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Higher Education Students' Perception of the E-Portfolio as a Tool for Improving Their Employability: Weaknesses and Strengths

Elba Gutiérrez-Santiuste [1], Sonia García-Segura [2,*], María Ángeles Olivares-García [2] and Elena González-Alfaya [2]

[1] Department of Pedagogy, University of Granada, 18071 Granada, Spain; egutierrez@ugr.es
[2] Departmet of Education, University of Cordoba, 14071 Cordoba, Spain; ed1olgam@uco.es (M.Á.O.-G.); elena.gonzalez@uco.es (E.G.-A.)
* Correspondence: sgsegura@uco.es

Abstract: This study analyzes the strengths and weaknesses of the professional e-portfolio as a tool for preparing students in higher education to enter the labor market. It also examines students' level of planning to enter professional employment, and the help that they receive with this task from the university. The research is quantitative and observes the students' opinions before and after they create their own professional e-portfolio, as a case study. We used the analysis of means to determine the trend in the aspects analyzed over time, and the Student's *t*-test and Cohen's d to determine the effect size. We also performed correlation analysis between the different categories and subcategories proposed. The results show that the e-portfolio is a tool with strengths for labor market entry, while also revealing the weaknesses that students find in it. At the very least, the e-portfolio was useful to the students in planning their entry into the workforce. The correlations show high levels among the strengths but not among the weaknesses analyzed.

Keywords: career planning; electronic learning; employability; higher education

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1. Introduction

Various studies analyze the relationship between the technological tool of the e-portfolio (EP) and the entry into workforce, providing diverse perspectives and relevant information on the topic. EPs have also been implemented in various areas for professional improvement—for example, in healthcare, engineering, and education. At its most basic, the EP in the professional life seems to be, as Chang (2006) [1] notes, a personal homepage or electronic curriculum vitae (CV). At its most complex, it can become a person's digital identity.

In general, studies follow lines of research based on developing professional frameworks [2–7] and on the professional development of the employed [8,9]. In both cases, most studies focus on developing a reflection on practices before and during employment. The EP is also used, however, on a continuum from education to employment in the workforce—that is, from anticipating professional practice while still a student to improving professionalization among the employed [10,11]. Whichever the case, reflecting on various aspects of professional tasks becomes the way to achieve the results desired—the anticipation of professional practice or improvement of professionalization. As Alam et al. (2015) [12] indicate, however, most EPs currently used in education are a hybrid spanning the functions of (a) development: to show advances in skills over a period of time; (b) assessment: to evaluate students' performance; and (c) exhibition: to demonstrate the student's skills and samples of their work available to potential employers.

Furthermore, various research studies also point to another function of the EP which is more related to professional development and employability [13–16]. Through the EP,

not only do future workers get in contact with their potential employers, but they also develop and demonstrate different skills and competencies related to specific jobs, taking responsibility for their employability. However, Bennett (2018) [17] (p. 39) indicates that 'employability development is not limited to discipline skills, knowledge and practices. Rather, it develops students' abilities to conceptualize their future lives and work by learning the practice of the discipline and developing their metacognition'. Therefore, the development of employability is also conditioned by those practices and experiences related to the students' interests.

1.1. The Role of EP in Preparing for Professional Practice

The first use of the EP, in preparing for professional practice, is discussed in the study by Carl and Strydom (2017) [3], whose goal is to determine whether the theoretical foundations and expectations of the EP align with the current practices and attributes of students' training during their practice. For these authors, EPs are increasingly considered in preservice teacher education programs to enable Education students to reflect during and on their practice in a structured way. Such reflection enables students to demonstrate growth and development as professionals. This study also analyzes the daily reflections and regular online interactions online with classmates and members of the project. Institutions play an important role in implementing theoretical foundations and teacher training, as well as in the reconceptualization and understanding of what is really valued in professional practice. Whether the EP is considered as a professionalization tool or as a tool for representation of effective practice, creating the EP involves a series of phases: orientation, novice, advanced beginner, approaching competence, and graduation/entry into the profession (Clarke and Boud, 2016) [18]. This study concludes that feedback is important to achieving the learning outcomes. Similarly, a study by Jorre and Oliver (2018) [19] based on students' perceptions indicates that increasing their capability for employability requires receiving advice from employers, professionals, and recent graduates.

Along similar lines, the study by Faulkner et al. (2013) [4] on the fields of Engineering and Law analyzes whether the EP would train students to articulate their achievements and understand professional frameworks. The low level of reflection and training for personal development in the study's results is not surprising, since individuals automatically orient themselves to their comfort zones—that is, students prefer to maintain their current perspective instead of looking for ways to develop. While EPs help to capture evidence of development, their value is limited to students who appreciate personal and professional development, as in the study by Beckers et al. (2016) [20]. On the other hand, including formative comments by mentors, classmates, and others encourages and supports the process of transforming students into professionals [4,13]. The study by Pool et al. (2018) [21] illuminates how advisors interpret the student's professional training in their portfolio (traditional, not electronic) and concludes that different mental models for evaluating performance influence judgments by evaluators, potentially affecting the feedback and thus credibility of their decisions.

Hallam and Creagh (2010) [22] report that anticipating professional practice increases understanding of the need for interoperability among the different areas of education and employment significantly. The report argues that the EP should not be ignored if higher education wishes to fulfill its function of producing qualified professionals who will play an important role in the success of the community and economy. Higher education should thus transform its policies so that future workers can develop the skills, competencies, values, and behaviors that improve their employability, as indicated by the research by Okolie et al. (2020) [23], Olivares-García et al (2020) [24], and Reddy (2019) [25]. In this sense, several research studies suggest that educational programs must be evaluated and adapted to incorporate strategies for the development of self-managed employability by university students so that they are able to respond to the demands of employers [26,27]. Not only can the EP become a tool to improve learning skills and competencies, but it can also contribute to improving employability and business skills by bringing them closer

to the current business landscape [28]. This process is what Yan et al. (2016) [29] call productive learning, which is characterized by a motivation for learning conditioned by intrinsic interests, self-management, and self-reflection skills, as well as collaborative work.

