

Applying Pilot E-Portfolio in Some of Vietnam's Institutes

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ABSTRACT

E-Portfolio is a method for learners to record what they are taught and what they study. This method helps learners reflect on their understanding, which means understanding more deeply the content of study and research. In addition, E-Portfolio is also a formula for learners to show their competencies to viewers (friends, teachers, employers,), increasing opportunities for scholarship applicants, and the job in the future when showing students' abilities through the process. The paper overview the types of E-Portfolios, and the current situation of the implementation of E-Portfolio at educational institutions in Vietnam, especially at schools before joining EMVITET project. The paper also shows the method and steps to be taken to disseminate and effectively deploy E-Portfolio to students. Based on the evaluation of the results of the pilot application, the paper also draws out the difficulties students face in the implementation process so that the teachers or the schools have the appropriate support for easier implementation and evaluation.

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1. Introduction

Nowadays, the development of digital Industry 4.0 and the introduction of high-tech Information & Communication Technology (ICT) systems in education bring new requirements to both teachers and students. Industry 4.0 has brought the new Education 4.0 paradigm, which focuses on the lifelong learning conceptions while developing education and skills, and has created a future space to be more intelligent, customized, hyper, portable, worldwide, and virtual (Aida Aryani Shahroom, Norhayati Hussin, 2018). Thus, how to support students in these digital applications can be viewed as a central online repository of academic work where students can reflect, engage and become active participants in their work. An E-Portfolio is assigned as an “electronic portfolio”: a digital store of demonstrations and artifacts that performs the knowledge, skills, and accomplishments of an individual or group (George Lorenzo, John Ittelson, 2005). They can include a diversity of resources such as evidence of successful projects; proof of competencies and skill advancement in the form of certificates and badges; and significant experiences and achievements. E-Portfolios have become an essential aspect of the e-learning process because of their capability to cultivate students' growth, constructivism, and critical reflections on learning. It also has become an ideal approach for academic and professional progress.

E-Portfolio was mentioned in Vietnam 10 years ago. However, at present, the approach and implementation of E-Portfolio in the education system is just at the level of collecting and organizing information rather than knowledge development and skills, and not many universities and institutes use E-Portfolio to recognize learning content and as an assessment of the achievement of students. The

development of E-Portfolio for learners needs to have specific criteria and the organization processes more synchronously to achieve the purpose of using E-Portfolio that describes the competencies of learners and Lifelong learning. Currently, Thu Dau Mot University installs a complete website for their students. They have adopted Mahara as a campus-wide E-Portfolio platform. This E-Portfolio will allow students to cultivate and share their academic, personal and professional accomplishments and build a professional online presence while at and after graduation (<https://eportfolio.tdmu.edu.vn/>). Most of the requirements of creating an E-Portfolio are based on the suggestion of teachers. They have students complete the E-Portfolio as a learning space for English essays. (Pham Thi Bich Hanh, 2020). The E-Portfolio is not only used for finding out the students' competency but also for teachers' competency. In order to improve the capacity and quality of teachers, the quality of teachers in terms of both knowledge and practical teaching skills (Do Thanh Toan, 2014).

In the context of Vietnam, teachers have not applied the E-Portfolio much in teaching. Teachers at Ho Chi Minh City University of Technology and Education - HCMUTE; University of Technology and Education University of Danang - UTE-UD; Lac Hong University - LHU; College of Technology II - HVCT had the opportunity to deeply approach E-Portfolio in learning through the EMVITET project. 100% of participating teachers were well aware of the benefits of E-Portfolio such as developing self-assessment skills, self-study skills, creating learning motivation for students, etc. In particular, the e-Portfolio also is a tool to help students introduce themselves to employers in an attractive way that increases job opportunities for students. As part of the project EMVITET, member schools have piloted the E-Portfolio in assessing student learning. Therefore, to make appropriate adjustments and spread the benefits of E-Portfolio in teaching and encourage teachers to use it, the goal of this study is to evaluate the current status of E-Portfolio application at universities, the advantages and disadvantages in implementation to propose solutions to apply E-portfolio more effectively.

