The Value of Career ePortfolios on Job Applicant Performance: Using Data to Determine Effectiveness

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This research project investigated how the development of an ePortfolio, combined with ePortfolio pedagogies, impacted the interview performance of undergraduate students as they prepared to enter the job market. Participants were students in the Health Sciences and Biosystems Engineering programs at Clemson University, enrolled in ePortfolio-developing capstone or internship classes in the 2014-2015 or 2015-2016 academic years. Participants were randomly assigned to complete mock interviews after engaging in different interventions, such as cover letter and resume development and ePortfolio pedagogy. A one-way ANOVA revealed that students demonstrated statistically significant higher quality interview skills after engaging in ePortfolio pedagogy mentoring sessions, compared to students who received limited or no interventions. ePortfolios created in 2014, without the study's ePortfolio pedagogy training, were compared against the portfolios from this research project. T-test analysis revealed statistically significant improvements in overall ePortfolio quality in the courses utilizing the study's ePortfolio pedagogy.

In the current job market, applicants are looking for any advantage that sets them apart from others. Colleges and universities around the country are recommending that students develop a web or paper-based career portfolio that showcases their experiences and skills most relevant to specific jobs/industries. Research on the effectiveness of this practice is diverse with varied findings. Lievens (2014) posited that, in this era of job scarcity, an ePortfolio could lead to better worker-to-job matches, increased worker mobility, and reduced unemployment levels. Throughout their use in academia and elsewhere, an element of reflection has been considered standard practice with ePortfolios, described by Wolf and Dietz (1998) as a "structured collection of teacher and learner work created across diverse contexts over time, framed by reflection and enriched through collaboration that has as its ultimate aim the advancement of teacher and student learning" (p. 13).

Literature Review

Employer Perceptions of Using Career Portfolios in the Job Search

Historically, career portfolios have been a primary component of application materials in arts and architecture-related fields. In the 1980s, paper portfolios were introduced within teacher education job portfolios searches (Lyons, 1998), and since that time, researchers and practitioners have noted their use as a learning tool in teacher education undergraduate programs (Barton & Collins, 1993; Loughran & Corrigan, 1995; Ring & Foti, 2006). The introduction of ePortfolios into higher education, specifically in teacher education programs, has provided a space for researchers to understand the value or ePortfolios, as

well as their usefulness in the job search process. There has been much written about the advantages and disadvantages of ePortfolios in the hiring process, when combined with resumes, references, letters of recommendation, and transcripts, with some studies noting value (Association of American Colleges and Universities, 2013; Brammer, 2007; Theel & Tallerico, 2004), while others reporting hiring practitioners' indifference toward portfolios (Ward & Moser, 2008; Whitworth, Deering, Hardy, & Jones, 2011; Yu, 2012).

The Association of American Colleges and Universities (2013) surveyed 318 employers whose organizations consisted of at least 25 employees and reported 25% or more of new hires from two and four-year colleges and universities. The study found that more than 80% of survey respondents considered ePortfolios useful when they demonstrated that applicants had the knowledge and skills necessary for success within their companies. ePortfolios were also considered useful in summarizing and demonstrating a candidate's accomplishments in key skill and knowledge areas (e.g., effective communication, knowledge in their field, applied skills, evidence-based reasoning, and ethical decision-making).

Ward and Moser (2008) conducted a study surveying 5,310 employers on their use of ePortfolios in the recruitment and selection process. Although they found limited use of ePortfolios across their sample, higher use was present among the fields of education, health care, and social services. The reasons for the limited use, at an overwhelming 75%, were that employers were unfamiliar with ePortfolios. With that said, however, 56% of survey participants noted that they planned to use ePortfolios in future hiring, which led Ward and Moser to point out that colleges and universities should communicate to recruiters how time-

saving and cost-effective ePortfolios can be in terms of accessibility, storage, and qualification matching.

Paper and electronic portfolios have been beneficial for disciplines such as teacher education; however, hiring officials reported mixed feelings about their efficacy in identifying qualified applicants. Ndoye, Ritzhaupt, and Parker (2012) surveyed principals throughout southeastern United States (*n* = 78) and noted that they were more likely to use portfolios during the interview process or during the initial screening of candidates. While they appreciated that portfolios contained information about the candidates and showcased artifacts that demonstrated evidence of accomplishment, they found portfolios to be time-consuming to review and lacked a connection to classroom practice.

