1.INTRODUCTION

Being aware of own strengths and weaknesses, as well as the ability to choose the right path of development can improve students' employability. According to Mantz Yorke (2006, p8) employability is *"a set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment (…) ".*

Over the last dozen years, many studies were done to indicate the benefits of electronic portfolios (ePortfolio) in higher education. Some of them suggest that ePortfolios may help students to learn how to develop their identities as being professionals (Alvarez and Moxley, 2004; Schatz, 2004).

This research addresses the problem of employability faced by students due to lack of ability to perform self-assessment, which is very important for self & career development. This study examines whether implementation of ePortfolio can enhance employability among university students.

Literature review strictly concerns articles related to the implementation of e-Portfolio in the academic environment and its impact on the professional development of students.

2.PROBLEM STATEMENT

Due to the rapid development and changes in the employment sector over the past several years, the employability is the biggest issue that students have to wrestle with. (Sarkar, Overton, Thompson, Rayner, 2016). In 2010, Jim Cumming analysed various publications and presented conclusions that strongly confirm that UK and Australian graduates do not have or cannot prove sufficient skills, which makes it difficult for them to find their place on the labour market.

This project addresses the problem of employability among university students, focusing on the trouble of identifying essential skills, including soft skills. The ePortfolio app with self-assessment skills audit for mobile devices will be integrated with the new Solent Futures Abintegro website, which offers many useful e-learning courses that can enhance students' employability skills.

3.RESEARCH QUESTION

How the implementation and promotion of the ePortfolio app can enhance 3rd year Solent University students' awareness of their skills and empower their employability after graduation?

4. LITERATURE REVIEW

4.1 Search protocol

A search of the online academic database ScienceDirect.com was undertaken. The following search query was used:

(eportfolio OR e-portfolio OR electronic portfolio) AND student development AND employability AND (skills OR skill)

Then, the following inclusion and exclusion criteria were applied:

Inclusion criteria:	**Exclusion criteria:**
• The studies that focus mainly on self-assessment of skills and implementation of ePortfolios in HE institutions • Date: 2010-2018 • Language: English only • Published in peer-reviewed journals • Studies took places in a higher education setting • The study reported research methods and results	• A study in a different language than English • Non-peer reviewed articles • The research took place before 2010 • The study did not take place in a higher education setting • The study does not report methods and results

The process above resulted in 5 good quality articles (see Appendix 1). All the studies were analysed and compared, which is presented in the next paragraph.

4.2 Studies review

Referring to the topic of ePorfolios, Wakimoto and Lewis (2014) presented the results of a several-year study conducted on three cohorts of students in order to uncover their perceptions of the value of ePortfolios. The participants needed to be in their second year of 2-year counselling school or in the second or third year of 3-year school psychology. The researchers prepared an online survey that consisted of ten quantitative and six open-ended questions, that was conducted at the end of the academic year to gain students experience and opinion about Eportfolios usefulness. Over the academic year, all the participants received professional help in building ePortfolios using the Google Sites. A the beginning of the experiment, the expectation, standards

and evaluation criteria for the eportfolios has been presented to students. The result of the questionnaire shows that overall students' satisfaction of constructing and using eportfolios is reasonably good. The students noticed that building the eportfolio allowed them to see their growth, as very often students' achievements can be forgotten over time. It can be noticed, that there are significant differences in results between counsellors and psychologists. The differences might come from the fact that psychology students additionally had to prepare a paper-copy of the portfolio. As a result, for psychology students, the implementation of the eportfolio seemed to be unnecessary, additional work. Interestingly, this is mainly observed for 2013 psychologists, although 2012 psychologists also had to prepare both versions of the portfolio so that unknown other factors could have an additional impact. The study has some limitations, as the sample group is quite small, and it involves only one university. Additionally, it can be noticed that the results are not patently clear, as the psychology groups were influenced by an additional factor - paper portfolio. The counselling school did not have to do that, therefore the result does not show clearly whether the differences come from the various types of schools or because of the presence of the paper portfolio. What is more, the study took place seven years ago, so the students' approach to technological novelties could definitely differ from today's.

