competences development. For instance, an employability improvement was acknowledged by 71% of those who considered that they acquired the fundamental knowledge of their field of study, but only by 36% of those who did not. Still, such a difference is wider in some competences, such as “fundamental knowledge”, “analysis and synthesis”, “job searching” and “critical, planning and innovation” abilities, rather than in others, such as “teamwork”, “ICT literacy” or “communication”.

The most immediate hypothesis is that competences developed in education (and especially, those with higher difference levels in Table 8) are key to improving employability. However, it may be a double-direction relationship, since more opportunities and recognition in the labor market contribute to confidence in individuals' own competences, and more self-confidence may be associated with a higher employability perception. This assumption is supported by an analysis of a more objective indicator: work mobility (Table 9). Although effective job access or change is still associated with a higher rate of competence acquisition, differences are stretched. “Job searching” appears as the most influential competence; fundamental knowledge, critical, planning and innovation, as well as ICT skills, are also relevant, but communication, ICT literacy and teamwork are not connected with work mobility at all.

Table 8. Employability improvement, by perceived acquired competences (Y/N).

	Yes		No		Diff.%
	<i>n</i>	%	<i>n</i>	%	
Fundamental knowledge of the field of study	408	71	46	36	35
Analysis and synthesis	428	69	29	35	34
Communication	379	70	76	49	21
ICT literacy	337	70	116	54	16
Teamwork	258	69	193	61	8
Job searching	287	79	130	47	32
Professional work methods	343	74	88	44	30
Problem solving	365	71	69	45	26
ICT skills	294	77	139	48	29
Critical, planning and innovation	388	71	51	39	32

Source: SUABGWLP—1st, 2nd and 3rd editions (aggregated values).

Table 9. Work mobility, by perceived acquired competences.

	Yes		No		Diff.%
	<i>n</i>	%	<i>n</i>	%	
Fundamental knowledge of the field of study	386	41	74	34	7
Analysis and synthesis	407	40	56	37	3
Communication	357	40	106	39	1
ICT literacy	296	38	159	41	−3
Teamwork	222	38	231	41	−3
Job searching	258	47	169	35	12
Professional work methods	310	44	137	37	6
Problem solving	352	42	97	35	7
ICT skills	254	44	190	37	8
Critical, planning and innovation	375	42	80	35	8

Source: SUABGWLP—1st, 2nd and 3rd editions (aggregated values).

4. Discussion

The data analysis showed that most UAb graduates hold a positive perception about the competences developed during their bachelor's in this institution, supporting its e-learning model. Still, higher levels were observed for the fundamental knowledge of each field of study, as well as for analysis and critical thinking, that is, more abstract and individual competences. This may be linked to the virtual pedagogical model [23], which is more focused on individual learning and assessment practices, especially in bachelor's programs.

The lower levels observed in competences such as teamwork, job searching, or ICT skills suggest that there is room for improvement in the bachelor's programs and ultimately in the pedagogical model. One could think that e-learning would generate by itself a development of ICT skills, and it happens regarding some (basic) skills and digital inclusion, but this is not enough, since the use of ICT in the professional environment is increasingly more sophisticated and diversified [18]. That is why, for instance, an open university in Catalonia has designed a special program on ICT for their graduate students [30]. Additionally, practical learning by problem solving based on real situations, teamwork and job searching may be developed through e-learning programs, taking advantage of specific existing tools [16]. The improvement in results observed in these items, from 2015 to 2020, shows that significant developments are taking place at UAb.

Variations between fields of study suggest different approaches to the same pedagogic model. The difference between social studies and STEM, observed in former research [11], was not so apparent. Still, critical thinking, communication and planning were skills

acknowledged by a higher number of graduates in social sciences and humanities, while fundamental knowledge and ICT skills were more disseminated among STEM students. Additionally, a focus on job searching in management, probably linked to a more dynamic approach to labor markets, and on ICT, teamwork and problem solving in education, were linked to this specific program orientation.

