

Using ePortfolio in Singapore Schools

Chua Guat Kheng, Jeanne Ho, Timothy Cheng, Ban Pei Ling
Educational Technology Division
Ministry of Education, Singapore
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Abstract: *This paper discusses the benefits of adopting eportfolio as a tool that can be integrated into the curriculum and the different types of eportfolio that can be used for primary and secondary schools in Singapore. We highlight three common models of eportfolio: learning eportfolio, showcase eportfolio, and assessment eportfolio. For each model, the purpose, role of pupils and role of teachers will be discussed. We conclude with considerations for schools when making decisions to implement eportfolio.*

Introduction

This paper discusses the benefits of adopting electronic portfolios (eportfolios) as a tool that can be integrated into the curriculum and the different types of eportfolio that can be used for primary and secondary schools in Singapore.

The use of eportfolio is in line with the aim of our Second Masterplan for IT in Education (mp2), which is to enable engaged learning through the use of IT. One of the key goals of mp2 is to use IT to integrate curriculum, instruction, and assessment. The use of eportfolio is highly relevant in this context.

Although many teachers are familiar with the paper-based portfolio, few teachers have attempted to harness IT to enhance the efficiency and scope of portfolio assessment. This may be due to lack of guidance and examples. This paper therefore highlights three models of eportfolio that schools may consider. For each model, the purpose, role of pupils and teachers will be discussed. This paper will conclude with considerations for school when making decisions to implement eportfolio.

What is a portfolio?

A portfolio is a *purposeful* collection of pupils' work that tells the story of a pupil's achievement and growth in one or more areas over time (MOE, 2003). The collection should involve the pupil in developing the selection and judging criteria for the content, and selecting the content. There should also be evidence of pupil self-reflection (The Northwest Evaluation Association, Barrett, 2005).

A portfolio is a tool that can engage pupils in active participation in learning, self-monitoring, and responsibility for their own learning. This process helps to promote reflective learning as pupils express their strengths, weaknesses, achievements, learning experiences, passions and hopes for the future. At the same time, it facilitates a teacher's assessment of pupils' progress through the analysis of pupils' works that were developed over a period of time. A portfolio helps to make visible what pupils do and what teachers teach (Stefanakis, 2002) so as to improve pupils' learning and teacher's teaching.

What is an electronic portfolio?

An electronic portfolio is a tool that allows pupils to “*collect and organize* portfolio artefacts in many media types (audio, video, graphics, text); and using hypertext links to organize the material, connecting evidence to appropriate outcomes, goals or standards” (Barrett, 2005).

Technology can enhance the value of paper-based portfolios by facilitating sharing of experiences through different media, collaborating with others, archiving & storage of pupils’ work (or artefacts), and publishing artefacts online for a wider audience to interact with. The advantages are summarised in the table below:

Paper-based portfolio processes include:	Technology enables:
Collecting – collect all relevant artefacts	○ Expression of learning experiences using varied media, including written works/documents, pictures, audio, and video, ○ Online collaboration and communication through peer/teacher review and feedback ○ Archival of works over time without storage issue ○ Access to wider audience through publishing
Selecting – identify artefact(s) that best exemplify the standard or criteria set	
Reflecting – clear reflection statement on the artefact and the learning experience	
Presenting – display artefacts	
(Adapted from Barrett, 2005)	

Three Models of ePortfolio

ePortfolio can be used for different purposes. The contents of a eportfolio depend on the purposes and target audience. Generally, eportfolios can be classified into three basic models: the learning eportfolio, the showcase eportfolio, and the assessment eportfolio.

Model 1: Learning eportfolio (Formative Assessment)

A learning eportfolio allows pupils to capture the process and growth of performances related to learning that have occurred. It provides an account of the pupil’s progress over time to support the learning or formative assessment of the pupil.

Pupils use learning eportfolios to archive artefacts (which may include different versions in progress), reflect on his/her learning experience, evaluate progress of his/her own learning over time, and plan to improve the learning processes. During online collaboration, teachers and peers can provide feedback and suggest ways for pupils to improve knowledge and skills.

Learning eportfolios focus on pupils' ownership of the eportfolios. In other words, the eportfolio is owned by the pupils, organised by the pupils, and told in the pupils' voice (Barrett, 2005). The primary *audience* of the learning eportfolio is the pupils himself.

**Model 2:
Showcase eportfolio
(Competence)**

A showcase eportfolio displays pupil's *best* work for a particular subject, curricular activities, talent, community service, etc. It demonstrates the highest level of competence pupils have achieved.

Pupils can decide with their teachers the artefacts to be included based on stated standards or rubrics. The eportfolio should also include reflection on the skills or knowledge learned and the level of competency reached.

Showcase eportfolios can be designed for different types of audience depending on the nature of the artefacts collected. They can be used to communicate what pupils have learnt to peers, teachers, parents and school admissions officers.

**Model 3:
Assessment eportfolio
(Summative Assessment)**

An assessment eportfolio is used to assess pupils' achievement with the intention to provide a pass/fail, grades, or advancement into or out of a level/course. This is considered a high-stakes summative assessment.

