Pupil ePortfolio

Chua Guat Kheng

Introduction
The use of electronic portfolio (eportfolio) as a tool is well established in higher education and it is becoming increasingly popular in elementary and secondary schools in US, UK, Canada and Europe. Some schools in Singapore have also implemented eportfolio within their curriculum. This use of eportfolio is in line with the aim of Singapore’s 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 review therefore highlights three possible models of eportfolio that schools may consider. For each model, the purpose, role of pupils and teachers will be discussed. It will conclude with considerations for school when making decisions to implement eportfolio and some useful websites.

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.

Pupils should be involved in developing the selection and judging criteria for the content, and in selecting the content. There should also be evidence of pupil self-reflection (Paulson, Paulson, & Meyer, 1991).

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 reflect on 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:
Three Possible Models of ePortfolio

ePortfolio can be used for different purposes. The contents of an eportfolio depend on the purposes and target audience. Generally, eportfolios can be classified into three basic models in schools: 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 pupil himself.

An example of student learning eportfolios can be found at Bowling Green State University. A matrix was designed to capture the student learning outcomes based on institutional learning goals. Examples of the learning eportfolios can be viewed from a collection at [http://with.bgsu.edu/examples.aspx](http://with.bgsu.edu/examples.aspx) or at [http://bmaxwel.with.bgsu.edu/index.aspx](http://bmaxwel.with.bgsu.edu/index.aspx).

**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.

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<tr>
<th>Paper-based portfolio processes include:</th>
<th>Technology enables:</th>
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<tr>
<td>Collecting – collect all relevant artefacts</td>
<td>o Expression of learning experiences using varied media, including written works/documents, pictures, audio, and video,</td>
</tr>
<tr>
<td>Selecting – identify artefact(s) that best exemplify the standard or criteria set</td>
<td>o Online collaboration and communication through peer/teacher review and feedback</td>
</tr>
<tr>
<td>Reflecting – clear reflection statement on the artefact and the learning experience</td>
<td>o Archival of works over time without physical storage issue</td>
</tr>
<tr>
<td>Presenting – display artefacts</td>
<td>o Access to wider audience through publishing</td>
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Adapted from Barrett, 2005
An example of a school that has implemented showcase eportfolios is Mt. Edgecumbe High School in Sitka, Alaska. In this school, the baseline requirements for the portfolio content were established. Pupils were required to provide reasons for inclusion of work in the portfolio e.g. what skill or accomplishment does the work represent. Samples of their portfolios may be accessed at:

http://www.mehs.educ.state.ak.us/portfolios/portfolio.html

**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. 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? The principle is that the pupil 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 (Barrett, 2003). For example, the teacher could interview the pupils or ask the pupils to orally present their artefacts and reflection, through which authenticity of the artefacts can be validated from the pupils’ articulation and explanation.

A summary of the 3 models given above can be found at Table 1 in the Annex.

**Implementation Considerations**

It is advisable to proceed with caution in the implementation of eportfolio to ensure success (Rogers & Williams, 2002). Some key questions to consider follow.

(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 time frame for implementation?
- 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 capture 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. The eportfolio journey of the pupils will depend on the purpose and learning objectives of the portfolio.
Annex

Table 1: Summary of Learning, Showcase and Assessment ePortfolio

<table>
<thead>
<tr>
<th></th>
<th>Learning ePortfolio (Formative Assessment)</th>
<th>Showcase ePortfolio (Competence)</th>
<th>Assessment ePortfolio (Summative Assessment)</th>
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<tbody>
<tr>
<td><strong>Purpose</strong></td>
<td>To capture the process and growth of pupil’s performances over time with the intention to improve the learning.</td>
<td>To present the pupil’s best work for a particular subject, curricular activities, talent, etc with the intention to demonstrate competency level.</td>
<td>To assess pupil achievement with the intention to grade and/or promote to next level.</td>
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<tr>
<td><strong>Role of pupils</strong></td>
<td>Pupils to:</td>
<td>Pupils to:</td>
<td>Pupils to understand the following:</td>
</tr>
<tr>
<td></td>
<td>• archive artefacts of various versions</td>
<td>• understand competency rubrics</td>
<td>• learning outcomes to be assessed</td>
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<tr>
<td></td>
<td>• reflect on their learning experience</td>
<td>• select best artefacts</td>
<td>• why these outcomes are assessed</td>
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<tr>
<td></td>
<td>• evaluate progress of learning</td>
<td>• reflect on skills/content? learnt</td>
<td>• how they will be assessed</td>
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<tr>
<td></td>
<td>• plan how to improve</td>
<td>• determine level of competency achieved</td>
<td>• how the artefacts should be presented</td>
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<tr>
<td><strong>Role of teachers</strong></td>
<td>Teachers have to</td>
<td>Teachers have to</td>
<td>School has to establish the:</td>
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<tr>
<td></td>
<td>• identify learning outcomes to achieve</td>
<td>• specify learning outcomes</td>
<td>• learning outcomes</td>
</tr>
<tr>
<td></td>
<td>• help pupils learn how to reflect effectively</td>
<td>• explain competency rubrics</td>
<td>• scoring rubrics</td>
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<td></td>
<td>• provide feedback</td>
<td></td>
<td>• submission format &amp; requirements</td>
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<tr>
<td></td>
<td>• suggest ways to improve knowledge and skills</td>
<td></td>
<td>• authenticity of artefacts</td>
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<td></td>
<td>• improve on teaching strategies</td>
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Interesting sites on eportfolio implementations

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<tr>
<td><strong>1. Portfolio Assessment:</strong></td>
<td>A collection of web, ERIC database, and a variety of other bibliographic resources on portfolio assessment can be found at <a href="http://www.indiana.edu/~reading/ieo/bibs/portfoli.html">http://www.indiana.edu/~reading/ieo/bibs/portfoli.html</a></td>
</tr>
<tr>
<td><strong>2. Technology Support:</strong></td>
<td>Dr. Helen Barrett, Assistant Professor, Educational Technology, School of Education, University of Alaska Anchorage, developed and maintained the web site <a href="http://electronicportfolios.org/portfolios.html">http://electronicportfolios.org/portfolios.html</a>. This set of web pages describes and discusses the use of technology to support alternative assessment from a number of perspectives.</td>
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<td><strong>3. Guidelines for Electronic Portfolio:</strong></td>
<td>An article from Education World on Electronic Portfolios in the K-12 Classroom which includes guidelines for developing personal portfolios and additional online resources on electronic portfolios can be found at <a href="http://www.educationworld.com/a_tech/tech/tech111.shtml">http://www.educationworld.com/a_tech/tech/tech111.shtml</a>.</td>
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<td><strong>4. REFLECT Initiative:</strong></td>
<td>Learn about the REFLECT Initiative Implementation (Researching Electronic portFolios: Learning, Engagement, Collaboration through Technology). This is a two-year research project to assess the impact of electronic portfolios on pupil learning, motivation and engagement in secondary schools. An overview of REFLECT can be found at <a href="http://www.taskstream.com/pub/reflect/overview.asp">http://www.taskstream.com/pub/reflect/overview.asp</a>.</td>
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**References**