Whitworth et al. (2011) surveyed education faculty and school administrators on the effectiveness of including an ePortfolio in teacher candidate applications and found that they were valued during the hiring process, but not as highly as other factors. Moreover, they also pointed out that hiring professionals had limited time to review ePortfolios. Administrators noted, however, that portfolios demonstrated what a teacher candidate had accomplished in the classroom. In addition, they noted that new teachers used portfolios as a means of self-reflection in developing a model of their work.

Although the opinions regarding the use of ePortfolios in the hiring process are mixed, the shift toward online job applications has provided an avenue for the use of an ePortfolio to supplement an electronic application. Furthermore, the career ePortfolio could be a viable concept in light of careers becoming increasingly without boundaries, with more complex and multifaceted career progression across organizations, sectors, and regions (DeFillippi & Arthur, 1996; Gunz, Evans, & Jalland, 2000). Several studies (Brammer, 2007; Fowler, 2012; Theel & Tallerico, 2004) found that ePortfolios served a key role in illustrating applicant credentials. Fowler (2012) conducted a case study to determine if manufacturing and services sector employers found value in the use of an ePortfolio in the hiring process, and developed an ePortfolio template that could be used within career and technical education. Results showed that when hiring-supervisors viewed electronic portfolios containing detailed information relevant to the position advertised, they were able to determine more efficiently that their future hires had the skills necessary for success in their organizations. The findings also suggested that electronic portfolios provided greater depth of information and deeper connections across information, thus saving the staff time and contributing to a stronger final interview.

The use of ePortfolios in fields outside of education has been slower to catch on, and much of the research conducted in other disciplines focuses more on the processes involved in the construction of ePortfolios and the pedagogy behind them than on their use in the job search process. Reflection and critical analysis are fundamental to the development of an ePortfolio, and these activities facilitate self-assessment and identity development (Cambridge, 2010; Garis, 2007; Nguyen, 2013). Svyantek, Kajfez, and McNair (2015) concluded that the development of an ePortfolio that incorporates both reflective and integrative thinking could help alleviate the disconnect that engineering students have between their graduate academic experiences and their intended careers. Specifically, reflecting on and writing about experiences and accomplishments over time and addressing multiple identities helped students to recognize both their strengths and weaknesses. Moreover, they argued, activities such as ePortfolio development can enhance these experiences by providing students with opportunities to envision professional identities and to begin balancing their values and goals across the roles of researcher and teacher. These types of reflective activities may even help them improve the quality of their work as graduate students and faculty and examine productive ways to achieve work-life balance (Syvantek et al., 2015).

In their study on the use of ePortfolios with medical school students, Ross, MacLachlan, and Cleland (2009) suggested that, despite the increasing popularity of ePortfolios in medical education, there may be a culture in medicine that does not support reflective thinking. They contended that the introduction and support of ePortfolios and ePortfolio pedagogy could help change the attitudes students have toward reflection in general.

A study on identity construction and the use of ePortfolios in music and writing programs by Bennett, Rowley, Dunbar-Hall, Hitchcock, and Blom (2016) revealed three major conclusions:

> First, as students' ePortfolios are developed, they quickly transition from being an archive to being a fluid self-portrait. Second, ePortfolios represent vehicles through which identity can be negotiated and constructed. Third, the very process of developing an ePortfolio prompts students to adopt future-oriented thinking. (p. 118)

This lends further credence to the belief that the value of an ePortfolio lies in the process of development through which learners create their professional identities, which they are then better able to convey in the interview process.

### Study Justification—Area of Inquiry

Although Whitworth et al. (2011) claimed that ePortfolios were not the most effective means of

Table 1
Mock Interview Treatment Interventions

Group	Participants	Intervention	Period when mock interviews were completed
1	25%	None	At beginning of semester
2	25%	Career focused training on developing a resume and cover letter	After career focused training and revision of resume
3	50%	Career focused training. Training on ePortfolio technology and collecting and selecting work. ePortfolio pedagogical training on collection and critical reflection	After career focused training and ePortfolio pedagogical training and revision of ePortfolio

Note. All students submitted ePortfolios to the ePortfolio Program administrators for further review at the end of the semester.