Using the decomposed theory of planned behavior (DTPB) model, Ahmed and Ward (2016) [2] found statistical support for three factors that influence the acceptance of the EP for personal, academic, and professional development. These factors are Attitude toward the Behavior (e.g., ease of use), Subjective Norm (e.g., peer influence), and Perceived Behavioral Control (e.g., facilitating conditions and self-efficacy).

A series of studies analyze the professional EP from the perspective of groups of students, graduates, professors, institutions, and employers. A literature review by Kinash et al. (2016) [6] identifies 12 strategies related empirically to improvement in employability among graduates by asking the group different questions. The key findings indicate discrepancies between the strategies indicated in the literature and those indicated in the surveys, as well as discrepancies among the groups relative to the strategies. The most important job search strategies for all groups analyzed were:

- Work experience/placements/internships;
- Professional advising and development of job skills;
- Participation in extracurricular activities;
- Attendance at networking or informational events in the industry;
- Part-time work;
- Volunteering/commitment to the community;
- Memberships/participation in professional associations.

Along similar lines, Ritzhaupt et al. (2008) [30] focused on understanding the student's perspective of EPs and their use. Their research incorporates four domains, including employment, and connects these domains to the four groups involved: students, administrators, professors, and employers. The results indicate that students' perspectives on the EP are multidimensional, with three different and internally consistent underlying constructs: learning, evaluation, and visibility. In this study, only 19% of those surveyed believed that their EPs were beneficial for securing employment.

Haffling et al. (2010) [31], in contrast, analyzed how EPs can be used as tools for evaluating professional competence in a clinical setting. They examined specifically whether the students' reflections include categories of professional competence and satisfaction with use. The findings put emphasis on affective questions, particularly self-awareness of feelings, attitudes, and concerns, as well as ethical problems, clinical reasoning strategies, and future training in communication abilities. The students were satisfied with the EP, as it gave them opportunities to reflect on professional questions, but they needed better instructions. Another study of a clinical environment, by Schneider et al. (2016) [32], focused on continuous professional development to encourage the individual to pursue lifelong learning as a way of maintaining professional competence. The students found that preparing the EP was challenging (40%) but also reported that the EP was effective for autonomous learning (54%). Similarly, Beckers et al. (2016) [20] conclude that the EP facilitates the development of self-directed learning skills.

Kabilan (2016) [5] concluded that Facebook—used as an EP—contributes significantly to the professional development of future teachers in five ways: community of practice, professional learning and identity, relevant skills, resources, and trust. Among other aspects, this includes collaboration, sharing of experience, building the EP, and creating networks. The students' experiences led to richer ideas that facilitated the reconstruction and reconfiguration of significant personal knowledge and increased their learning and professional development. According to the author, although the participants were motivated by grades at the start of the project, they gradually began to identify socialization processes as modes of autonomous learning and self-knowledge. In the same line, Machado and Urbanetz (2019) [33] indicate that the EP may also become an opportunity to foster creativity and self-sufficiency, as well as reflection and self-awareness.

As for prior research, we can identify a series of strengths of the EP viewed as an educational tool for entering the workforce. These include the fact that the EP helps students to become reflective and conscious of their personal and professional strengths and weaknesses, while also making their existing developing abilities more explicit [3,22]. It also helps them to demonstrate professional development [4] and self-consciousness of emotions, attitudes, and concerns. The EP was further effective in autonomous learning and reflection on ethical problems, clinical reasoning strategies, and future training in communication skills [31]. Slepcevic–Zach and Stock (2018) [7] indicate that students in the final stretch of their studies are interested in job search and more generally in the professional direction they wish to pursue. In this study, 64.5% of students claimed that the EP supports orientation to their professional careers.

On the other hand, studies indicate a series of weaknesses, among them, as indicated by Ross et al. (2009) [34], the need for clear information, the need for support in presenting the EP, and anxiety, perhaps due to the challenging character of building the EP [13,32]. Carl and Strydom (2017) [3] also indicate the need to provide students with sufficient training, continuous technical support, and the design of innovative opportunities for sustainable student learning. Faulkner et al. (2013) [4] analyzed the challenge for professors of the relatively low level of reflection and planning of personal development and agree with Hallam and Creagh (2010) [22] regarding the need for interoperability among the different areas of education and employment.

1.2. The EP for Professional Improvement

In the second case presented in the Introduction—professional improvement—prior research provides valuable information on the use of the EP by working professionals. The diverse results obtained revolve around the utility of active reflection and planning [8,35], interest in adopting the EP as a tool for permanent learning [36], creation of professional communities [9], and demonstration of achievements related to professional development [1,35,37].

Among the strengths found for professional improvement, Andre (2010) [35] indicated the capability to store and recover information, and the provision of tools to support the structuring and preparation of reports in order to develop and communicate professional achievements. Chang (2006) [1] described the EP as a transparent tool for diversity and equity, noting its advantage for first adopters in a competitive labor market. Among the tool's weaknesses, Andre (2010) [35] notes that compiling and managing an EP can be a slow and irrelevant process if not implemented correctly. Hampe and Lewis (2013) [8] also view as a challenge the engagement of the participation of personnel in making the practical reflections. Chang (2006) [1], in turn, indicates some potential barriers, such as cost, acceptance, privacy, propriety, the inertia of the process, and consistency.

We sought to answer the following questions in relation to labor market entry:

- What is the perception of students on the EP's strengths?;
- What is the perception of students on the EP's weaknesses?;
- What is the perception of students on their training in Higher Education?

2. Materials and Methods

2.1. Instructional Design

The instructional design consisted of the delivery of the subject guidance, professional training, and socio-labor integration through theoretical and practical classes held in parallel during two semesters to achieve the learning outcomes. The theoretical sessions focused on becoming familiar with and critically analyzing the current state of the labor market, with in-depth knowledge of the status of the most vulnerable groups.