2. Content

2.1. Research Method

Research method E-Portfolio is carried out in stages: 1/ Building a set of criteria for assessing knowledge, skills, and attitudes of the courses (in this research, 14 questions are set up to do the survey. The survey focuses on technical skills when implementing E-Portfolio, reflects the knowledge, self-assessment on learning and skills improvement when using E-Portfolio, difficulties, and advantages of implementation of students). 2/ Applying E-Portfolio in the classroom. This stage requires a lot of time for the teacher to assist students in better understanding, taking notes, and reflecting on knowledge. Applying steps in the classroom will be detailed in Section 2.2.3. 3/ Do surveys (the research uses Google Forms) on 177 students from 4 institutions (HCMUTE, UTE-DN, LHU, HVCT) in different disciplines such as Automotive Engineering, Electrical - Electronics Engineering, and Information Technology in different courses such as Database, Graduate, Multimedia Technology, Workplace Skills. 4/ Clean data and evaluate data. Teachers evaluate the content on Students' E-Portfolios, as well as evaluate the effectiveness and difficulty when applying E-Portfolio to students

2.2. Literature Review

2.2.1 E-Portfolio definitions

E-Portfolio is a versatile tool that has some pedagogical and career benefits. They allow students to make their reflection performance, gain feedback and prepare their stylish work for future employers or clients. With the right planning and vision, institutions can suggest a platform that allows students to produce an E-Portfolio based on the courses of their degree to boost their learning and leave school with a practical and essential tool to help them obtain useful work and pursue their dreams.

The implementation of E-Portfolio at institutions has become a greater possibility or expectation to enhance not only the competency of the learning experience of students but also further improve and strengthen their entrepreneurial skills.

2.2.2 *Types of portfolios*

There are many kinds of classifying the E-Portfolio, according to the Clemson University (Clemson, 2022) categorizes portfolios into three main types: Learning portfolio, assessment portfolio, and showcase portfolio.

Learning portfolio has been used to facilitate, document, and archive student learning. It is a learning tool for students to clarify their educational goals, integrate and solidify learning through reflection, and showcase achievements to potential employers. By knowing to reflect on what they learned, how they learned it, and how important they learned, they start to take control of their literacy. As students select their representative work and reflect on what they learned, they start to make sense of their educational experiences in diversity courses and decide to extract new meaning (Banta, 2003).

Assessment portfolio is the specialty of portfolio assessment, which can contribute the evidence items and learning outcomes (Amaya P Agudo J E Sánchez H Rico M and Hernández-Linares R, 2013) and portfolio assessment is suitable for active learning. Due to the portfolio as an alternative method of assessment for students (A. Juhanda, A. R. Wulan, and A. Fitriani, 2015) but using E-Portfolios is very efficient and easier (Popescu-Mitroi, Maria-Monica & Todorescu, Liliana & Greculescu, Anca, 2015) so students can improve their skills in determining self-assessment when students still have difficulties in completing assignments. E-Portfolio is a student assignment that is compiled digitally and systematically with continuity in one semester (M. F. Baris and N. Tosun, 2013) including the skills of audio, video, graphic, and text format (Ramlawati, Liliyasi, M. A. Martoprawito, and A. R. Wulan, 2014). The E-Portfolio development was created with 5 stages according to Ivers & Barron (Barrett H., 2000) namely 1) Assessment 2) Planning / designing 3) Development 4) Implementation 5) Evaluation. On the other hand, applying an E-Portfolio based on Google Sites to evaluate the extracurricular activities of Vietnamese students in the credit-based training system (Phan, Le, and Doan, 2017).

Showcase portfolio gives students another pathway to show potential employers their competencies. An academic transcript doesn't always tell the full story of a student's skills, and E-Portfolios let people fill in gaps and expose soft skills that aren't clear on a résumé (Sonia Ferns, Jude Comfort, 2014). E-Portfolios are also an effective way to enhance the reach and utility of digital badges. Being able to connect earned diplomas with a professional portfolio can be very valuable. Having these resources in one place allows peers and employers to match a name and face with the badges, achievements, evidence, and artifacts that indicate a promising candidate for hire or promotion. The other research gives the analyses the strengths and weaknesses of the E-Portfolio as a tool for the job search and of the various aspects of preparation for employment (Elba Gutiérrez-Santiuste, Sonia García-Segura, María Ángeles Olivares-García and María Ángeles Olivares-García, 2022).