Figure 1
Intervention and Data Collection Process
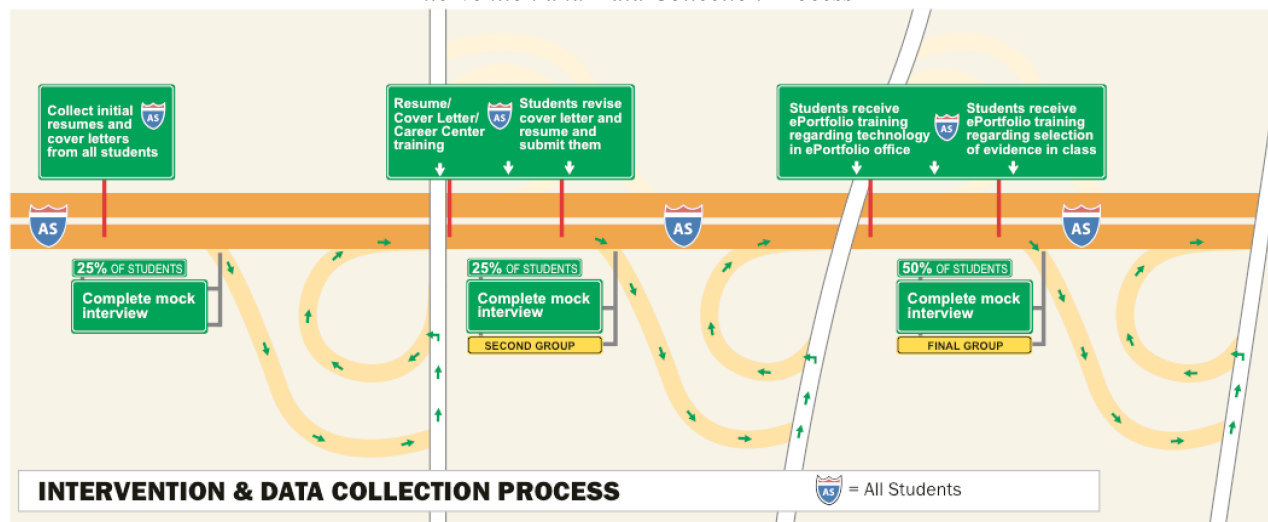
identifying and recruiting teacher candidates, they concluded that

> teacher applicants may derive more value from portfolios than those who are involved in hiring teachers. Respondents in their study recognized the value of portfolios in helping prospective teachers reflect on their abilities and skills and anticipate and organize answers to possible interview questions. (p. 102)

Minimal research currently exists that supports this finding and sheds light on the degree to which students learn and develop throughout the construction and utilization of a career ePortfolio. The current body of literature has revealed disciplinary trends regarding which types of programs actively encourage undergraduates to complete career ePortfolios and the degree to which employers value the information contained in those portfolios. However, a gap exists in the literature regarding the impact an ePortfolio has on student development.

This research provides quantitative data illustrating how students improve in their career development as a result of developing an integrated, reflective ePortfolio. Two research questions guided this study:

1. When students take part in a targeted portfolio development program, what is that program's impact on the overall quality of the career portfolios produced by participating students, compared to the portfolios produced without the program?

2. In what ways does the development of an ePortfolio, when accompanied by targeted ePortfolio development sessions, impact the interview performance of students completing their undergraduate degrees and entering the job market?

Methods

Subjects and Procedure

To determine how creating an ePortfolio impacted a student's ability to perform in a job interview, data was compared that had been collected from a series of mock interviews from 52 students enrolled in either a HLTH 4190 Health Science Internship Preparation Program course or BE 4740 Biosystems Engineering Design/Project Management at Clemson University. The students in this study were selected because they were required to submit an ePortfolio as an assignment in these courses. The students were also equivalent to one another in terms of their educational experience at Clemson and their professional backgrounds and aspirations.

Participants were separated randomly into three groups, where Group 1, the control group ($n = 12$), did not receive any career preparation training prior to doing a mock interview, and Group 2 ($n = 12$) received training on how to write an effective cover letter and resume prior to their mock interviews. Health sciences students received the training from their professor, who also included interviewing techniques, while the biosystems engineering students attended a workshop conducted by the Career Center. Group 3 ($n = 28$) received specialized ePortfolio pedagogical instruction from administrators from Clemson University's ePortfolio Program, in addition to the career-focused training prior to their mock interviews. Table 1 provides a more detailed representation of the research design of the project, identifying the interventions and the points in the semester when they occurred, while Figure 1 provides a graphic depicting the intervention and data collection process.

