

## ENHANCE LEARNING THROUGH E-PORTFOLIO

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**Abstract:** *The practice of electronic portfolios has become increasingly popular and adopted not only in higher education and professional training, but also occurs in primary schools. In the Malaysian context, E-Portfolio is seen as a learning support that has the potential to solve ongoing problems for teaching and learning at the higher education level that underlies national policies and agencies. E-Portfolio or electronic portfolio or digital portfolio or web folio or e-folio, is a collection of works in electronic form used by users as a form of record of their progress. This study was conducted with the aim of producing a true understanding of the learning approach through e-portfolio covering the concept, objectives, benefits, challenges and solutions as well as strategies to create a complete portfolio. Library and research methods will be used to gather relevant information and then analyzed using inductive methods to obtain a conclusion. The results of the study found that E-portfolio is a form of assignment that can be given to students in a learning process. This assignment complies with the student-centered learning approach (PBP) because it involves students actively in the process of acquiring knowledge and skills. Because of that, it is very suitable for use when learning takes place virtually, that is when students and instructors cannot meet face to face. The learning process through e-portfolio is not limited only during the preparation process. Students also learn a lot when the task assessment process takes place through self-assessment and peer assessment.*

**Keywords:** *e-Learning, e-Portfolio, online learning, online readiness, teaching and learning, higher education, learning management.*

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## Introduction

In the information society, as in all other institutions, the function of educational institutions has been changed by the phenomenon of globalization, the rapid spread of knowledge and reaching a wide mass, the need for the coexistence of different cultures, and the development of science and technology. Portfolios help students evaluate themselves and improve their ability to express themselves and allow observation of developments that occur over a period of time due to the accumulation of work over a period of time. The practice of electronic portfolios has become increasingly popular and adopted not only in higher education and professional training, but also occurs in primary schools. Electronic portfolios are believed to have a revolutionary effect on the process and development of student learning and have the potential to be an important tool to facilitate lifelong learning in the future.

E-portfolio has been recognized as the most recognized thing in technological innovation in institutions and has the potential to change the education system compared to other technologies used in academia to improve teaching, learning and assessment. E-portfolios are also trusted to support student career preparation and qualification documentation, to share teaching philosophy and practice, programs and institutions of study themselves or program accreditation processes. In the Malaysian context, E-Portfolio is seen as a learning support that has the potential to solve ongoing problems for teaching and learning at the higher education level that underlies national policies and agencies (Li & Wang, 2010).

## Objectives of the Study

The study was conducted to identify concepts, objectives, benefits, challenges and solutions as well as strategies to create a complete portfolio.

## Research Methodology

This study is a qualitative survey study. The data collection process is obtained using library and research methods to gather relevant information. The data obtained was then analysed using the inductive method to obtain a conclusion about the Objectives, benefits, challenges and solutions as well as strategies to create a complete portfolio.

## Literature Review

In Malaysia, the integration of the use of technology through blended learning at the higher education institution level has started since 2011 (Sashi, 2018). Improving the quality of teaching and learning at the level of higher education institutions is to produce first class human capital capable of using knowledge proactively, creatively, innovatively and skillfully to deal with the changing global environment (Pelan Strategik Pendidikan Tinggi Negara, 2007). The transition to fully online virtual learning took place when the Covid-19 pandemic hit the world.

Based on previous literature, one of the challenges faced in virtual learning is the accessibility of students to online teaching and learning activities. This depends on students' access to the internet at the time the activity is carried out (Mark, 2021; Natasya & Suhaila, 2020). In addition to adaptation in teaching and learning activities in a synchronous or asynchronous form, planning learning activities that involve active student involvement is important (Linda & Ludwika, 2021). Although Covid-19 presents a challenge to the education sector, it opens up space for lecturers and students to explore various teaching and learning platforms using technology optimally. In this regard, one of the learning activities that is getting more and more attention is the preparation of e-portfolios. This is because this activity coincides with the learning characteristics of the 21st century, namely heutagogy which emphasizes the concept

of self-learning, peeragogy which promotes collaborative learning and cybergogy which emphasizes the use of technology. E-portfolio is also suitable for use as an assessment method that uses a student-centered learning approach (PBP) (Alizah & Zamri, 2019). This differs from the usual method where the assessment is done entirely by the instructor.

However, based on previous literature it was found that the discussion about the implementation of e-portfolio activities is still lacking. Thus, this article aims to discuss the concept of e-portfolio as a student-centered learning and assessment method.