2.2.3 *Steps of applying E-Portfolio in the classroom*

According to G. Roberts (2006), in order to make an assessment well, it is necessary for: The teacher announces the objectives and learning outcomes; Students participate in self-assessment and peer assessment; feedback results for students to suggest the next steps in learning. In addition, to use E-Portfolio effectively, Barrett (2003) believes that it is necessary to establish a culture of evidence. This means that assessment must be based on specific evidence that is consistent with the learning outcomes or objectives of the course. This evidence is not only the actual products of learning but also includes arguments for why. These also are the reflections of the students themselves.

Reflection is an essential feature and is an indispensable part of an E-Portfolio. So, the Gibbs reflection model can be used to guide students to reflect on their learning. This model was developed by Graham Gibbs in 1988. The Gibbs model consists of six stages (Fig 1) such as description, emotions, evaluation, analysis, conclusion, and action plan. Corresponding to each stage is described as some guiding questions to help students self-assess their learning process. Specifically, as:

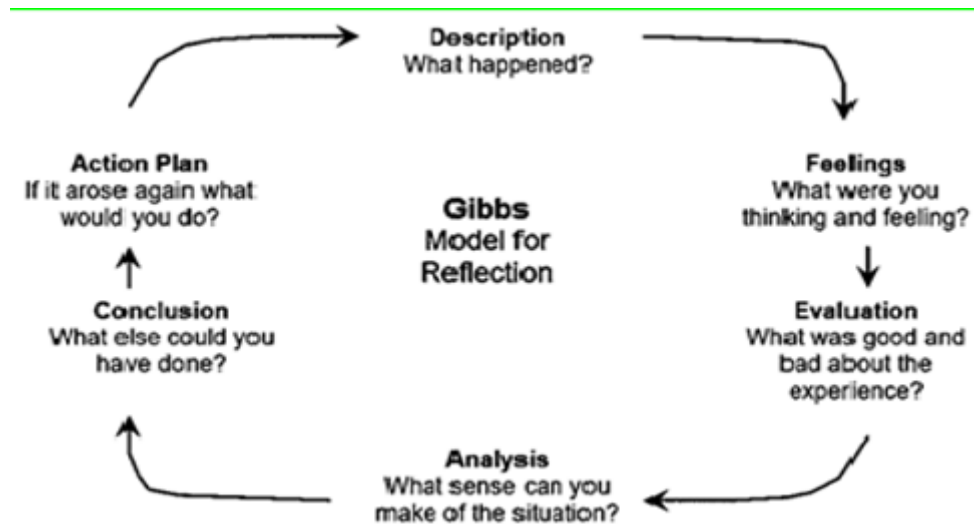


Figure 1. Gibbs reflective cycle

As a result, this research applies E-Portfolio in learning assessment that is based on steps such as:

- Step 1: The teacher designs a competency checklist to match to the learning outcome of the subject, and determines competencies (knowledge, skills, attitudes) that need to be assessed. Teachers design assessment activities and expected outcomes for students to achieve.
- Step 2: The teacher introduces the form of assessment through the subject's E-Portfolio and explains its benefits. Because when students perceive the value, the benefits of work will be motivated to work better.
- Step 3: The teacher states the requirements and the expected information that needs to be shown in the E-Portfolio, and gives a sample of the E-Portfolio to students. The teacher guides how to design an E-Portfolio based on the evidence, and the components are required in the E-Portfolio.
- Step 4: The teacher disseminates the E-Portfolio evaluation criteria, such as: Fully using evidence to follow the objective; reflecting on the learning process; Having personal information of learners; Beautiful and impressive interface; Interaction and feedback of other students; etc.
- Step 5: Introduce tools to support building an E-Portfolio. The current E-Portfolio design support tools such as Blog, Google Site, WordPress, Sharepoint, Mahara, etc. The teacher agrees with students to choose appropriate design tools.
- Step 6: Teacher supports/guides students to design E-Portfolio. To help students overcome difficulties, teachers guide students on how to design and choose evidence that is suitable for their goals and how to self-assess/reflect through the Gibbs model.

- Step 7: The teacher monitors the E-Portfolio, evaluates and gives feedback; Encourages other students to self-assess and comment on each other. To do this, teachers ask students to send a link to the online teaching system of the subject that is available on the LMS (Learning Management System). Also, the teacher can create links to students' E-Portfolios on online forums.