The ePortfolio pedagogical instructions focused on helping students select appropriate artifacts, articulate why these artifacts were selected, and analyze their work as a whole to contextualize how it contributed to their professional identity. The sessions also emphasized critical thinking and reflection on the elements in their portfolios. This instruction was modeled after Kolb's (1984) experiential learning theory model, which defines learning as "the process whereby knowledge is created through the transformation of experience, and knowledge results from the combination of grasping and transforming experience" (p. 41).

Prior to their one-on-one sessions, students received instruction on web portfolio technology using WIX online webpage development software and were asked to complete a draft of their portfolios before participating in these sessions. Using their resumes, academic records, and extracurricular activities as a starting point, students were asked to write draft reflections on the potential artifacts to be placed in their portfolio using a "What?", "So what?", "Now what?" model (Table 2) designed to help them connect past experiences with present understanding and future use or action.

Students were asked to apply these questions not only to course-related assignments, but also to work and internship experiences and extracurricular activities. Each individual artifact placed in students' portfolios was scrutinized in these sessions, using the written reflections as the basis for the ensuing conversations. Not surprisingly, students did a great job of answering the "what" question, but struggled with the "so what" or "now what" questions. The goal of this exercise was to have students reflect on the "hard learning" situated within their major courses of study, as well as to explore the development of their "soft" or "transferable skills" such as teamwork, communication, and leadership (Princeton Career Services, 2017). We hoped that students, by formally exploring and reflecting on these skills, would have a better sense of how to answer questions related to these topics in an interview setting.

Table 2
What, So What, Now What With Guiding Questions

Reflective category	Guiding questions
What?	What did I do?
	What was the assigned task?
So what?	What did I learn from this experience?
	What was the importance and/or significance of my discovery learning?
Now what?	How can I use the learning in the future?
	What am I prepared and equipped to do as a result of this learning experience?

An ePortfolio administrator who is also a member of the research team scored each of the mock interviews from both disciplines using a detailed interview quality rubric (Appendix A) designed in collaboration with faculty in the disciplines participating in this study and the career center staff. As career development experiences were investigated to determine how they impacted a student's ability to articulate his or her skills and experiences in an interview, it was predicted that there would be a progressive and positive difference in overall mock interview scores as students advanced through the various training opportunities, with the highest scores achieved by the students who participated in the one-on-one ePortfolio pedagogy training.

As a course requirement, students in HLTH 4190 create and add to an ePortfolio. To determine the impact that the one-on-one ePortfolio pedagogical training had on students' overall ePortfolios, the research team evaluated the 2015 health sciences ePortfolios in the study ($n = 29$) against those created a year prior in the same course ($n = 45$), taught by the same faculty member with technology training from the University Information Technology unit, but without the one-on-one ePortfolio pedagogy training. Again, in collaboration with the health sciences course instructor, the research team developed a detailed ePortfolio scoring rubric (Appendix B) and scored each of the 2014 and 2015 portfolios accordingly. Three students from the original 2014 roster deleted their online portfolio content prior to the research team's 2015 evaluation, and those items were removed from the overall dataset.

Data Analysis

To determine the difference in the quality of the ePortfolios, independent two sample *t*-tests were conducted to test for differences between students who produced an ePortfolio for the 2014 spring semester and students who produced portfolios during the 2015 treatment semester. In the second portion of the research project, to determine the differences between how each career treatment group in both disciplines performed in their mock interviews, a one-way ANOVA was used. Our baseline control group (Group 1) participated in mock interviews at the beginning of the semester, prior to any career development interventions. Group 2 completed the interviews after receiving career focused training on resume and cover letter development, with the health science students receiving additional interviewing technique instruction from their instructor; Group 3 completed the interviews after participating in the aforementioned career-focused training and ePortfolio pedagogical instruction.