### **Define E-Portfolio as A Modern Assessment Tool.**

A portfolio according to the Dictionary of the Language and Literature Library is a portable medium for carrying papers, documents, drawings and so on. In the world of education, portfolios are used to collect various artifacts, information, evidence of work and learning achievements or teaching in a file or compiled as printed materials (S.R.H. Abd-Wahab, 2016). With the development of technology, the collection and storage of this information and documents can be done digitally and stored online. This portfolio is referred to as an e-portfolio or also known as a digital portfolio, electronic portfolio, e-folio or webfolio (Hallam et.al, 2010; Peter & Michaela, 2018).

E-portfolio has the same function as a paper portfolio, but has the advantage of being digital, interactive, easy to manage systematically and interesting because it can contain graphic and multimedia materials. In addition, e-portfolio can be accessed by many people, anytime and anywhere using internet technology (Bekri et.al, 2018). Basically, there are various different portfolio categories based on the purpose of preparation. According to Greenberg (2004) E-portfolio learning allows teachers and students to interact, discuss and reflect to understand the process and content of the lesson (Bekri et.al, 2018). The preparation of this e-portfolio can be assigned to each student depending on the learning outcomes of the subject to be achieved.

Simply put, a portfolio is a collection of accumulated evidence to demonstrate an individual's learning journey and talents over time. A portfolio is a collection of work intended to demonstrate a student's efforts, progress, and success in one or more areas. A file consisting of content that reflects and proves the student's work as well as a collection of written materials and products exhibited by the student (Sengul, Nurhan & Murat. 2018).

### **Objectives of E-Portfolio**

The general objectives for using E-portfolios can be summarized as providing better learning, helping students to take responsibility for their own learning, and ensuring that students present their progress over time. E-portfolios can be used for different purposes, such as assessing students' level of achievement, providing feedback and directing students in their future work. In general, Sengul, Nurhan & Murat (2018) think Portfolios are developed for three different purposes namely:

- i. Learning portfolio. It is used for formative assessment, used to support professional development.
- ii. Assessment portfolio. It is used for performance-based levels of determining assessment.
- iii. Work portfolio. It is used to support the career search by presenting electronic files and projects.

### **Benefits of E-Portfolio for Teachers**

There are many benefits of implementing an e-portfolio. Among them are as follows:

#### **i. Assessing students across various dimensions.**

According to Sengul, Nurhan & Murat (2018), the e-portfolio creation process contributes to students across various sub-dimensions, namely pedagogical knowledge, field knowledge, technology use skills and thinking skills. In addition, the process contributes in the sub-dimension of providing experience in the preparation of lesson plans and providing practical experience, awareness raising and personal and professional development. The e-portfolio implementation process also contributes in the sub-dimension of field knowledge acquisition such as learning through experience, new knowledge acquisition and research.

While according to Doig et al. (2006) on the other hand, e-portfolio is more flexible and makes it easier for the owner to control inputs from time to time. While the ability of students to include learning documentation in various dimensions such as videos, recordings, images, links to websites, etc., can offer a better view of the owner's progress, evidence of learning and evidence of skills.

#### **ii. Obtain feedback on skills, achievements and personal growth.**

E-portfolios help students learn to manage their own professional development. This contributes to lifelong learning (Love and Cooper, 2004). This is in line with the view of Gomleksiz and Koc (2010) who found that the process of creating an e-portfolio leads students to research, add personality to their work and share it with their friends. Students have shown that they develop skills using technology in the process of e-portfolio creation in the context of "learning to use different software". Heath (2005) states that e-portfolios are a way to demonstrate technological skills. It has been determined that the portfolio creation process contributes to the thinking skills of prospective teachers in the context of using their thinking skills and the acquisition of different perspectives.

The use of portfolios in the process of measurement and evaluation can help students evaluate themselves and improve their ability to express themselves, and the ability to show progress over a period of time, as work collected over a period of time. The use of portfolios in everyday life is not a new phenomenon. Pearl and Leon Paulson (1991) developed a metaphor for the portfolio. According to this metaphor, the portfolio is expressed as a laboratory where students configure their own experiences and meanings in relation to themselves. According to them, each portfolio is a story about what students know and why they don't know. Students show what they know and can do with examples of their work (Kan, 2007).

#### **iii. Cultivate self-awareness and metacognition in students.**

Wade and Yarbrough (1996) state that e-portfolios provide students with a focus on their thinking. The results of the study show that the process of creating an e-portfolio is fun, funny, beneficial and removes prejudices towards learning. In the process of creating an e-portfolio, it was determined that students faced difficulties in the research and observations that would be made in the course. The students have made suggestions for the implementation of those activities in other courses and also for the activities they do.