The practical classes consisted of building a professional EP, a task required to pass the subject. The first session, prior to the construction of the EP, included a self-knowledge workshop, in which students could anticipate and reflect on their own capabilities, interests, and professional goals. Two educational seminars were subsequently held at intervals of a

month to analyze the content of the professional EP (What is an EP? how can we use an EP in the job search, how to build it, where to present it). In the other practical classes, each student had to complete their EP as an independent project, receiving advice from professors with expertise in finding jobs and EPs. Different active job search techniques were used, as well as an analysis of jobs that facilitate students' making well-grounded decisions and specifying professional goals for the short, medium, and long term. A forum was also planned, with three threads: technical problems, how to make a professional EP, and aspects of content about which the students could consult and ask questions.

The data collection was conducted in accordance with the ethical protocols of the Declaration of Helsinki and with the consent of the participants, guaranteeing their anonymity.

2.2. Sample

The sample consisted of a group of 54 students in the third year of Social Education out of the total 65 enrolled students, as a case study [38,39]. Social Education is a degree program (260 enrolled students in total) oriented to providing scientific and experiential training in the fields of non-formal education: adult education, social integration of maladjusted people and those with disabilities, and socio-educational action (Faculty of Education, n.d.) [40] taught at a Spanish University. The sample was selected by convenience sampling.

The study was performed during two semesters of the academic year 2017–2018. Sample distribution by sex was 81.5% women and 18.5% men, a percentage that reflects the feminization of education in Spain. The participants' ages ranged from 19 to 27 ($\sigma = 2.05$; $M = 21.57$). The K-S normality test showed that the sample distribution was normal (K-S = 0.894, $p > 0.05$).

2.3. Research Methodology

The quantitative analyses were performed using two questionnaires—pre-test and post-test—to determine the students' opinion of the strengths and weaknesses of the EP as a tool for the job search and of the various aspects of preparation for employment (planning and training). A pool of 87 items was constructed based on the prior literature and on the research team's knowledge. After analyzing redundancy, appropriateness, ambiguity, and length following the recommendations by DeVellis (2017) [41], the questionnaire resulted in 41 items (version 1). The questionnaires consisted of three categories: strengths, weaknesses, and preparation for the workforce.

The content was validated by five experts in labor market entry and educational technology, producing the final version of the questionnaire, composed of 31 items. The consensus technique was used since it provided the reviewers' view of each item qualitatively. The items were distributed as follows: three items on sociodemographic data; 30 on the research goals (with the exception of one item, which contained 9 Likert-type sub-responses and one open-response question). The structure of the questionnaire is detailed below:

Strengths contain the subcategories:

- Utility (a useful tool for the job search, enables the network to expand, development of the professional competencies, greater visibility on the job market, help to contact employers, opens new professional horizons, a tool for permanent professional training);
- Self-knowledge (development of critical thinking, help with self-reflection, self-evalua tion, self-directed learning, self-efficacy);
- Community (satisfaction when sharing and collaborating with classmates);
- Beliefs (compatible use with the studies, positive attitude positive toward the use, EP is a creative and innovative tool, EP suits professional development needs).

Weaknesses contain the subcategories:

- Ease of use;
- Technical advising to prepare an EP;

- Time (benefits obtained with the EP compensate for the time invested in the preparation and updating);
- Technological knowledge (video editing, podcast, photos and images, graphic design, webpage editing, social networks).

Preparation for the workforce contains the subcategories:

- Planning (reflection and planning about professional future);
- Training (university can help to find work, training for employability).

The scales included [41] one 5-point Likert scale (1 = completely disagree; 2 = partially disagree; 3 = partially agree; 4 = completely agree) and one semantic differential (1 = none; 2 = basic; 3 = user; 4 = Expert). Both scales also included the option 0 = don't know/no answer.

The Alpha ($\alpha = 0.97$) did not vary significantly: if an element was eliminated all values were greater than 0.96. Nor did we find items that had to be eliminated because they reduced the internal consistency of the instrument.

The minimum and maximum ranged from 0 to 4 in all categories, indicating that all categories were used—the full response scale. Since kurtosis had two negative coefficients (strengths and weaknesses), a lower concentration of data around the average was considered in preparation for the workforce (with one positive coefficient). Asymmetry obtained two negative values, indicating asymmetrical distribution to the left and one positive value with asymmetrical distribution to the right.

3. Results

For analysis, the data from the pre-test and post-test were paired for each participant. Participants were then eliminated from the study if they did not complete both questionnaires. The answers were analyzed using the statistical package SPSS, v.20, with a low confidence level of 95%. We highlight that 60.9% of students responded don't know/no answer on the questions related to the EP in the pre-test, as opposed to only 1.5% in the post-test.

3.1. Strengths of the EP

This category included five subcategories that the prior literature considers as useful aspects of the EP as a tool for anticipating professional practice and for improvement in working people. In Table 1 we observe the results of the analysis.

Table 1. Initial and final questionnaires' means and differences.

	Initial Questionnaire ($\bar{x}$)	**Final Questionnaire ($\bar{x}$)**	**Difference Initial–Final**
Strengths			
Utility	1.13	2.83	1.70
Self-knowledge	1.17	2.66	1.49
Community	2.48	3.25	0.77
Beliefs	1.01	2.95	1.94
Weaknesses			
Ease to Use	0.94	2.46	1.52
Advising	0.89	1.81	0.93
Time	1.05	2.31	1.27
Technological Knowledge	2.30	2.51	0.21
Preparation for the workforce			
Planning	2.43	2.61	0.19
Training	2.22	2.99	0.77

The results obtained for the Student's *t*-test show that these changes were statistically significant in all subcategories on strength of the EP as a tool for labor market entry ($p > 0.05$). We also confirmed that the effect size was very large in the categories indicated (−0.79 to −1.81) [42].

This analysis supports the previously reported data on the progression of means.

The category Beliefs underwent a statistically significant change, with a higher *r* and *d* [42]—that is, in the compatibility of EP use with studies and a more positive attitude toward its use; and the perception of the EP as a creative and innovative tool increased greatly.