Results

ePortfolio Comparisons

A quality ePortfolio, as determined by the research team, contains six primary components: high quality structure and navigation, correct grammar, in-depth reflection, integration of content, quality of content, and collaboration. The researchers also assigned an overall holistic score on the quality of the portfolio being evaluated. To answer the first research question (When students take part in a targeted portfolio development program, what is that program's impact on the overall quality of the career portfolios produced by participating students, compared to the portfolios produced without the program?), the relationship between ePortfolio pedagogical training and ePortfolio quality was examined. We determined that, across the board, there was an improvement in ePortfolio quality in the 2015 students for all rubric evaluation components, compared to the 2014 students who did not receive the study's targeted ePortfolio pedagogical instruction. Table 3 illustrates the average descriptive scores for each rubric component for each class of students. The results of an independent means *t* test, conducted through SPSS and as illustrated in Table 3, indicated that there was a statistically significant difference between the two groups of students related to the structure and navigation of the sites ($t[82] = 6.61$, $p = .000$, $d = 1.20$), their grammar ($t[82] = 2.99$, $p = .004$, $d = .57$), the holistic scores ($t[72.57] = 2.60$, $p = .01$, $d = .48$), and the overall summative total ePortfolio scores ($t[82] = 3.22$, $p = .002$, $d = 1.29$). It is important to note that the ePortfolio rubric scores were not normally distributed for each cohort, as assessed by Shapiro-Wilk's test ($p > .05$); however, we determined that these data were robust enough to proceed, given the relatively equal cohort group sizes. The assumption of variances was violated for the holistic score of the rubric, as assessed by Levene's test for equality of variances, and in that instance we provided the results from a Satterthwaite approximation.

Mock Interview Performance, Given Career Development Interventions

To answer the second research question (In what ways does the development of an ePortfolio, accompanied by targeted ePortfolio development sessions, impact the interview performance of students completing their undergraduate degrees and entering the job market?), we conducted descriptive statistics and one-way ANOVA analyses of our student mock interview data. To serve as the basis of our interview evaluation rubric, we determined that a student completing a high quality mock interview must be able

Table 3
Results of T-test and Descriptive Statistics for ePortfolio Rubric Evaluation and
Comparison Results of 2014 and 2015 HLTH 4190 Students

	2014 HLTH 4190 Student portfolios			2015 HLTH 4190 Student portfolios			95% CI for Mean difference	t	df
	M	*SD*	*N*	*M*	*SD*	*n*			
Structure and navigation	2.16	0.67	45	3.15	0.71	39	0.70, 1.30	6.61***	82
Grammar	2.38	0.78	45	2.87	0.73	39	0.16, 0.83	2.99**	82
Reflection	1.91	0.67	45	2.15	0.87	39	-0.09, 0.58	1.44	82
Integration	1.91	0.70	45	2.23	0.78	39	-0.001, 0.64	1.98	82
Content	2.33	0.83	45	2.49	0.91	39	-0.22, 0.53	0.81	82
Collaboration	1.40	0.58	45	1.56	0.72	39	-0.12, 0.45	1.16	82
Holistic score	1.93	0.62	45	2.33	0.77	39	0.09, 0.71	2.59**	72.57
Total score	12.09	3.32	45	14.46	3.42	39	0.91, 3.83	3.22***	82

Note: For the holistic score of the rubric, a Satterthwaite approximation was employed due to unequal group variances.
***$p < .001$. **$p < .01$. *$p < .05$.

Table 4
Descriptive Statistics for Mock Interview Rubric Evaluation, Comparing Control Group,
Career-Focused Intervention, and ePortfolio Pedagogy Intervention

	Control group 1 (Group 1)				Career-focused intervention (Group 2)				Career-focused and ePortfolio pedagogy interventions (Group 3)			
	M	*SD*	*n*	95% CI	*M*	*SD*	*n*	95% CI	*M*	*SD*	*n*	95% CI
Interview skills and techniques	1.58	0.51	12	1.26, 1.91	1.83	0.72	12	1.38, 2.29	2.50	0.64	28	2.25, 2.75
Personal attributes	2.25	0.13	12	1.96, 2.53	2.17	0.39	12	1.92, 2.41	2.71	0.46	28	2.54, 2.89
General attitude	2.33	0.49	12	2.02, 2.65	2.58	0.51	12	2.25, 2.91	2.46	0.58	28	2.24, 2.69
Self-promotion ability	1.75	0.45	12	1.46, 2.04	1.75	0.45	12	1.46, 2.04	2.00	0.52	28	1.85, 2.15
Response quality	1.92	0.79	12	1.41, 2.42	1.92	0.67	12	1.49, 2.34	2.68	0.48	28	2.49, 2.86
Total score	9.83	1.75	12	8.72, 10.94	10.25	1.71	12	9.16, 11.34	12.57	1.66	28	11.93, 13.22

to demonstrate several competencies: interview skills and techniques, personal attributes, general attitude, a self-promoting ability, and response quality. Those competencies served as the components of the mock interview evaluation rubric (see Appendix B).