Based on a multidimensional notion of employability [1], our research has shown that UAb bachelor programs improved the employability conditions of most graduates, but such improvement is often associated with career progression and education–occupation adequacy, rather than work stability or mobility. The characteristics of the Portuguese economy and UAb students' profile—mostly adults already working on a full-time basis when they attended higher education (many of them in the public sector)—are relevant to such a prevalence, although such a trend has similarities to data collected from open universities in other countries [20,21]. Additionally, the progress observed from the first to the third editions is not independent from the recent path of the Portuguese economy and public policies.

The effect of competences on employability is complex to analyze, since a dialectic relationship between both variables is apparent. If the perceived competences hold a strong relationship with the sense of employability improvement, such a relationship is not so high regarding effective job access or career mobility (although it exists, except in the case of teamwork and ICT literacy). In this case, job searching ability emerges as a more effective competence. In addition, the high value of “fundamental knowledge” also leads us to think that the importance of transversal competences does not imply that “hard skills” are meaningless, while the lower levels of teamwork, ICT literacy and communication suggest that the labor market may be changing slower than some former studies suggest, based on employers' and graduates' perceptions [10,11,15].

5. Conclusions

The dimensions analyzed in this work concern adults who have graduated from Universidade Aberta, as well as the impact of said graduation on their personal, professional, and social lives. We assume that learning is always constrained by people's horizons and by the relationship between people and the contexts of their lives. Therefore, Sin proposes a new language of education based on the learner's confidence that he/she will embrace a process that will help them to discover themselves, learning something they do not know yet [5]. Based on the UAb graduates' perceptions, is there evidence of the eLearning potential for the construction of this language?

These kinds of questions highlight the fact that lifelong learning principles may be creating an excessive need for learning accumulation. At the same time, the dimension of the education process that goes beyond the single achievement of learning and also involves concerns, doubts, and risks that oblige learners to (re)define themselves as individuals in society should be considered.

Our global results point out that the training provided at *Universidade Aberta* had impacts on different dimensions. The economic dimension of the graduates' lives is understood as the acquisition of skills and knowledge concerning work to improve financial well-being and employability. The personal development dimension concerns the development of the person and their potential from experiences acquired throughout life. Additionally, the democratic function of the lifelong learning dimension is based on the purposes of social inclusion, democratic participation, and cohesion. From here, and based on the results, we can reflect on the role of universities and eLearning in general and the UAb in particular, intertwined with lifelong learning based on employability and the needs satisfaction of the labor market and in terms of personal development and social participation.

According to their own perception, most UAb graduates have developed skills for employability within the scope of the training course completed. They value the core knowledge of the scientific area of study, followed by analysis and critical thinking skills, with some variation between fields of studies being apparent. The less relevant skills were

teamwork, job search, and ICT skills, suggesting that there is room for improvements in the course's study plans as in the virtual pedagogical model.

Another conclusion is that graduating from *Universidade Aberta* improved most graduates' employability. Such improvement is often associated with career progression and the adequacy of training to meet the job's demands with work stability or mobility. This can be explained by the fact that UAb students are adults, already in full-time jobs, mainly in public administration. Considering the heterogeneous nature of the political construction process, particularly within the EU, we consider lifelong learning as a political-ideological project that should have the most comprehensive understanding based on a holistic ideological perspective associated with economic purposes, promoting and maximizing learning opportunities and enabling the development of each individual as a person.

As suggestions for further research:

- It would be interesting to broaden and combine this study, on the one hand, with the professors' and, on the other hand, with employers' perceptions, to obtain an enriched and expanded view of the needs of various intervening parties in the process—in other words, to go beyond immediate and uncertain needs, experiences, or economic niches in the labor market. It would be advisable to complement a quantitative analysis with qualitative methods, namely, with interviews with different subjects.
- The data allow give the quantitative study more depth and will allow us to conduct more statistical tests and multivariate analyses to find more relationships between the dimensions and define the profiles of graduates (segmentation).

