Enhancing self-regulatory motivational strategies through e-Portfolios

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E-portfolios provide students a means to document and share their work, their experiences and is a tool that facilitates meaningful self-reflection.

According to Barrett (2004) the whole purpose of portfolio is to foster learning and growth over time.
Cambridge (2003) defines an e-portfolio as:

- what is produced when persons collect, select, reflectively interpret, and/or present their own evidence to support their assertions about what they have learned, know and can or should do;

- a selection of ‘products’ of learning, reflections or interpretations on those products, and

- representations of relationships between and among the products and interpretations.
E-portfolios in Teacher Education

Previous research on e-portfolios in teacher education:

McKinney (1998) found that e-portfolio creation was “positive and useful”

Ryan, Cole & Mathies (1997) found e-portfolios to have a positive impact on pre-service teachers’ self-concepts.

Wilson, Wright and Stallworth (2003) showed that pre-service teachers viewed their e-portfolio mainly as employment tools, but some believe that e-portfolios encourage them to reflect on their teaching development.
Defining e-Portfolio

The JISC (2002) definition added that the digital artifacts produced are used to express students’ experiences, achievements and learning.

Owen’s (2009) definition, taking into account the potential of Web 2.0 principles and tools, defines e-Portfolio as “a multi-faceted forum, with areas for collaborative development, private reflection, & showcasing of achievements”.

UNESCO-APEID09 China
Previous research on e-portfolios in teacher education:

Lorenzo and Ittleson (2005) stated that pre-service teachers often use e-portfolios to:

1. provide evidence of competencies required to gain licensure or certification
2. reveal skill levels and competencies in areas such as communication, mathematics or leadership.

Students’ e-portfolios can showcase important aspects of their learning experiences and personal development plans for the future.
E-portfolios in Teacher Education

Previous research on e-portfolios in teacher education:

A qualitative study conducted by Bartlett (2002), reported major advantages:

(a) electronic portfolios are more powerful and convenient than traditional portfolios, and
(b) they learned about technology. Students in this research planned to use their portfolios for job searches and to reflect on their teaching development.
Self-regulated learning describes how learners cognitively, motivationally, and behaviorally promote their own academic achievement (Zimmerman & Schunk, 1989).

Pintrich (1995) summarized self-regulated learning into three major aspects of academic learning:

1. Self-regulation of behavior, which involves the active control of resources students have available to them.
2. Self-regulation of motivation and affect, which involves controlling and changing motivational beliefs and.
3. Self-regulation of cognition, which involves the control of various cognitive strategies for learning.
Self-regulated learning (SRL) and ePortfolio

Portfolio developments have been known to increase self-regulation in students: portfolio assignment helps students to plan independently, to make choices independently and to perform independently in accordance with these choices. Strijbos, Meeus and Libotton (2007)

There was also an improvement in the quality of students’ reflection. When students use portfolios, they assume more responsibility for their learning, better understand their strength and limitations, learn to set goals (Hillyer & Lye, 1996).
Self-regulated learning (SRL) and ePortfolio

Portfolio developments have been known to increase self-regulation in students:

**e-portfolios allow students to think critically, and become active, independent and self-regulated learners**

(Perry, 1998; Mills-Court & Amiran, 1991)

**electronic portfolios are found to be linked to students’ ability to self-regulate their learning and to enhance their meaningful learning of important educational skills and ability**

RESEARCH QUESTIONS

This research seeks to answer these research questions:

- What is the level of students’ motivated strategies for learning before and after the development of the e-Portfolio?

- Is there a significant difference in the level of students’ motivated strategies for learning before and after e-Portfolio development?

- What are the motivated strategies for learning elements enhanced by e-Portfolio development?
METHODOLOGY

- study consists of 39 postgraduate students attending a course in ICT in Science Education.

- E-Portfolio development forms one part of the coursework for this course and forms 30% of the assessment marks.

- A pre and post administration of a Revised Self Regulated Learning Questionnaire (R-MSLQ)

- Structured interview questions were also used to gauge SRL strategies and explore students’ perceptions
e-PORTFOLIO DEVELOPMENT

- My Teaching Philosophy
- My Teaching Goals
- Lesson Plans (Biology/Chemistry/Physics)
- Lesson Projects (Biology/Chemistry/Physics)
- Slide Presentations
- Two Accompanying Documents (Resume/Certificates/Articles/Creative Writings, etc)
- Reflections
RESULTS AND DISCUSSION
MY REFLECTIONS

Thanks to UPSI and my lecturer because they gave me a chance to develop my ICT skill by taking this course. E-portfolio is very important nowadays because we can manage and store all our work and data. During develop my e-portfolio, I’ve facing a lot of difficulties because this is my first time using blogger. But by support given by lecturer and friends (my group), at last I can developed my e-portfolio myself.

Jan 27 - Today i've been upload photo to my e-portfolio.. at the beginning i cannot upload it because the server is to slow... i'll keep trying and finally i'll get it... it's show that if we keep try and never give up we'll achieve what we're target in our life.

Jan 31 - Mr Shahran take over the class to teach as more on editing using picasa software. i very enjoyed and excited editing my own photo. i think i already master in picasa and ready to develop my e-portfolio by adding movie or pic on my e-portfolio.