The students found fewer changes related to the strength of the EP for ease of use in finding a job, their motivation, and their learning, although the changes were statistically significant. The high values of d may stem from the high number of students in the pre-test who were initially unfamiliar with the EP as a tool for labor market entry.

All categories showed a change in the students' perception (Figure 1). The category in which the mean of the items increased most was Beliefs (composed of compatibility of making an EP with studies, positive attitude toward its use, fit of the EP to professional development needs, and especially the conception that the EP is a creative and innovative tool), with an increase of 1.94 points.

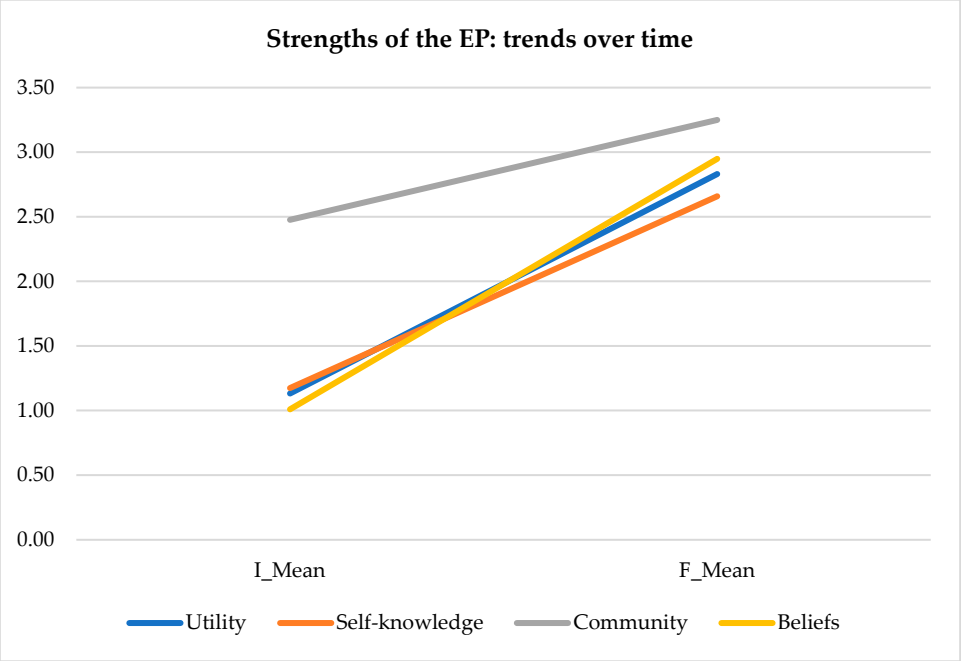

Figure 1. Strengths of the EP: trends over time.

The students' perception of Utility of the EP for the job search also increased considerably from the pre-test to the post-test—by 1.7 points (utility for the job search, broadening network of contacts, developing professional competencies, greater visibility, contact with employers, opening new professional horizons, and especially perception that the EP could be a tool for permanent education). Third, the category Self-knowledge increased by 1.49 points in all of its items (critical thinking, self-reflection, self-evaluation, self-direction of learning, self-efficacy, reflection, and especially fit of the EP with professional development needs). Finally, the category that changed the least (0.77 points) was Community. The item that increased the most was Making the EP visible to classmates, but no change was observed in the students' perceptions of enjoying sharing information and learning by working with classmates.

Correlations among the Elements in the Category Strengths

The relationship between the subcategories of strengths was investigated using the Pearson product–moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity [43]. There was a strong, positive correlation between the subcategories (Self-knowledge/Utility, Beliefs/Utility, Beliefs/Self-knowledge, Beliefs/Community) and medium (Community/Utility, Community/Self-knowledge). As Table 2 shows, the subcategory strengths presented the largest changes in correlation, and these were significant in all cases.

Table 2. Strengths of the EP.

Subcategory	*t* (Student)	Pre-Test		Post-Test		Mean Difference	SE	df	*p*	*r* *	Cohen's *d* *
		$\bar{x}$	SD	$\bar{x}$	SD						
Utility	8.97	1.13	1.42	2.83	0.65	1.69	1.89	53	0.00	0.36	0.78
Self-knowledge	6.62	1.17	1.55	2.66	0.83	1.48	0.22	53	0.00	0.49	1.13
Community	5.49	2.47	0.83	3.25	0.66	0.77	0.14	53	0.00	0.46	1.03
Beliefs	9.42	1	1.35	2.95	0.70	1.93	0.20	53	0.00	0.67	1.81

* Values calculated using the means and standard deviations of the two groups.

Given the results obtained [42], we can conclude Beliefs in the compatibility of the EP with studies, positive attitude, and fit with professional development needs. Belief that the EP is creative and innovative also correlates more strongly with perception of Utility, increase in Self-knowledge, and Collaboration with classmates.

3.2. Weaknesses of the EP

This category includes four subcategories that, based on the prior literature, have been considered as weaknesses for the EP as a tool for labor market entry (ease of use, technical advising, time in preparing and updating is worthwhile relative to the benefits, technological knowledge). Table 3 shows the results of the analysis comparing pre-test and post-test data.

Table 3. Weaknesses of the EP.

Subcategory	*t* (Student)	Pre-Test		Post-Test		Mean Difference	SE	df	*p*	*r* *	Cohen's *d* *
		$\bar{x}$	SD	$\bar{x}$	SD						
Ease of Use	8.06	0.94	1.29	2.46	0.77	1.51	1.38	53	0.00	0.58	1.43
Advising	4.91	0.89	1.24	1.81	0.95	0.92	1.38	53	0.00	0.38	0.83
Time	6.18	1.04	1.45	2.31	0.94	1.29	1.50	53	0.00	0.46	1.04
Technological Knowledge	4.06	2.30	0.43	2.50	0.43	0.20	0.37	53	0.00	0.24	0.51

* Values calculated using the means and standard deviations of the two groups.