A similar study on ePortfolio usefulness was conducted by Aikaterini Alexiou and Fotini Paraskeva (2015), which performed experimental research among computer science students. Forty-one undergraduates students voluntarily participated in this study – they were described as an experimental group. Before the introduction of eportfolio (Apt^{2}iMySelf ePortfolio), students completed a pre-test to measure their knowledge about ePortfolios before the experiment. The test consisted of nine close-ended and one open-ended question. Additionally, the self-report questionnaire based on key competencies was performed before and after the research. Based on OECD Program Definition and Selection of Competencies (DeSeCo) research results (Rychen and Salganik, 2003), key competencies were classified into three categories: KC1 – the ability to relate to others, KC2 – ability to conduct life plans and personal projects, KC3 – ability to use knowledge and information interactively. The results showed that students' knowledge about eportfolio tools was minimal, as 97.6% of participants answered that they weren't familiar with ePortfolio, what's interesting almost 47% of students were afraid of possible implementation difficulties. The t-test was used to measure the difference between pre-test and post-test results. For all Key Competences KC1, KC2 and KC3 the contrast between the pre-test and post-test was significant, confirming the developing of key competencies after Apt^{2}iMySelf ePortfolio implementation. This study sample is also very small so that it can be taken into account as a study limitation. Compared to the previous study, the results are surprisingly positive. It may be influenced by the selected group for the

experiment because in this case, the group consisted of computer science students, so by assumption, their knowledge and approach to technology is definitely different than, for example, psychologists.

Two researchers, Baris and Tosun in their study (2013) also decided to take a closer look at the impact of ePortoflio on students' successes. The research involved 66 IT and 136 Electricity-Electronic Technology students, so totally 202 students took part in the test. Baris and Tosun decided to use Pretest-Posttest Control Group Trial Model in this study; Academic success test (pretest) was applied to students at the beginning of 18 weeks experiment, and again once they finished (posttest). The participants were split into two groups: the test group and the control group. On the test group, the ePortfolio supported education was applied, while on the control group the traditional in-class education was made. As results, quantitative and qualitative data was obtained and subsequently has been analysed using a t-test. The Academic success pretest scores of the test group (average: 60.7) found to be higher than the scores of the students in the control group (average: 50.8). Same for posttest, test group average score was 70.94, while the control group average score was 62.66. The Mann–Whitney U test outcome did not confirm the significant difference between the results of academic success pretest and posttest of test and control groups. Researchers assumed that higher posttest score of the test group might be a sufficient argument to confirm that the implementation of the ePortfolio has a positive effect on academic success. However, the statistical result of the study does not explicitly prove that.

The next study does not address the topic of e-portfolio directly but describes how self-assessment can strengthen employment ability (Marais & Perkins, 2012). The sample consisted of twenty-seven students from Health sector courses. At the beginning of the academic year 2010/2011, all participants completed the online self-assessment skills audit (SSA), prepared based on the employability profile created for Health sector studies (Rees, Forbes, Kubles, 2007). Subsequently, each student had an informal meeting with the Programme Coordinator to develop their personalised development plan. Participants were also asked to update their ePortfolios subsequently of any evidence of development activities, which were proposed to them, based on SSA and exercises results that helped them identify their weaknesses and strengths. After four months, they were invited to complete the reflective activity and prepare a development plan for another six months. The results of SSA helped to find the areas for improvement, like preparing publications (70%), or difficulty in creating UK-style CV (67%). What is most vital for this study, 33% of students answered that SSA was good, useful (15%) and helpful (11%). Additionally, participants mentioned that completion of SSA provided insight into their strengths and weaknesses, what allowed them to plan their development more effectively. Unfortunately, in practice, only a few

students used their ePortfolio and stuck with their development plans. What is disappointing the attendance for suggested workshops also was very poor. The most significant limitation of this study is a very small sample group, low involvement of participants, and the lack of a control group. Undoubtedly, based on this research, it can be confirmed that the self-assessment skills audit helped students find the right career path, but it is noticeable that despite this knowledge and opportunities they have had offered, they did not develop, which may be influenced by another factor.

Another study on ePortfolios was conducted by Wiam E.Elsham Mohamed, M.Abuzaid, Shaista S.Guraya and Leena R.David (2018) during the academic year 2016 -2017, which makes its results the most significant. In this case, they wanted to check the possible impact of ePortfolio on radiography students one year after implementation. Data were collected using the 5-point scale questionnaire consisted of 20 questions about their experiences using Eportfolios, and its role in students' learning. Sixty-six of seventy-five invited students took part in the survey voluntarily. 61% of participants stated that Eportfolio enhanced their professional skills and 55% of respondents expressed willingness to use ePortfolio in the future. What interesting only 9% of students used ePortfolio before. According to the study analysed above (Alexiou &Paraskeva, 2015), where 97% of students did not know about ePortfolios before the experiment, can be confirmed that the students' knowledge about ePortfolios and its possibilities is very limited. Additionally, descriptive statistics showed that students believed that ePortfolio could help them to do their self-assessment of skills because they can judge the progress of their development, which has been confirmed in all analysed studies. What is more, this study checked how participants used the e-portfolio. Without a surprise, most students used the laptop (38), although 14 students also used the mobile for this purpose, which shows the potential for creating ePortfolio for mobile devices.