2.3. Results of Applying e-Portfolio in the Classroom

With an assessment of the relation of the course's final mark to the development of an individual student's E-Portfolio, which students use to document the knowledge and activities they have performed during the course. The results show that students who regularly interact and take notes on E-Portfolio will have good academic results. Fig 2 showed that 41 students (25%), who had good interactions on E-Portfolio achieved excellent course results from 9 to 10 marks. The course marks dropped steadily with the quality of the student's E-Portfolio. 58 students (33%) with fair content achieved around 7-8 marks while 70 students (40%) with sparse content got 5-6 marks and 5 students with no interaction gained less than 5 marks. In Fig 2, 3 students did not have E-Portfolio interaction but still scored 9-10 marks because they implemented the project with the team and made the document in the team channel, not making a private E-Portfolio.

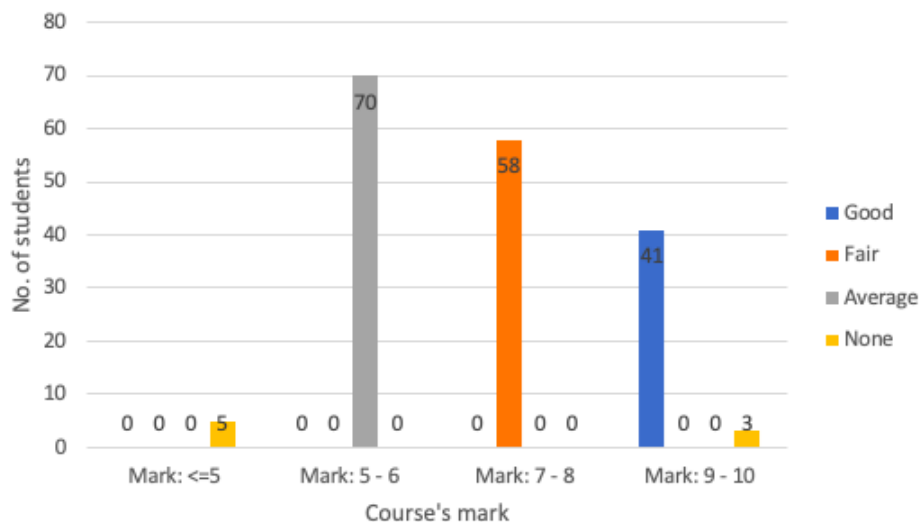


Figure 2. The relation of update e-Portfolio and course's mark

2.4. Students' Perspective on Applying E-Portfolio in the Classroom

Students' E-Portfolios have been deployed at HCMUTE, UTE-UD, LHU, and HVCT. This experiment focused on assessing the level of access and difficulty of students when implementing E-Portfolio in their learning process within the implementation period of 1 semester. During this semester, students use E-Portfolio to record and reflect on the content they have learned and researched. At the end of this period, there are feedback themselves when applying E-Portfolio to summarize the knowledge in the term.

The survey was conducted with 177 students. Before instructing students to implement E-Portfolio, a quick survey on the concept of E-Portfolio showed that up to 150 students surveyed did not hear or know anything about E-Portfolio, accounting for 85%. 20 students (11%) have heard but do not understand the meaning of building an E-Portfolio. There are only 7 (4%) students who know the benefits of E-Portfolio as in Fig 3.

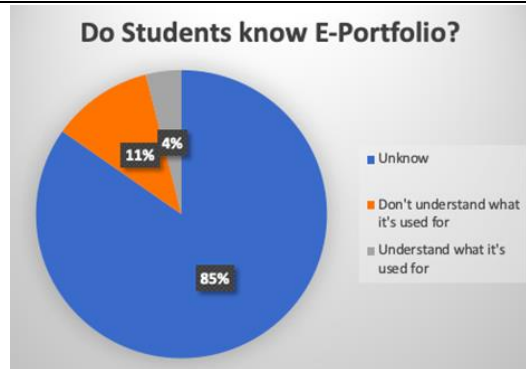


Figure 3. Quick survey before implementing the E-Portfolio for students

Students use many different platforms to design their E-Portfolio, of which the highest percentage is Google sites. Survey results show that 119 students use this platform, accounting for 67%. The second most popular platform is Microsoft Teams, accounting for 11%. Other platforms make up a rather small percentage and are shown in Fig 4.