As suggestions to the administration:

- Investments should be made for the development of the student's potential, flexibly, especially to enhance transversal skills such as teamwork, job search and ICT skills, to better respond to the labor market's demands, but also to improve their quality of life, be more participative, and have an active voice in society.
- To propose or establish a close connection with the Portuguese public employer entity, INA (Directorate-General for the Qualification of Workers in Public Functions), whose mission is, among other things, to recruit professionals and enhance the mobility of workers in public functions. It would be advisable to initiate institutional action between the representatives of the students and this entity, creating a common space for dialogue, streamlining the procedures of public examinations for admission/mobility in the careers of the qualified staff in public administration.

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References

1. Yorke, M. *Employability in Higher Education: What It Is—What It Is Not*; Higher Education Academy: York, UK, 2006; Volume 1.
2. Boffo, V.; Melacarne, C. Employability in adult and higher education. *New Dir. Adult Contin. Educ.* **2019**, *163*, 163–169. [[CrossRef](#)]
3. European Commission. *Making a European Area of Lifelong Learning a Reality*; European Commission: Brussels, Belgium, 2001; p. 9.

4. Neves, C. Estratégias de Aprendizagem ao Longo da Vida na União Europeia: Análise Crítica e Comparativa das Estratégias de Aprendizagem ao Longo da Vida de Cinco Estados-Membros. Ph.D. Thesis, Universidade Nova de Lisboa, Lisbon, Portugal, 2009. Available online: <http://hdl.handle.net/10362/2693> (accessed on 30 September 2021).
5. Biesta, G. Against learning. Reclaiming a language for education in an age of learning. *Nordisk Pedagogik* **2005**, *25*, 54–66. [CrossRef]
6. Murtonen, M.; Gruber, H.; Lehtinen, E. The return of behaviourist epistemology: A review of learning outcomes studies. *Educ. Res. Rev.* **2017**, *22*, 114–128. [CrossRef]
7. Sin, C. Lost in translation: The meaning of learning outcomes across national and institutional policy contexts. *Stud. High. Educ.* **2014**, *39*, 1823–1837. [CrossRef]
8. Adam, S. An introduction to learning outcomes: A consideration of the nature, function and position of learning outcomes in the creation of the European Higher Education Area. In *EUA Bologna Handbook: Making Bologna Work*; Froment, E., Kohler, J., Purser, L., Wilson, L., Eds.; European University Association (EUA)/RAABE: Berlin, Germany, 2006; Section B.2.3-1.
9. UNESCO. *IBE Glossary of Curriculum Terminology*; UNESCO: Paris, France, 2013.
10. Vieira, D.A.; Marques, A.P.; Costa, L.G. Prepared to work? The role of transversal Skills in transition-to-work. In *Ser diplomado do Ensino Superior: Escolhas, Percursos e Retornos*; Marques, A.P., Sá, C., Casanova, J.R., Almeida, L.S., Eds.; Universidade do Minho: Braga, Portugal, 2017; pp. 109–118.
11. Barros, A.C. Industry 4.0 and Transversal Skills: Comparing Social Sciences and STEM Higher Education Graduates. Master's Thesis, Universidade do Porto, Porto, Portugal, 2019.
12. Phipps, R.; Merisotis, J. *What's the Difference? A Review of Contemporary Research on the Effectiveness of Distance Learning in Higher Education*; Institute for Higher Education Policy: Washington, DC, USA, 1999.
13. Vicent, L.; Àvila, X.; Riera, J.; Badia, D.; Anguera, J.; Montero, J.A. Appropriateness of e-learning resources for the development of transversal skills in the new European Higher Education Area. In Proceedings of the 36th IEEE Annual Conference on Frontiers in Education, San Diego, CA, USA, 27–31 October 2006.