Hence, it is necessary for the teacher to specify clearly the learning expectations and how the results will be analysed. At the same time, the teacher needs to inform pupils the learning outcomes to be assessed, why these outcomes will be assessed and how they will be scored using rubrics. Clear instructions should also be given to guide pupils in the submission of their artefacts. All the above have to be aligned to the desired pupil learning outcomes of the school (Rogers & Williams, 2002).

The *audience* for assessment eportfolio is primarily the teachers (school). The school (departments) has to be involved in the development of the learning objectives and scoring rubrics.

One area of major concern is the authenticity of the artefacts. How can the assessors ensure that submitted artefacts are the pupils' own work? Figure 1 shows a formula used by Barrett (2003) to establish the evidence. The principle is that the teacher needs to go beyond collecting and selecting artefacts; pupils have to reflect on why and how the artefacts demonstrate achievement of the learning objectives and opportunities must be given for them to justify their points. Subsequently, the teachers need to validate the artefacts with the criteria specified in the rubrics. For example, the teacher could interview the pupils or ask the pupils to present their artefacts and reflection, through which authenticity of the artefacts can be validated from the pupils' articulation and explanation.

Evidence = Artefacts + Reflection + Validation (Rationale) (Feedback)
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Figure 1: Formula for evidence process (Barrett, 2003)

Table 1 provides a summary of the three models, their purpose, the roles of pupils and teachers.

Table 1: Summary of Learning, Showcase and Assessment ePortfolio

	Learning ePortfolio (Formative Assessment)	Showcase ePortfolio (Competence)	Assessment ePortfolio (Summative Assessment)
Purpose	To capture the process and growth of pupil's performances over time with the intention to improve the learning.	To present the pupil's best work for a particular subject, curricular activities, talent, etc with the intention to demonstrate competency level.	To assess pupil achievement with the intention to grade and/or promote to next level.
Role of pupils	Pupils to: <ul style="list-style-type: none"> • archive artefacts of various versions • reflect on the experience • evaluate progress of learning • plan how to improve 	Pupils to: <ul style="list-style-type: none"> • understand competency rubrics • select best artefacts • reflect on skills learnt • determine level of competency achieved 	Pupils to understand the following: <ul style="list-style-type: none"> • learning outcomes to be assessed • why these outcomes are assessed • how they will be assessed • how the artefacts should be presented
Role of teachers	Teachers have to <ul style="list-style-type: none"> • identify learning outcomes to achieve • help pupils learn how to reflect effectively • provide feedback • suggest ways to improve knowledge and skills • improve on teaching strategies 	Teachers have to <ul style="list-style-type: none"> • specify learning outcomes • explain competency rubrics • help pupils learn how to reflect effectively 	School has to establish the: <ul style="list-style-type: none"> • learning outcomes • scoring rubrics • submission format & requirements • authenticity of artefacts

Implementation Considerations

It is advisable to proceed with caution in the implementation of eportfolio to ensure success (Rogers & Williams, 2002). The following are some key questions to consider:

(A) From the pedagogical point of view:

- What is the purpose of the eportfolio?
- What learning objectives will be considered?
- Who is the primary audience of the portfolio?
- What is the role of teachers and pupils?
- How will pupils learn how to reflect effectively on their work?
- Who will provide feedback on the quality of reflections?
- How is the eportfolio going to be assessed? (For assessment portfolio)
- How are the results going to be linked to the curriculum? (For assessment portfolio)

(B) From the technological point of view:

- Is the eportfolio system easy to use?
 - a simple interface
 - easy to upload, display & edit information.
 - requires minimal teacher supervision in maintenance of the system
- Are resources easily accessible by pupils to update their eportfolio?
 - hardware such as cameras, videos, multimedia computers are available
 - software such as graphic and video editing suite are available
 - training and support on use of resources is provided
- Is the system accessible by stakeholders?
 - accessible by teachers, peers and parents to view/feedback/evaluate
- Can the system accommodate multiple formats?
 - possible to upload different media like text, graphic, audio, video clips, files, databases, virtual reality, etc
- Can the eportfolio content be readable by or exportable to other systems?
 - content within the eportfolio can be exported to other systems if the school decides to change vendor or when pupils move from one school to another (e.g. from primary to secondary)
 - pupils can export their portfolios to CD-ROMs/other electronic formats
- Can the system maintain a high level of security?
 - keep personal data secure and free from hacking

Some examples on eportfolio tools can be found at Batson (2002).

Most important of all, to ensure success in eportfolio implementation, there is a need to provide directions and scaffolding in the area of reflective learning processes to support the pupils in making meaning from their learning experiences.

Conclusion

ePortfolios help pupils to reflect on their experiences within and outside classrooms. As pupils need to collect, select, reflect, and present on the artefacts in the eportfolio, these processes can help them to make sense of their learning experiences and use this new understanding to improve themselves. Pupils need to know the purpose and process so that they can focus and control the development of their eportfolio. We have introduced three models in this paper, namely the learning eportfolio, the showcase eportfolio, and the assessment eportfolio. Schools will be able to decide which model to embark on depending on their purpose and objectives.

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