According to Arifin (2012:198), one of the advantages of a portfolio is that it gives students the opportunity to be more involved, and the students themselves can easily control the extent of the development of their abilities. This is in line with the view of (Alizah & Zamri, 2019) who

found that e-portfolios are also suitable for use as an assessment method that uses a student-centered learning approach. This differs from the usual method where the assessment is done entirely by the instructor. According to Faulkner and Allan in the *International Journal of Learning in Social Context Australia* (2009:33) among the benefits of e-portfolio is to increase student engagement and retention, develop reflective skills, provide opportunities to change learning assessment to assessment for learning, help learning with an approach holistic, offering individuals the potential to add further data to formal institutional transcripts as well as helping to discipline individuals in developing and proving professional competence and character.

**iv. Encourage continuous improvement and goal setting.**

Lyons, Hyland, and Ryan (2002) stated that the purpose of using e-portfolio as an alternative assessment tool is to improve the content of prospective teachers' pedagogical knowledge and provide reflective practice. Similarly, Belgard (2013) and Garrett (2011) have emphasized the positive effects of prospective teachers' pedagogical and technical content knowledge. E-Portfolio is seen as a learning support that has the potential to solve ongoing problems for teaching and learning at the higher education level that underlies national policies and agencies (Li & Wang, 2010).

**Challenges And Solutions in The Implementation and Development of E-Portfolio**

The application of e-portfolios in teaching and learning also raises some issues that are still under discussion, however, they are not necessarily an obstacle to the implementation and development of e-portfolios (Lorenzo & Ittelson, 2005). Regarding daily practice in the classroom, there are arguments from both teachers and students that building an e-portfolio can be time-consuming (Attinello, Lare, & Waters, 2006) and discourages those who are not experts in ICT skills. As portfolios vary as much as the students who create them, they offer a different means of assessment than traditional ones; this assessment is not easily measured using the usual numerical ranking (Ocak & Ulu, 2009).

Additionally, Rhodes (2010) mentions arguments about the lack of reliability and validity of e-portfolios compared to standardized tests, when there is a need for comparison. Valencia (1990) explains why it is difficult to determine what should be included in a portfolio or how and when it should be evaluated. He argues that it all depends on the goals of the curriculum and, however, he offers suggestions for organizational strategies to make portfolios more useful.

Technical issues such as connectivity and network infrastructure, hosting, access, authentication and security, accessibility, technical standards, and interoperability are extensively examined and analyzed and recommendations for measures are made (Becta, 2006). In the process of integrating ICT in the classroom, various issues need to be addressed. This shows that appropriate facilities and equipment are important in implementing ICT in classroom assessment.

In addition, challenges for the use of ICT by teachers in student assessment are related to teacher readiness with skills and knowledge, administrator support and infrastructure requirements are also key factors. To ensure the continuity of learning, teachers must improve pedagogical skills, information technology skills, and innovation, because the concept of online learning is important for students to continue the learning process. Teachers should use ICT to improve the quality of teaching and learning to keep pace with technological progress. Therefore, teachers need advanced training in using various ICT tools to make students a more systematic assessment (Vorotnykova and Zakhar, 2021) to realize the implementation of ICT in education.

**i. Strategies For Creating an Efficient E-Portfolio.**

Specific learning strategies and instructional design should be considered to increase their motivation and intention. An electronic portfolio should serve as an excellent repository for student reflection because of its ability to be viewed by faculty, students, administration, future employers, and to whomever the student chooses to share the portfolio. According to Syamsul, Mohamed Amin & Norazah (2015) there are five e-portfolio constructs that have been discussed which are student readiness in the different perspectives involved which are technology accessibility, online skills and relationships, motivation, internet discussion and the importance of success.

From the content aspect of the e-portfolio, the assignment has a student-centered assessment concept that emphasizes learning reflection. Reflection is the act of rethinking the learning experience through the exploration of tangible and implicit elements. This process makes fact-based causal assumptions. Reflection is widely used in various forms of assignments such as journals, portfolios, and reports (Helyer, 2015). Through reflection, students can detect the effectiveness of the implementation of each task made in line with the understanding obtained for the topics involved. Students can also use reflection as a basis to continuously improve and improve the quality of each task while also developing the intellectual ability to generate creativity and innovation in each task carried out. Chang (2019) explained the six advantages of reflection that affect learning, which are to increase in-depth knowledge, identify aspects that are lacking, map knowledge in a real context, provide comparative references in learning, help students build structural relationships in knowledge, and bridge social relationships among student.

**ii. Long-term benefits outweigh the initial time investment.**

E-portfolios provide a safe, reflective, interactive and individual enhancing environment for students (Chang, 2001). Butler (2006) describes the success criteria of an e-portfolio as a planning process where various "what, why and how" questions need to be answered. A shared understanding of the purpose and design of the e-portfolio is required. The creation process is important to E-portfolio rather than the implementation (Granberg, 2010).