14. Gonçalves, S.P.; Sousa, M.J.; Pereira, F.S. Distance learning perceptions from higher education students—The case of Portugal. *Educ. Sci.* **2020**, *10*, 374. [CrossRef]
15. Singh, A.; Singh, L.B. E-Learning for employability skills: Students' perspective. *Procedia Comput. Sci.* **2017**, *122*, 400–406. [CrossRef]
16. Enweren, C.O. Enhancing employability of distance education graduates through university-industry collaboration: National open university of Nigeria perspective. *CRUTECH J. Commun.* **2021**, *3*, 42–50.
17. Cooke, H.; Meade, R. The Open University's Employability Framework: Making sense of employability for multidisciplinary students. In *Enhancing Graduate Employability: A Case Study Compendium*; Norton, S., Dalrymple, R., Eds.; Advance HE: York, UK, 2020; pp. 57–63.
18. Vázquez-Cano, E.; León Urrutia, M.; Parra-González, M.E.; López Meneses, E. Analysis of interpersonal competences in the use of ICT in the Spanish University Context. *Sustainability* **2020**, *12*, 476. [CrossRef]
19. Castano-Munoz, J.; Carnoy, M.; Duarte, J.M. Estimating the economic payoff to virtual university education: A case study of the Open University of Catalonia. *High. Educ.* **2016**, *72*, 1–24. [CrossRef]
20. Valente, R.; Gelabert, A.S.; Duarte, J.M. Human Capital in Online Higher Education Settings: A Socio-Educative Perspective Applied to Graduates of an Online University. In Proceedings of the EDEN Conference Proceedings, Bruges, Belgium, 16–19 June 2019; pp. 19–27.
21. Senarathne, L.K.; De Costa SBandara, N.J. A survey of graduates of the Open University of Sri Lanka. *OUSL J.* **2001**, *3*, 6–29. [CrossRef]
22. Mafumbate, R.; Gondo, T.; Mutekwe, E. Graduate employment challenges in Zimbabwe: A case of Zimbabwe Open University graduates. *J. Educ. Pract.* **2014**, *5*, 57–64.
23. Mendes, A.Q.; Bastos, G.; Amante, L.; Aires, L.; Cardoso, T. *Virtual Pedagogical Model: Development Scenarios*; Universidade Aberta: Lisboa, Portugal, 2019. Available online: <http://hdl.handle.net/10400.2/8539> (accessed on 10 October 2021).
24. Silva, A.P.; Lourtie, P.; Aires, L. Employability in online higher education: A case study. *Int. Rev. Res. Open Distrib. Learn.* **2013**, *14*, 106–125. [CrossRef]
25. Azeiteiro, U.M.; Bacelar-Nicolau, P.; Caetano, F.; Caeiro, S. Education for sustainable development through e-learning in higher education: Experiences from Portugal. *J. Clean. Prod.* **2015**, *106*, 308–319. [CrossRef]
26. SPCE—Sociedade Portuguesa de Ciências da Educação. *Carta Ética*; SPCE: Porto, Portugal, 2020.
27. Abrantes, P.; Bäckström, B.; Neves, C.; Jacquinet, M.; Magano, O.; Henriques, S. *Resultados do Questionário aos Percursos Laborais e de Vida dos Licenciados da UAb: Relatório Síntese*; Universidade Aberta: Lisboa, Portugal, 2016. Available online: <http://hdl.handle.net/10400.2/4997> (accessed on 28 October 2021).
28. Abrantes, P.; Silva, A.P.; Bäckström, B.; Neves, C.; Falé, I.; Jacquinet, M.; Ramos, M.R.; Magano, O.; Henriques, S. *Percursos Profissionais e de Vida dos Licenciados da UAb*, 2nd ed.; Universidade Aberta: Lisboa, Portugal, 2018. Available online: <http://hdl.handle.net/10400.2/7859> (accessed on 28 October 2021).
29. Abrantes, P.; Silva, A.P.; Bäckström, B.; Neves, C.; Falé, I.; Jacquinet, M.; Ramos, M.R.; Magano, O.; Henriques, S. *Percursos Profissionais e de Vida dos Licenciados da UAb*, 3rd ed.; Universidade Aberta: Lisboa, Portugal, 2021. Available online: <https://repositorioaberto.uab.pt/handle/10400.2/10471> (accessed on 28 October 2021).
30. Guitert, M.; Romeu, T. A digital literacy proposal in online Higher Education: The UOC scenario. *E-Learn. Pap.* **2009**, *12*, 1–15.