Knowledge of the digital tools for building the EP did not increase as much as did other subcategories in weaknesses, although the change was statistically significant. Initially, the students ranked themselves at the level of user, and this category increased by 0.21 points following the preparation of their EP. In this subcategory, it is noteworthy that the increase is generally very low (with the exception of storage of EP), in which the students did believe that they improved from having almost no knowledge (M = 1.31) to having above-basic-level knowledge (M = 2.43).

As in the case of strengths, the category weaknesses shows that the differences between the entrance and exit questionnaires were statistically significant, with a very large effect size (*d* between 0.51 and 1.43). On the one hand, the subcategory related to the ease of building the professional EP increased considerably, as did the need for technical advising. The students believed that the time invested in preparing the EP was worthwhile relative to the benefits. The perception of benefits relative to the time invested, both in creating

and in updating the e-portfolio, received a higher proportion of responses on the post-test than on the pre-test. In the opposite direction, the subcategory Technological Knowledge (which includes specific computer-based knowledge to build the EP) was not as extensive, although the change was still statistically significant. As in strengths, it is possible that the high results obtained in *r* and *d* are due to the initial lack of familiarity with the EP tool for labor market entry.

We can see that the means of the categories Ease of Use and Time increased greatly (1.52 and 1.27 points, respectively) (Figure 2). Aspects such as productivity of the time used in preparing and updating the EP relative to benefits increased statistically (Table 3), as did perception of the ease of building the professional EP. We see that the initial perception of time as a problem shifts to more moderate positions, with a greater balance between time invested and benefits obtained from making the EP. In the open-response question on Technological Knowledge, the students in the pre-test and post-test indicated other tools (5.7% and 11.3%, respectively).

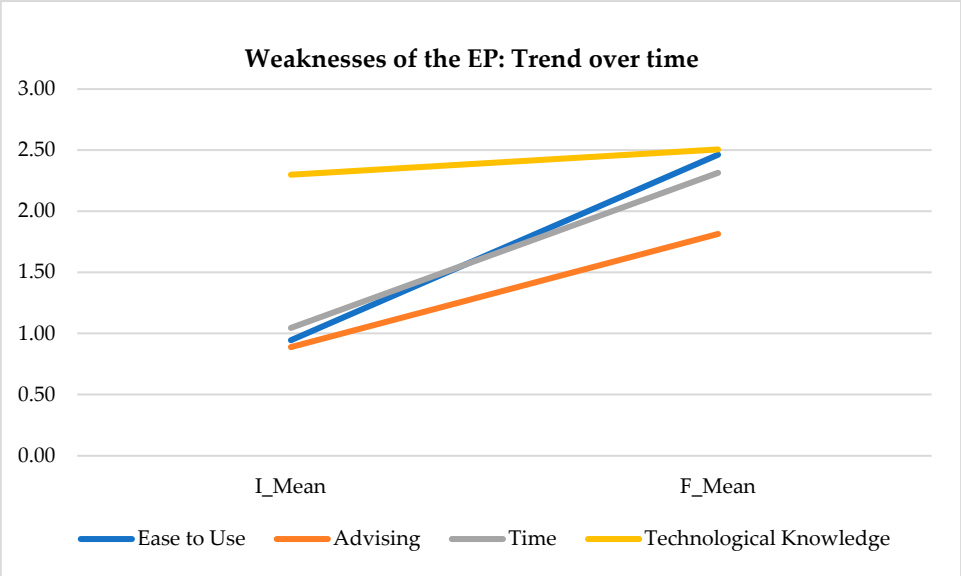

Figure 2. Weaknesses of the EP: trend over time.

Correlations among the Elements in the Category Weaknesses

The preliminary scatterplot analysis suggests a very low correlation and the distribution of scores on the scatterplot do not establish the direction of the relationship [43]. The relationship between the subcategories of weaknesses was investigated using Pearson product–moment correlation coefficient. According to Table 4, there are no correlations among the different subcategories of weaknesses, since in all cases $p > 0.5$.

Table 4. Pearson product–moment correlation measures of subcategories of strengths.

	Utility	Self-Knowledge	Community
Self-knowledge	0.503 *		
Community	0.430 *	0.414 *	
Beliefs	0.752 *	0.615 *	0.666 *

* $p < 0.02$ (2-tailed).

Based on the results obtained from the correlation analysis, we can conclude that the different weaknesses analyzed did not increase or decrease together. Neither did the need for advising, time employed in building, time employed in updating the EP, nor Technological Knowledge have a linear relationship to the other or to the perception of ease of use in building the EP.

3.3. Preparation for the Workforce

This category includes two subcategories that, based on the prior literature, have been considered useful and valid in making the EP a tool for preparing for the workforce (planning for labor market entry, university training).

Although the changes were significant in this category (Table 5), they were not as pronounced as in most of the subcategories mentioned above. The items Students' perception of the help that the university can give them and Belief that they have the education needed for employability increased the most (0.87 and 0.80, respectively), following their experience creating the professional EP. However, the students still did not plan their job searches (an increase of 0.35 points).

Table 5. Workforce preparation.

Sub-Category	*t* (Student)	Pre-Test		Post-Test		Mean Difference	SE	df	*p*	*r* *	Cohen's *d* *
		$\bar{x}$	SD	$\bar{x}$	SD						
Planning	1.52	2.42	0.90	2.61	0.69	0.18	0.89	53	0.133	0.11	0.22
Training	5.43	2.21	1.09	2.98	0.62	0.77	1.03	53	0.000	0.40	0.87

* Values calculated using the means and standard deviations of the two groups.

The results for the Student's *t*-test followed the same direction as the analysis of means (Figure 3). The item Planning for Labor Market Entry obtained a small effect size—that is, after the experience of building their professional EPs, the students did not plan the job search further. The students' conviction that they need education in employability and the help that they could receive from the university did increase, however.