Table 4 reveals the descriptive data of the mock interview rubric components, comparing across the three student groups. What was clear from that data was that, overall, with each progressive level of treatment the average interview score improved. When we examined the rubric competencies themselves, we discovered that this same trend emerged for almost all of the individual mock interview rubric areas, as the majority of scores either progressively improved or, on rare occasion, stayed the same.

For the most part, students completing the mock interview after participating in the ePortfolio pedagogical training (Group 3) demonstrated improved interview skills, conveyed engaging personalities, engaged in specific self-promotion, and provided adequately-timed responses to interview questions than Groups 1 and 2. However, Group 2 exhibited a more positive attitude than both Groups 1 and 3. In addition, Group 1 conveyed more engaging personalities than Group 2. One possible explanation for these findings could be related to the timing of the interviews, in that

Table 5
One-Way ANOVA of Mock Interview Scores by Career Treatment Groups

Rubric components		df	SS	MS	F	p
	Between groups	2	8.47	4.24	10.60	< 0.001*
Interview skills and techniques	Within groups	49	19.58	0.40		
	Total	51	28.06			
	Between groups	2	3.35	1.68	8.52	0.001*
Personal attributes	Within groups	49	9.63	0.20		
	Total	51	12.981			
	Between groups	2	0.38	0.19	0.63	0.536
General attitude	Within groups	49	14.55	0.30		
	Total	51	14.92			
	Between groups	2	2.79	1.39	6.09	0.004*
Self-promotion ability	Within groups	49	11.21	0.23		
	Total	51	14.00			
	Between groups	2	7.50	3.75	10.25	< 0.001*
Response quality	Within groups	49	17.94	0.37		
	Total	51	25.44			
	Between groups	2	83.75	41.87	14.58	< 0.001*
Total score	Within groups	49	140.77	2.87		
	Total	51	224.52			

the earlier in the semester the students did the interviews, the better their attitudes overall. Student interest and enthusiasm for this project may have waned as they progressed throughout the semester, leading to lower quality attitudes and personal attributes.

Unpacking Interview Improvements

To determine if the differences in interview skill improvements in the career instruction and ePortfolio groups were statistically significant, one-way ANOVA analyses were completed. Table 5 summarizes those results. The ANOVA we calculated first revealed a significant main effect for students' interview skills and techniques (F[2, 23.65] = 12.01, p = .0001, *partial* $\eta2$ = .30), personal attributes (F[2, 24.07] = 8.73, p = .001, *partial* $\eta2$ = .26), self-promotion ability (F[2, 24.13] = 6.02, p = .008, *partial* $\eta2$ = .20), response quality (F[2, 19.22] = 9.40, p = .001, *partial* $\eta2$ = .30), and their overall total score of all rubric components (F[2, 22.69] = 14.00, p = .0001, *partial* $\eta2$ = .38).

Since the homogeneity of variances was violated in these data, a Games-Howell post hoc analysis (see Table 6) revealed that the group who received ePortfolio pedagogy (Group 3) significantly outperformed both the control group (Group 1) and the group who received career-focused instruction (Group 2) in all rubric areas, with significant main effects. In addition, no statistically significant differences were found in interview scores between the control group

and the group who received career-focused instruction for any of these rubric components.

Taken together, these one-way ANOVA results suggest that ePortfolio instruction had a unique, positive effect on students' abilities to convey verbal and nonverbal information appropriately, to express engaging personalities, to participate in specific self-promotion, and to provide adequately timed responses to interview questions.

Discussion

The results of this study support the hypothesis that participating in ePortfolio pedagogical sessions positively affects students' performance in mock interviews in both the health sciences and bioengineering disciplines. After participating in these sessions, students developed a higher-quality ePortfolio overall than those who did not, based on the 2014 and 2015 health sciences comparisons. Moreover, after participating in one-on-one ePortfolio consultations, students from both disciplines were better able to articulate what they know and how they know it during the mock interviews, suggesting both a need for, and a benefit of, providing students ePortfolio pedagogical training based on the levels of career development interventions that they were given during the semester. It is also important to note that our research suggests that when career readiness training is combined with ePortfolio pedagogical training the overall effectiveness

Table 6
Games-Howell Comparisons for Treatment Groups on Rubric Components with Significant Main Effects