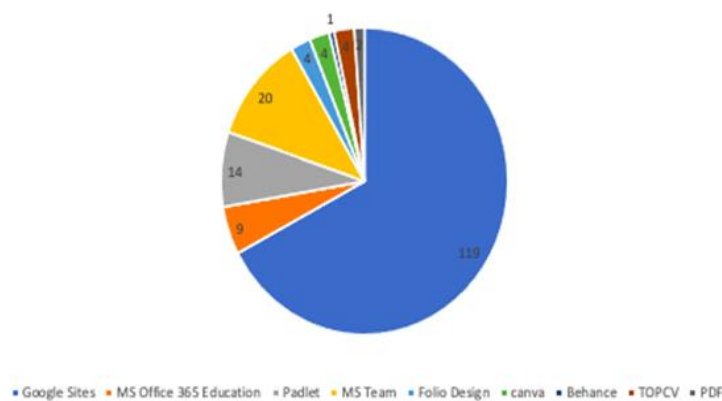


Figure 4. Platforms to design E-Portfolio

Assessing the approach to technology to design an E-Portfolio. There are 139 students (79%) who can easily use the available platforms to create an E-Portfolio without the guidance of the Lecturer. However, up to 38 students (21%) still have some difficulties because they are not familiar with these tools, and it takes time to use the platform's functions (Fig 5). The most used platform of choice is Google Sites, 77% of students are self-learning and can create a professional E-Portfolio by themselves and 23% of students using this platform still have few obstacles in the early stages (Fig 6).

An important phase of building an E-Portfolio is the content and how it is presented in a coherent way to represent personal analysis and reflection. This phase takes a certain time to see the change and development of each individual. Up to 75% of students encountered difficulties in the process of writing and evaluating the content learned on the E-Portfolio. Although many students have difficulties when doing E-Portfolio, the survey also noted some advantages of students when doing it. This shows that the implementation is feasible and needs more time for students to get used to this activity. Table 1 shows some difficulties and advantages noted when students present the content on E-Portfolio.

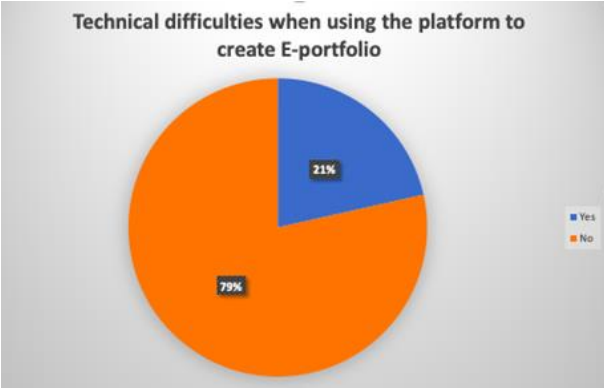


Figure 5. The percentage of students who have difficulty using technology to create E-Portfolio.

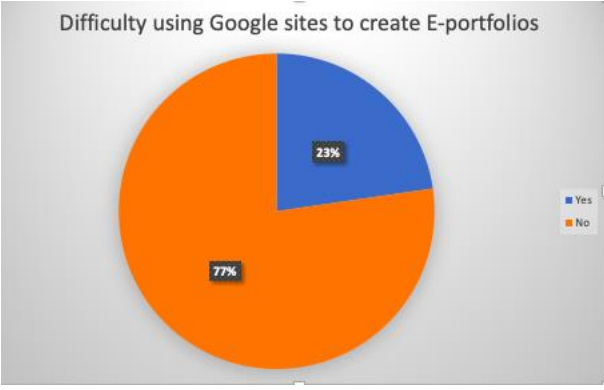


Figure 6. The percentage of students who have difficulty using the most used platform to create E-Portfolio - Google Sites

Table 1. Difficulties and advantages noted when students present the content on E-Portfolio

| Difficulties | Advantages |
|---|--|
| <ul style="list-style-type: none"> - How to write content according to personal understanding (reflection) - Students don't understand the content so they don't know how to write and evaluate. - Weak analytical ability to reflect. | <ul style="list-style-type: none"> - Present the whole process - Have an overview of the content or the problem - Deep learning - Easy to review |

Writing an E-Portfolio to improve students' expertise and soft skills will be more effective when the content is presented with reflections. The survey also recorded two kinds of students when self-reflection. Most of them have not reflected. The reasons are presented in Table 2.