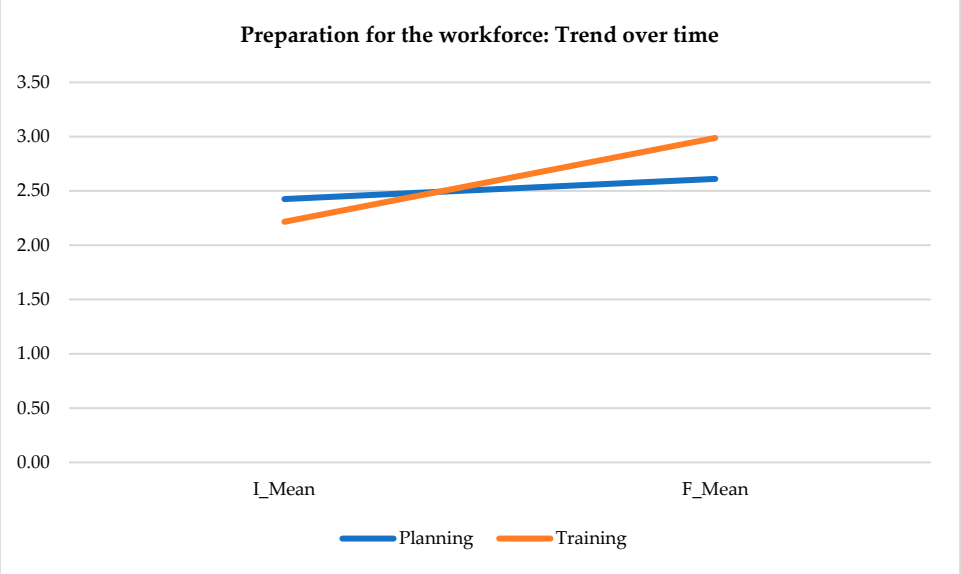

Figure 3. Preparation for the workforce: trend over time.

We found a more sustained trend in the category Preparation for the workforce, which included aspects of planning the job search and supported the student to obtain university services for labor market entry (Figure 3).

Correlations among Elements in the Category Preparation for the Workforce

The subcategories Training and Planning correlated significantly, positively, and moderately ($r = 0.404$, $p < 0.01$) [42]. We thus believe that the greater planning and reflection on the professional future, the higher the levels of conviction of the need for training from the university.

3.4. Intercategory Correlations

The relationship between the categories strengths, weaknesses, and workforce preparation was investigated using the Pearson product–moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity [43]. The scatterplot preliminary suggests differences in the correlations between categories.

Based on the results obtained (Table 6), we conclude that there is no linear relationship between weaknesses and the categories analyzed. The same does not hold for strengths or Preparation for the workforce, for which we found an average positive correlation.

Table 6. Pearson product–moment correlation measures of subcategories of weaknesses.

	Ease of Use	Advising	Time
Advising	0.016		
Time	0.186	−0.134	
Technological Knowledge	0.133	−0.135	−0.163

4. Discussion and Conclusions

This study analyzes the view of students on the strengths and weaknesses of the EP as a tool for labor market entry in higher education, the level of planning to enter the labor market, and the training that the educational institution provides to students.

In this study, building a professional EP was shown to be useful in preparing students in higher education for the workplace. As in Kabilan (2016) [5] and Ciesielkiewicz (2019) [13], our students expressed skepticism and were not familiar with the EP's potential as a tool for labor market entry. After the experience, however, the students perceived that the possible benefits of this tool were great.

As in Chang (2006) [1], the results of this study show that students perceive the EP as being useful for entering the labor market, extending one's network of professional contacts, promoting greater visibility on the job market, and helping to contact employers. These aspects reinforce results obtained by Kinash et al. (2016) [6], who show that the best strategies are related to membership in professional associations and participation in professional networks.

Although our study showed that the students value the EP as a tool for self-knowledge (critical thinking, self-evaluation, self-directed learning, self-efficacy) (Machado and Urbanetz 2019) [33], they did not generally value it as a tool in planning their job search. These results differ from those of Carl and Strydom (2017) [3]. An increase in self-knowledge was also detected in Kabilan (2016), indicating that students' experiences using the EP led to richer ideas that facilitate reconstruction and reconfiguration of the personal and significant knowledge facilitated by autonomous learning and self-development. In Schneider et al. (2016) [32], 54% of the students reported that the EP was effective for autonomous learning. Similarly, Ahmed and Ward (2016) [2] argued self-efficacy as one of the factors in acceptance of the professional EP, an aspect that the students in our study evaluated positively.

The study by Carl and Strydom (2017) [3] agrees with ours in the social aspects of collaboration and sharing of information with classmates. In both studies, this subdimension obtained lower levels than other aspects of the EP as a tool for labor market entry. Although we obtained a statistically significant difference before and after the experience, our study shows that students do not welcome collaboration, perhaps due to the scarcity of jobs in the context in which the research was performed, which increases competition among classmates. These results contrast with the analysis of Kabilan (2016) [5], in which collaboration and sharing of experiences increased with the use of the EP.

On the other hand, the students' beliefs changed significantly from the pre-test to the post-test. After making their own EPs, the students believed that the EP was a tool compatible with their studies, a belief that generated a positive attitude toward its use, since they can continue to adjust the EP to their professional development needs. Further,

the students considered the EP as a creative and innovative element that, as in Carl and Strydom (2017) [3], generates innovative learning opportunities while also increasing perception of utility and encouraging self-knowledge among classmates.

The category weaknesses in our study included aspects that the prior literature indicated as such. In the light of our results, however, we conclude that the perception of students on building the EP served to change the students' perception in some respects (ease of use, time/benefits ratio), while also increasing their perception of the need for advising but not changing the levels of technical knowledge mastered.

Chang (2006) [1] has already mentioned the difficulty involved in building an EP and noted this issue as one of the factors that affected the acceptance of preparing the professional EP. Since our study demonstrates that the students' improved their perception of the ease of preparing the EP after making one, we believe that the training received was a determining factor in this change of perception.