Rubric component	Comparisons	Mean difference	Std. error	95% CI for mean difference
Interview Skills and Techniques	Group 3 treatment vs. Group 1	0.92***	0.19	0.44, 1.39
	Group 3 vs. Group 2 treatment	0.67*	0.24	0.06, 1.28
	Group 2 vs. Group 1	0.25	0.26	-0.40, 0.90
Personal Attributes	Group 3 vs. Group 1	0.46*	0.16	0.07, 0.86
	Group 3 vs. Group 2	0.55*	0.14**	0.19, 0.90
	Group 2 vs. Group 1	-0.08	0.17	-0.52, 0.35
Self-Promotion Ability	Group 3 vs. Group1	0.46*	0.16	0.06, 0.87
	Group 3 vs. Group 2	0.46*	0.16	0.06, 0.87
	Group 2 vs. Group 1	0.00	0.18	-0.46, 0.46
Response Quality	Group 3 vs. Group 1	0.76*	0.25	0.12, 1.40
	Group 3 vs. Group 2	0.76**	0.21	0.21, 1.31
	Group 2 vs. Group 1	0.00	0.30	-0.75, 0.75
Total Score	Group 3 vs. Group 1	2.73***	0.60	1.23, 4.24
	Group 3 vs. Group 2	2.32**	0.60	0.84, 3.80
	Group 2 vs. Group 1	0.42	0.71	-1.36, 2.19

Note. *** $p<.001$, ** $p<.01$, * $p<.05$.

of the career center training increases. Furthermore, as Watson, Kuh, Rhodes, Penny-Light, and Chen (2016) pointed out, there is both a need and an opportunity to create closer connections between a student's formal records and credentials and actual evidence of learning.

Implications for Practitioners

The conclusions that we draw from this study suggest there is value in the *process* of developing an ePortfolio, particularly when ePortfolio pedagogies are applied. Another conclusion drawn from this study is that engaging students in purposeful and iterative self-reflective dialogue centered on evidence collected in ePortfolios positively improves their abilities to communicate their accomplishments in mock interviews, which could translate to actual interview settings. Furthermore, upon graduation, students with ePortfolios have the physical evidence of knowledge and self-reflection skills to form cohesive professional identities. This study provides evidence that supports the use of ePortfolios at the programmatic or institutional level for rising upper-class students who are reflecting upon their undergraduate experiences as they seek internships and full-time positions after graduation. That evidence can be helpful for ePortfolio administrators, career services directors/staff, and individual academic program coordinators/faculty.

Implications for Future Research

One implication from this study pertains to the scalability of the pedagogical training. The success of

this project was influenced by the inclusion of the ePortfolio pedagogy described earlier. Although the campus career center was enthusiastic about the results, they pointed out that most college and university career centers are not equipped to provide the one-on-one mentoring described in this paper. Moreover, prior experience with faculty suggests that they, by and large, are also unable to provide this support because of the time involved. Future expanded research on this topic could incorporate different approaches to the pedagogical instruction. For example, does replicating the one-on-one pedagogical training in a workshop setting, where the professor will pose questions to the class designed to engage students in deeper reflection and connection-making, yield the same benefits as the approach described in this paper? Another method for future research relates to the use of technology to scaffold students in the ePortfolio process, building prompts into an ePortfolio system that help students think through and answer the "what?", "so what?", and "now what?" questions, which could possibly address the scalability concerns posed by the career center.

Limitations

One possible limitation to this study pertains to the timing of the mock interviews. The fact that the ePortfolio pedagogy-related interviews (Group 3) took place at the end of the academic semester, compared to the other groups who completed their interviews at the start and the middle of the semester, respectively, may account, in a limited sense, for the higher scores, since

students may have learned and grown more in various aspects in those few weeks. It may also account for why Group 2 had a lower personal attributes score than Group 1 and why the Group 3 had a lower average general attitude score than Group 2, since they may have experienced an end of semester fatigue or malaise.

An additional limitation is the possibility of reviewer bias, since a member of the research team scored the mock interviews and it is possible that knowledge of which students received the additional training may have influenced the scores. This was an intentional action on the part of the research team to ensure consistency and comparability with the mock interview data collected for the health sciences students. Future studies will allow for this bias through a blind review of both the mock interview videos and student portfolios.