Table 2. *Reasons why students do not self-reflection and why students reflect on themselves*

| Reasons why students do not self-reflection | Reasons why students reflect on themselves |
|---|--|
| <ul style="list-style-type: none"> - Cannot be objective when self-assessment or reflection - You can only see your strengths, not your weaknesses. | <ul style="list-style-type: none"> - Self-reflection is best. - Know exactly how well my understanding of the content or problem is. - Know the weakness to improve |

After the implementation period (at the end of the semester), the most progressive points that students achieved through writing content/reporting using E-Portfolio as well as the change in students' learning methods when applying E-Portfolio are shown in Table 3. The improvements chosen by most students are the ability to present and express their understanding and the ability to analyze and critical thinking.

Table 3. *The improvements achieved by students through writing content/reports using E-Portfolio*

| Improvements | Change in students' learning methods |
|--|---|
| <ul style="list-style-type: none"> - The ability to present and express - Writing skill - Analytical ability - Critical thinking - Deep learning - How to arrange the content, layout - The ability to aggregate content Patience | <ul style="list-style-type: none"> - Focus on the process rather than just the end result. - Manage time more effectively and make it a habit to reflect on it all. - Improve self-study |

3. Conclusions and suggestions

3.1 Conclusions

E-Portfolios have become an important element of the e-learning process because of their ability to foster the growth, creation, and critical reflection of student learning. They have also become an ideal tool for individual academic and professional development. Three types of typical E-Portfolios: Learning E-Portfolio, Assessment E-Portfolio, and Showcase E-Portfolio, allowing students to reflect on their performance, get feedback, and prepare their best work to present to employers, future users, or customers. With the right planning and foresight, institutes implement a platform that allows students to build E-Portfolios during their studies to enhance their learning and get career development after graduation.

By piloting E-Portfolios at 4 institutes, focusing on applying the Assessment E-portfolio type with the Gibbs reflection model, the authors have collected a number of issues that can be used to promote further research.

Firstly, digital skills are required for students to create an E-Portfolio. Students must use digital tools to create E-Portfolios and present multimedia content to reflect their learning. However, this does not

cause difficulties for students if they are guided and regularly used on popular platforms (Google site, Padlet, Mahara, etc.)

Secondly, the skill of writing an E-Portfolio according to the Gibbs model is very important. Students reflect on the knowledge they have learned through understanding their writing style. It helps lecturers and partners assess the level of learning through the authenticity of the student's digital evidence. This hinders students because it requires problem-analyzing skills, critical thinking, and self-assessment ability. Therefore, teachers need to provide very detailed initial instructions, support and provide continuous feedback to students throughout the process. This requires teachers to spend a lot of time reading and responding to students' E-Portfolios.

Thirdly, although reflecting on the learning process on the E-Portfolio according to the Gibbs model is not simple, it helps students improve their learning outcomes, improve many soft skills and develop themselves, especially autonomy in learning. This is a significant competence for students to have lifelong learning in the 21st century.

3.2 Suggestions

E-Portfolio is not too far away from higher education in Vietnam. However, it is mainly applied in the form of Learning E-Portfolio. Assessment E-Portfolio is still quite new to Vietnamese lecturers. This is an activity that requires students to have analytical, critical, and creative thinking, unlike writing articles on social networks. Lecturers need to clearly understand the goal of using E-portfolio and design a specific assessment plan and content to guide students in implementation. Therefore, lecturers need to clearly understand the goals of using e-portfolio, know how to plan, design assessment content, and organize learning activities to properly assess students' capabilities. as well as further strengthen the study skills of students. This is also the next research direction that the authors are interested in.

Implementing E-Portfolios is an activity that develops academic and career competence for students and requires a long time. Therefore, the school needs to implement E-Portfolio from the first year and throughout the course so that students have more time to get acquainted and develop skills step by step. In the first year, freshmen do not have many skills therefore Learning E-Portfolio type is highly recommended. From the second year onwards, the combination of all 3 types of E-Portfolio should be considered.

When applying the E-Portfolio to all students from the first year, a lot of data will arise. This requires the school to invest in a system that is powerful enough to handle a large number of E-Portfolios submitted online. And how to store the E-Portfolio once it is submitted, for official record-keeping purposes? Will this data be retained by the university after graduation? Who will own it - university, faculty, or students? Who is authorized to access the E-Portfolio? These are issues that need to be further studied when promoting the application of E-Portfolio to become a professional system.

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