Our study agrees with the prior literature [3,5,8,31,32,34] in concluding that the development of the EP requires technical advising. This need arises from the challenging character of the creation of the EP, which requires continued, constant help to facilitate its planning and structuring. On the other hand, as found by Andre (2010) [35], time can be a determining factor leading to the perception of the EP as irrelevant if it is not well implemented.

As in Beckers et al. (2016) [20] and Carl and Strydom (2017) [3], the students in our study had low levels of technological skills for building the EP. During this experience, they did not advance substantially in this matter. Greater prior preparation of students in basic skills (word processor, editing of videos and images, presentations, webpage editing, etc.) would have made the development of other aspects analyzed in this study easier.

In our study, we did not observe that the experience served to increase the students' planning of their entry into the labor market. These results agree with those of previous studies indicating the difficulty of development in this area. Perhaps, as Faulkner et al. (2013) [4] indicate, this is because the students are automatically oriented to their comfort zone. Or perhaps, as Slepcevic–Zach and Stock (2018) [7] indicate, interest in this issue develops in the last stretch of their university studies, since we observed that 64.5% of the students claimed that the EP is useful for orienting their professional career.

In recent years, entry into the labor market has become a challenge for higher education students. As Jorre and Oliver (2018) [19] and Reddy (2019) [25] indicate, it is necessary to seek advice from employers, professionals, and recent graduates. However, as in Faulkner et al. (2013) [4] and Marinho, et al. (2021) [44], developing EPs trains students to articulate their achievements and understand the professional structures through which entering the professional world may become more accessible. In this sense, the research work by Ciesielkiewicz (2019) [13] also highlights that students recognize the EP as a valuable tool in job search and as an effective resource in their professional development, becoming aware of its strengths and weaknesses, as this study has revealed.

The expectations for training at the university expressed by the students in the study were also statistically significant in this study, reinforcing some aspects of the results obtained by Carl and Strydom (2017) [3]—the conviction that the university both played and plays an important role in their education in this area. Moreover, this study has highlighted the importance of higher education in the development of skills and competencies that prepare graduates not only to work, but also to learn throughout their professional careers, as Bennet (2018) [17] points out.

The correlations observed point to the conclusion that strengths of the EP and Preparation for the workforce co-varied, enabling us to establish a positive linear relationship between the two. We might thus conclude that both dimensions are necessary to make the EP a useful tool for labor market entry.

The development of this research in the field of social sciences constitutes a major drawback in terms of the sample size and the context in which it was carried out. Nevertheless, further research on improving the employability of university graduates and their

incorporation into the labor market is a serious concern for higher education and other public administrations.

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References

1. Chang, K. EPortfolio for Skilled Immigrants and Employers: LIfIA Project. Phase One Final Report. 2006. Available online: http://www.futured.com/documents/Report-ePforSkilledImmigrants-LIfIA.pdf (accessed on 20 December 2021).
2. Ahmed, E.; Ward, R. Analysis of factors influencing acceptance of personal, academic and professional development e-portfolios. *Comput. Hum. Behav.* **2016**, *63*, 152–161. [CrossRef]
3. Carl, A.; Strydom, S. e-Portfolio as reflection tool during teaching practice: The interplay between contextual and dispositional variables. *S. Afr. J. Educ.* **2017**, *37*, 1250. [CrossRef]
4. Faulkner, M.; Aziz, S.M.; Waye, V.; Smith, E. Exploring ways that ePortfolios can support the progressive development of graduate qualities and professional competencies. *High. Educ. Res. Dev.* **2013**, *32*, 871–887. [CrossRef]
5. Kabilan, M.K. Using Facebook as an e-portfolio in enhancing pre-service teachers' professional development. *Australas. J. Educ. Technol.* **2016**, *32*, 19–31. [CrossRef]
6. Kinash, S.; Crane, L.; Judd, M.-M.; Knight, C. Discrepant stakeholder perspectives on graduate employability strategies. *High. Educ. Res. Dev.* **2016**, *35*, 951–967. [CrossRef]
7. Slepcevic-Zach, P.; Stock, M. ePortfolio as a tool for reflection and self-reflection. *Reflective Pract.* **2018**, *19*, 291–307. [CrossRef]
8. Hampe, N.; Lewis, S. E-portfolios support continuing professional development for librarians. *Aust. Libr. J.* **2013**, *62*, 3–14. [CrossRef]
9. Lai, M.; Lim, C.P.; Wang, L. Potential of digital teaching portfolios for establishing a professional learning community in higher education. *Australas. J. Educ. Technol.* **2016**, *32*, 1–14. [CrossRef]
10. Chang, C.-P.; Lee, T.-T.; Mills, M.E.; Hsieh, Y.-P. E-portfolio functional requirements for the final semester baccalaureate practicum course: A qualitative research study. *J. Prof. Nurs.* **2019**, *35*, 405–411. [CrossRef]
11. Ciesielkiewicz, M. El porfolio electrónico como recurso educativo y su impacto en la búsqueda de trabajo. *Rev. Tecnol. Cienc. Y Educ.* **2015**, *2*, 83–99. [CrossRef]
12. Alam, F.; Chowdhury, H.; Kootsookos, A.; Hadgraft, R. Scoping e-portfolios to engineering and ICT educa-tion. 6th International Conference on Thermal Engineering, ICTE. *Procedia Eng.* **2015**, *105*, 852–857. [CrossRef]
13. Ciesielkiewicz, M. The use of e-portfolios in higher education: From the students' perspective. *Issues Educ.-Al Res.* **2019**, *29*, 649–667.
14. Clarke, M. Rethinking graduate employability: The role of capital, individual attributes and context. *Stud. High. Educ.* **2017**, *43*, 1923–1937. [CrossRef]
15. Fowlie, J.; Forder, C. Can students be 'nudged' to develop their employability? Using behavioural change methods to encourage uptake of industrial placements. *J. Educ. Work* **2020**, *33*, 154–168. [CrossRef]
16. Munday, J.; Rowley, J. Showing a human and professional face to the world: An ePortfolio design strategy for a sense of self. In *Handbook of Research on Humanizing the Distance Learning Experience*; Northcote, M., Gosselin, Y.K.P., Eds.; IGI Global: Hershey, PA, USA, 2017; pp. 94–110.
17. Bennett, D. Graduate employability and higher education: Past, present, and future. *HERDSA Rev. High. Educ.* **2018**, *5*, 32–61.
18. Clarke, J.L.; Boud, D. Refocusing portfolio assessment: Curating for feedback and portrayal. *Innov. Educ. Teach. Int.* **2016**, *55*, 479–486. [CrossRef]
19. Jorre, T.J.D.S.; Oliver, B. Want students to engage? Contextualise graduate learning outcomes and assess for employability. *High. Educ. Res. Dev.* **2018**, *37*, 44–57. [CrossRef]
20. Beckers, J.; Dolmans, D.; Van Merriënboer, J. E-Portfolios enhancing students' self-directed learning: A system-atic review of influencing factors. *Australas. J. Educ. Technol.* **2016**, *32*, 32–46. [CrossRef]