5. METHODOLOGY

Throughout the entire project, mixed method research data collection will be used. Quantitative and Qualitative data will be integrated in order to obtain valuable results.

Based on the conclusions from the literature analysis, before the implementation of new ePortfolio app, the open-ended and closed-ended questions survey will be carried out, to examine students' knowledge about this tool, just like the pre-test in one of reviewed study (Alexiou and Paraskeva, 2015). Solent University students should be familiar with the term of ePortfolio because they currently have access to "MyPortfolio" on the SOL website. However, based on analysis, in spite of many existing profiles, only a few are actively used.

The research group will be created from the volunteers that will be at the beginning of their 3rd year or study. What is important, they can be students of any Solent University Academic School.

Subsequently, supporting the methodology used by Baris and Tosun in their study (2013), students will be divided into two groups: the test group and control group. At the beginning of the academic year test group will be asked to create ePortfolio and complete the self-assessment of their skills (which will be related to their course). The idea of the ePortfolio app is to help them to find the right development path, become attractive for a potential employer and minimise skills gap. On the control group, the traditional education will be made, without implementation of self-assessment skills audit and ePortfolio app.

After six months of the experiment, the mixed methods survey will be conducted among both groups. The questionnaire will ask students to identify their strengths and weaknesses, as well as position themselves in their career development paths. The results from the test group and control group will be compared to indicate if students that used ePortfolio app are more aware of their skills, abilities, strengths and weaknesses than students from the control group.

Moreover, 5-points Likert scale will be sent to the students from the test group to measure the usefulness of ePortfolio app or indicate any difficulties.

6.LEGAL ETHICAL AND SOCIAL ISSUES

According to the Data Protection Act 2018, all participants will receive the Participant Information Form (PIF) and the Participant Consent Form (PCF). This document will be written using a plain language and distinctly explain the research at the level of understanding of potential contributors. Participation in the project will be voluntary. All students will be informed about:

- Contact information:
    - Details of the leading researcher,
- The purpose and goals of the research:
    - Duration of the study,
    - Explanation of the potential benefits of the research;
- Data collection:
    - Explanation of the data collection methods and techniques,
    - The confidentiality with which data will be stored,
    - Information about how long data will be kept,
    - Clearly defined the purpose of processing data,
- Voluntary nature of participation:
    - The right to withdraw at any time,
    - After withdrawal information collected may still be used.

7.CONCLUSION

The primary goal of this research is to prove the efficacy of ePortfolio app in students' career development. This useful tool helps students to identify strengths and weaknesses so that the right way to maximise their professional development can be chosen. The literature review confirms that the introduction of the ePortfolio in the past generally had a positive effect on students' employability awareness.

Considering all the limitations and difficulties of the analysed studies, the methodology for this project was proposed. The project consists of the design and implementation of the ePortfolio app, with the possibility of self-assessment of skills among 3rd-year students of the Solent University.

The goal of this project is to obtain valuable qualitative and quantitative data that will allow to check whether the introduction of the application mentioned above will enhance the employability of students participating in the study.