Among the advantages of e-Portfolios compared to paper-based portfolios according to Beetham in Orsini Jones and De (2007:88) are: (a) Paper-based portfolio systems cannot accommodate the increasing and inflexible range of assessments; (b) Currently, universities generally use e-Learning extensively; (c) E-Portfolio is easy to publish; (d) E-Portfolio is the basis that can be used to link the entire curriculum; (e) E-Portfolio is generally designed to support Personal Development Planning and enhance the practice of reflective and independent skills; (f) User-centric E-Portfolio; (g) E-Portfolio enables discussions with several parties.

In the context of evaluating learning outcomes and student achievement, e-portfolios make evaluation easier. This is because all assignments for a student are centralized on the same page online. Through a clear checklist and rubric, students can understand the criteria that need to be met in order to achieve the desired score. An understanding of the scoring criteria helps students to frame and organize each assignment as needed. Self-checking can be done by students from time to time to ensure that assignments have been carried out properly. In addition, the content evaluation analytical rubric that was developed also allows evaluation to be done by peers (Shahira & Nor Fahimah, 2022).

Since e-portfolios can have a long lifespan, they are a valuable tool in education, allowing teachers to formulate direct opinions about the learning needs and previous learning of students without relying solely on the evaluation of others (Abrami & Barret, 2005).

### iii. Recommend user-friendly platforms and tools.

According to socio-cultural theory, the activities of teachers and students in ICT and learning are based on actions with tools in the community. The use of digital portfolios is directed by the Portfolio assessment Guidelines. The construction of guidelines has been an evaluation process in which teachers experience and students' opinions, focusing on these main conditions.

In the process of work and evaluation, the teacher organizes and distributes information, which will be used by students in the construction of their knowledge. The portfolio assessment guidelines assume a division of labor where the work process integrates both individual responsibilities and collaboration in groups. Both processes are certified in the reflection report. Portfolio assessment evaluates students as a final assessment where the teacher is a guide in the work process. This basis is implemented in the Guidelines for portfolio evaluation.

At the same time, the advantage of e-portfolio in contrast to traditional formats is that it also contains digital files such as simulations and videos (Butler, 2006). E-portfolio can contain materials according to course content and learning outcomes such as puzzles, concept maps, worksheets, research reports, documentaries, articles, observation reports, brochures, video recordings, blogs, websites, posters, stories, animations, educational software, presentations, newspapers, voice recordings, exam questions, webquests, interviews, drawings, poems, self-evaluation reports and products (Gulbahar, 2009a). Although the content has the same properties as other portfolios, it differs from the others because it is created and stored in an electronic environment. The use of e-portfolios in teacher education focuses on the learning process and the production of knowledge for future teachers.

Based on the results of Swita & Heri's (2019) study, Google Classroom is the primary choice of teachers to be one of the platforms to implement E-portfolios at the school level. Google Classroom helps implement the virtual learning process by creating, distributing and grading assignments more efficiently and meaningfully.

### Integration With Curriculum

In order to ensure that the e-portfolio is in line with the curriculum goals and learning outcomes, it should start from the design phase first. According to Nahid, Samieh & Rita (2018) in the design phase some value-added features were considered and added. The features should consist of customizable, multiple structures, the ability to share and interact with supervisors and peers, the ability to search, integration to LMS, the ability to transfer data, download records, create backups and reduce storage requirements. These features facilitate sharing of different e-portfolio sections and provide cross-referencing capabilities. In the second phase, structured student-centered learning outcomes were designed. In this approach the teacher's role is to help students think by using the following steps:

- i. Students identify and describe experiences (assignments), and teachers actively listen to encourage, not judge or make any interpretations.
- ii. Students reflect on what they learned and the teacher explains and summarizes.
- iii. Students identify new learning needs and their plans to meet these needs, and teachers facilitate their plans. At the end of the program all intended and unintended learning outcomes were reviewed.

## Conclusion

Teachers and prospective teachers should be exposed to useful technological tools and encouraged to create and use their own materials produced by combining field knowledge with technology in their educational process. teachers bring their products to the teaching and learning process.

E-portfolio is a form of assignment that can be given to students in a learning process. This assignment complies with the student-centered learning approach (PBP) because it involves students actively in the process of acquiring knowledge and skills. Because of that, it is very suitable for use when learning takes place virtually, that is when students and teachers cannot meet face to face. The learning process through e-portfolio is not limited only during the preparation process. Students also learn a lot when the assignment assessment process takes place through self-assessment and peer assessment.

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