21. Pool, A.O.; Govaerts, M.J.B.; Jaarsma, D.A.D.C.; Driessen, E.W. From aggregation to interpretation: How assessors judge complex data in a competency-based portfolio. *Adv. Health Sci. Educ.* **2018**, *23*, 275–287. [CrossRef]
22. Hallam, G.; Creagh, T. ePortfolio use by university students in Australia: A review of the Australian ePortfolio Project. *High. Educ. Res. Dev.* **2010**, *29*, 179–193. [CrossRef]
23. Okolie, U.C.; Igwe, P.A.; Nwosu, H.E.; Eneje, B.C.; Mlanga, S. Enhancing graduate employability: Why do higher education institutions have problems with teaching generic skills? *Policy Futur. Educ.* **2020**, *18*, 294–313. [CrossRef]
24. Olivares-García, M.A.; García-Segura, S.; Gutiérrez-Santiuste, E.; Mérida-Serrano, R. El e-portafolio profesional: Una herramienta facilitadora en la transición al empleo de estudiantes de Grado en Educación Social en la Universidad de Córdoba. *REOP—Revista Española de Orientación y Psicopedagogía* **2020**, *31*, 129–148.
25. Reddy, M.C.R. Employability in Higher Education: Problems and Prospectives. *South Asian Res. J. Bus. Manag.* **2019**, *1*, 112–117. [CrossRef]
26. Krouwel, S.J.C.; Van Luijn, A.; Zweekhorst, M.B. Developing a processual employability model to provide education for career self-management. *Educ. Train.* **2019**, *62*, 116–128. [CrossRef]
27. Osmani, M.; Weerakkody, V.; Hindi, N.; Eldabi, T. Graduates employability skills: A review of literature against market demand. *J. Educ. Bus.* **2019**, *94*, 423–432. [CrossRef]
28. Mapundu, M.; Musara, M. E-Portfolios as a tool to enhance student learning experience and entrepreneurial skills. *S. Afr. J. High. Educ.* **2019**, *33*, 191–214. [CrossRef]
29. Yang, M.; Tai, M.; Lim, C.P. The role of e-portfolios in supporting productive learning. *Br. J. Educ. Technol.* **2016**, *47*, 1276–1286. [CrossRef]
30. Ritzhaupt, A.D.; Singh, O.; Seyferth, T.; Dedrick, R.F. Development of the Electronic Portfolio Student Perspective Instrument: An ePortfolio integration initiative. *J. Comput. High. Educ.* **2008**, *19*, 47–71. [CrossRef]
31. Haffling, A.-C.; Beckman, A.; Pahlmblad, A.; Edgren, G. Students' reflections in a portfolio pilot: Highlighting professional issues. *Med. Teach.* **2010**, *32*, e532–e540. [CrossRef]
32. Schneider, J.; O'Hara, K.; Munro, I. Using Continuing Professional Development with Portfolio in a Pharmaceutics Course. *Pharmacy* **2016**, *4*, 36. [CrossRef]
33. Machado, M.F.; Urbanetz, S. Contributions of the digital portfolio for the evaluative praxis in higher educa-tion. *Rev. Complut. Educ.* **2020**, *31*, 285–293. [CrossRef]
34. Ross, S.; MacLachlan, A.; Cleland, J. Students' attitudes towards the introduction of a Personal and Professional Development portfolio: Potential barriers and facilitators. *BMC Med. Educ.* **2009**, *9*, 69. [CrossRef] [PubMed]
35. Andre, K. E-Portfolios for the aspiring professional. *Collegian* **2010**, *17*, 119–124. [CrossRef] [PubMed]
36. Abuzaid, M.M.; Elshami, W.; David, L.; Stevens, B. Perceptions of e-portfolio use in lifelong learning and pro-fessional development among radiology professionals. *Curr. Med. Imaging Rev.* **2007**, *13*, 495–501.
37. Miller, P.A.; Tuekam, R. The Feasibility and Acceptability of Using a Portfolio to Assess Professional Competence. *Physiother. Can.* **2011**, *63*, 78–85. [CrossRef]
38. Flick, U. *An Introduction to Qualitative Research*, 5th ed.; Sage: London, UK, 2014.
39. Gerring, J. *Case Study Research: Principles and Practices*; Cambridge University Press: Cambridge, UK, 2006.
40. Faculty of Education. Social Education (n.d.). Justificación. Available online: http://www.uco.es/educacion/es/grado-en-educacion-social#justificacion (accessed on 20 December 2021).
41. DeVellis, R.F. *Scale Development: Theory and Applications*; SAGE Publications: Los Angeles, CA, USA, 2017; pp. 50–100.
42. Cohen, J.W. *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed.; Lawrence Erlbaum Associates: Hillsdale, NJ, USA, 1988.
43. Pallant, J. *SPSS. Survival Manual*; McGraw-Hill: New York, NY, USA, 2017.
44. Marinho, P.; Fernandes, P.; Pimentel, F. The digital portfolio as an assessment strategy for learning in higher education. *Distance Educ.* **2021**, *42*, 253–267. [CrossRef]