8.APPENDICES

8.1 APPENDIX 1: Summary of literature review

Authors	Year	AIM	METHODS	FINDINGS
M. Fatih BARIS Nilgün TOSUN	2013	To emphasise the influence of ePortfolio on the learning attitude and students' success.	Pretest-Posttest Control Group Trial Model: a total of 202 students took place in the research. Control group (110) and test group (92). The survey that tested knowledge about the eportfolio and academic success test was performed twice (pretest-posttest), as a result, quantitative and qualitative data was obtained.	The pretest scores of the test group found to be higher than the scores of the students in the control group, the same for posttest. Researchers suggest that implementation of ePortfolio has a positive effect on students' academic success.
Diana K.Wakimoto, Rolla E.Lewis	2014	The study was performed to check the graduates' feelings about creating and developing ePortfolios.	In research, an online survey was used which consisted of 10 quantitative and 6 open-ended questions. 70 participants took part in the study. Descriptive statistic was used to analyse quantitative data from the survey.	Overall, students found the eportfolios to be useful in understanding their strengths and weaknesses. Also, they valued the hands-on training opportunities.
Alexiou Aikaterini, Paraskeva Fotini	2015	An experimental study to check if the introduction of eportfolio will empower students to manage the learning process better and enhance their key competencies.	Experimental group of 41 undergraduate students that participated in the experiment voluntarily. Self-report and pre-test were conducted. The self-report consisted of 9 close-ended and 1 open-ended questions.	Pre-test results indicated that 98% of students weren't aware of eportfolios before, however self-report showed that 95% of participant feel positive about implementation ePortfolios. The results also show that eportfolio enhanced students' key competencies.

Wiam E.Elsham Mohamed, M.Abuzaid, Shaista S.Guraya, Leena R.David	2018	The possible impact of ePortfolio on radiography students.	5-point scale questionnaire consisted of 20 questions was sent to 75 students after one year of implementation of eportfolio; an additional descriptive statistic used to analyse the results.	61% of students stated that Eportfolio enhanced their professional skills and 55% of respondents expressed their willingness to use ePortfolio in the future.
Marais Debbi, PerkinsJoy	2012	Presenting benefits of implementation self-assessment skills audit as well as identification of areas for improvement in order to become an employable graduate.	Online self-assessment skills audit (SSA) completed by 27 full-time students. The sample included 17 females and 10 males with age between 22 and 52.	43% of participant confirmed that SSA helped them to identify strengths and weaknesses and to plan their career development.

8.2 APPENDIX 2: Timeline of the project - the expected task's duration

TASK NO.	TASKS NAME	MONTHS										
		1	2	3	4	5	6	7	8	9	10	11
1	RESEARCH IN ORDER TO CREATE USER-FRIENDLY APP											
2	CREATING THE APP											
3	CREATING RESEARCH GROUPS – PERFORMING THE FIRST SURVEY ABOUT PORTFOLIO											
4	APP IMPLEMENTATION; EXPERIMENT IN PROGRESS (6 MONTHS)											
5	SURVEY FOR BOTH: TEST GROUP AND CONTROL GROUP											
6	SURVEY FOR TEST GROUP ABOUT EPORTFOLIO EXPERIENCE											
7	ANALYZING THE RESULTS											

9.REFERENCES

ALEXIOU, A. and F. PARASKEVA, 2015. Inspiring Key Competencies Through the Implementation of an ePortfolio for Undergraduate Students. , pp.2435-2442Available from: http://www.sciencedirect.com/science/article/pii/S1877042815043086

ROSEGRANT A, ALVAREZ, MOXLEY DAVID, 2004. The Student Portfolio in Social Work Education, Journal of Teaching in Social Work, 24:1-2, 87-103, DOI: 10.1300/J067v24n01_06

BARIS, M.F. and N. TOSUN, 2013. Influence of E-Portfolio Supported Education Process to Academic Success of the Students. , pp.492-499Available from: http://www.sciencedirect.com/science/article/pii/S187704281303810X

CUMMING J, 2010. Contextualised performance: reframing the skills debate in research education, Studies in Higher Education, 35:4, 405-419, DOI: 10.1080/03075070903082342

ELSHAMI, W.E., et al., 2018. Acceptability and potential impacts of innovative E-Portfolios implemented in E-Learning systems for clinical training., pp.521-527 Available from: http://www.sciencedirect.com/science/article/pii/S1658361218301033

MARAIS, D. and J. PERKINS, 2012. Enhancing Employability Through Self-Assessment. , pp.4356-4362Available from: http://www.sciencedirect.com/science/article/pii/S1877042812019908

SCHATZ, M. S., 2004. Using portfolios: Integrating learning and promoting for social work students. Advances in Social Work, 5, 105-12

WAKIMOTO, D.K. and R.E. LEWIS, 2014. Graduate student perceptions of eportfolios: Uses for reflection, development, and assessment. , pp.53-58Available from: http://www.sciencedirect.com/science/article/pii/S1096751614000037

YORKE, M., 2006. Employability in higher education: What it is – what it is not. (Learning and employability series 1). York: Higher Education Academy.

SARKAR, M. et al., 2016. Graduate Employability: Views of Recent Science Graduates and Employers, International Journal of Innovation in Science and Mathematics Education, 24(3), 31-48