Concluding Implications

As (Fowler, 2012) pointed out, "a chasm exists in the literature between the use of the electronic portfolio for educational assessment and the job search" (p. 200). This research attempts to bridge the gap by shedding light on the benefits that the development of an ePortfolio has for students entering the job market. The data collected in this study confirm our initial predictions that engaging students in purposeful and iterative dialogue centered on the evidence collected in their ePortfolios positively influences their ability to communicate their accomplishments to a potential employer. Moreover, the opportunity to present this information in digital format makes the previously unseen visible to students and employers alike. We hope that this research encourages colleges and universities to support students in the development of career portfolios thus providing their students physical evidence of knowledge gained throughout their undergraduate experiences upon graduation. In addition, the development of an ePortfolio allows students to engage in the process of self-reflection and continuous professional identity development.

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Appendix A

Mock Interview Evaluation Rubric

Measure	3	2	1
Interview skills/techniques	Student follows instructions and look at the camera. Language and grammar is appropriate. Does not use "um" or "and". Speaks at the right speed.	Student follows instructions and looks at the camera. Language and grammar are adequate. Says "um" or "and" a few times, but not enough to disrupt the interview. Speaks a little too fast or too slow.	Student looks at the floor or ceiling when speaking. Grammar and language are not appropriate. Say "um" or "and" too many times. Speak too fast or too slow.
Personal attributes	Student is confident and poised during interview; right volume used, humor, correct grammar.	Student is somewhat nervous, some lapses in eye contact; speaks too loudly or softly.	Student is overbearing, overaggressive, egotistical; or shy, reserved, and/or overly nervous.
General attitude	Student is interested and enthusiastic about the interview.	Student seems interested but could be better prepared.	Student has lack of interest and enthusiasm is passive and indifferent; or student is overly enthusiastic.
Self-promoting	Student answers questions with reference to strengths, skills and abilities and how these will contribute to the position.	Student answers a few questions with some reference to personal strengths, skills and abilities.	Student answers questions in generalities with no reference to personal strengths, skills and abilities.
Responses	Student gives well-constructed, confident responses that are genuine and give specific examples.	Student gives well-constructed responses, but sounds rehearsed or unsure.	Student answers with "yes" or "no" and fails to elaborate or explain; or gives unfocused, long-winded responses .

Appendix B

Portfolio Evaluation Rubric

Measure	4	3	2	1
Structure navigation	Organization of the portfolio is logical and easy to follow relationships among portfolio elements are evidenced by workable hyperlinks and navigation elements (3 pts); Has no missing graphics and graphic files are appropriate format and load quickly (1 pt).	Organization of the portfolio is logical and easy to follow (1pt); Most of the elements are evidenced by workable hyperlinks and navigation elements. Has no missing graphics and graphic files are appropriate format and load quickly.	Organization of the portfolio is confusing; There are substantial problems with hyperlinks and navigation elements. Has missing graphics and graphic files are incorrect format and take time to load.	There are a significant number of missing and/or broken hyperlinks and/or graphics. Content is missing.
Grammar, spelling, and mechanics	Writer follows all guidelines for spelling, grammar, usage, mechanics, etc. Sentences are strong and have a varied structure (0 errors).	Sentences, for the most part, are strong and have varied structure. Writer follows most guidelines, but some sentences are unclear, uneven, or contain errors (May contain 1-2 errors).	Simplistic writing style following some guidelines, but sentences may contain multiple errors and are difficult to understand (1-3 errors).	Writer has difficulty following guidelines; most sentences contain numerous errors and cannot be understood (5 or more errors).
Reflection	Portfolio contains evaluation of strengths and weaknesses and lessons learned.	Portfolio contains limited evaluation of strengths and weaknesses.	Portfolio contains shallow introspection without strengths and weaknesses or a statement of learning.	Descriptive but not reflective statements.
Integration	Portfolio contains multiple pieces of evidence to demonstrate a range of content with extensive connections made across.	Portfolio contains multiple pieces of evidence to demonstrate a range of content with limited connections made across.	Portfolio contains single pieces of evidence within each section of that demonstrate a range of content with limited connections made across.	Portfolio has not connections across sections or within the entire portfolio.
Content	Portfolio has multiple pieces of evidence to demonstrate a range of content with depth of reflection and analysis.	Portfolio has multiple pieces of evidence with limited reflection.	Portfolio contains a single piece of evidence within each category with no reflection.	Portfolio contains no academic or professional evidence.
Collaboration	Portfolio includes a group project and provides an analysis of group interaction and must include student's individual role in project.	Portfolio includes a group project and provides a shallow analysis of group interaction. Portfolio may include a student's individual role in the project.	Portfolio includes a group project with no analysis of group interaction.	Portfolio does not include information about a group project.