Feb 4 - 6 – I had changed my e-portfolio template in the last there days. During this time, I had learned html code by explored it myself and editing my e-portfolio html code. I’m very satisfied with my new template of my e-portfolio right now. I still trying to explore more on html code and updating my files into my e-portfolio

Feb 8 - Today I’ve upload more powerpoint presentation to my e-portfolio into my artifacts.
LESSON PLAN

15 - 17 Nov 2009
Cell division of Mitosis

The Cell Cycle

Welcome to my E-PORTAL!
Myself
Education University of Sultan Idris (UPSI)

PROFESSIONAL DEVELOPMENT PLAN
My Professional Development Plan (PDD)
Personal Data & Background (CV)

TEACHING PHILOSOPHY
National Education Philosophy
National Science Education Philosophy
My Teaching Philosophy
My Life Philosophy

LESSON PLAN
1. MITOSIS
   -= Power Point Slide Notes
   -= Worksheet 1
   -= Worksheet 2
   -= Video of Mitosis
2. ENDANGERED ECOSYSTEM

POWERPOINT
15 - 17 Nov 2009
VIDEO
This site is dedicated to students, teachers and anyone who may be interested. Life is a precious journey. We learn from the past and impact the future. Teaching connects us to all who came before and provide inroads to bringing all peoples and all cultures together with love and understanding. I hope you enjoy my e-portfolio.

MY TEACHING PHILOSOPHY

I believe that each student needs a secure, caring, and stimulating atmosphere in which to develop and become mature in all aspects. As an educator it is my desire to help them meet their optimum potential in these areas by providing an environment that is safe and invites a sharing of ideas. To provide a persuade environment or conducive classroom, I believe teacher should act as facilitator to guide the lesson and at the same time let students' curiosity to direct the learning.

I believe that as a educator we need to provide access to information rather than acting as the primary source of information for students. As a guide in our own lesson, let the students search for knowledge and...
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Research Question 1

What is the level of students’ motivated strategies for learning before and after the development of the e-Portfolio?

Pre - (M = 5.38, SD = .586)

Post - (M = 5.71, SD = .57)
Research Question 2

Is there a significant difference in the level of students’ motivated strategies for learning before and after e-Portfolio development?

Analysis revealed significant differences in three of the five sub-scales of the R-MSLQ namely i. extrinsic motivation (p = 0.00 < .05); ii. task value (p = 0.00 < .05) and iii. self-efficacy (p = 0.015 < .05).

Table 2. Paired Samples Test for Pre and Post R-MSLQ

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MinmotPos - MinmotPre</td>
<td>.33150</td>
<td>.49561</td>
<td>.07936</td>
<td>4.177</td>
<td>38</td>
<td>.000</td>
</tr>
<tr>
<td>MintrinsicPre - MintrinsicPos</td>
<td>-.19231</td>
<td>.75755</td>
<td>.12131</td>
<td>-1.585</td>
<td>38</td>
<td>.121</td>
</tr>
<tr>
<td>MextrinsicPre - MextrinsicPos</td>
<td>-.43590</td>
<td>.66734</td>
<td>.10686</td>
<td>-4.079</td>
<td>38</td>
<td>.000</td>
</tr>
<tr>
<td>MtaskvaluePre - MtaskvaluePos</td>
<td>-.55385</td>
<td>.68127</td>
<td>.10909</td>
<td>-5.077</td>
<td>38</td>
<td>.000</td>
</tr>
<tr>
<td>Mcontrolbeliefpre - Mcontrolbeliefpos</td>
<td>-.21795</td>
<td>.91439</td>
<td>.14642</td>
<td>-1.489</td>
<td>38</td>
<td>.145</td>
</tr>
<tr>
<td>Msselfeffpre - Msselfeffpos</td>
<td>-.30128</td>
<td>.74102</td>
<td>.11866</td>
<td>-2.539</td>
<td>38</td>
<td>.015</td>
</tr>
</tbody>
</table>
Research Question 3

What are the motivated strategies for learning elements enhanced by e-Portfolio development?

(i) Intrinsic and Extrinsic Goal Orientation

Most of the students reported the importance of performance i.e. to succeed in developing their e-portfolio and the desire that their e-portfolio could be viewed and shared by their colleagues, students and families.

All respondents were satisfied in successfully completing a challenging task and incorporating the desired artifacts into their e-portfolios.
<table>
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<tr>
<th>SRL SUB-SCALE- GOAL ORIENTATION</th>
<th>INTERVIEW EXCERPTS</th>
</tr>
</thead>
</table>
| i. Intrinsic goal orientation refers to the perception of why she is engaging in a learning task, the degree to which the student perceives herself to be participating in a task for reasons such as challenge, curiosity, and mastery. | When I see I can believe in myself that I actually….did it. Yes [I feel] more confident, especially now when I can show it. (T3)  
I was happy to know that I’m doing to learn something that I don’t know so that I’m going to use it in my future (T6) |
| ii. Extrinsic goal orientation concerns with the degree to which a student perceives herself to be participating in a task for a reason such as grades, rewards, performance, evaluations by others, and competition | “In e-portfolio, we can show our information to the people [who] want to know us. We can show them how our CV, and the project, lesson plan which we did before” - (T1)  
I just put all of my assignment so that my colleagues can see…. can share (T2) |
Research Question 3

What are the motivated strategies for learning elements enhanced by e-Portfolio development?

(ii) Students’ Task Value

A high post score of task value (M = 6.21, SD = .717), on the R-MSLQ scale suggests high involvement in student learning. This is further supported by the elaborate responses of students on the importance of e-portfolio development.

<table>
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<tr>
<th>SRL SUB-SCALE – TASK VALUE</th>
<th>INTERVIEW EXCERPTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Task value refers to the students’ evaluation of how interesting, how important, and how useful the task</td>
<td>We can learn new skills, teach others, like in schools and show people our work. (T8)</td>
</tr>
<tr>
<td></td>
<td>Very interesting because I has so many things and I also follow the other teachers’ blog. There are many other teachers’ resources that can be use for my teaching in my class. That is very useful. (T7)</td>
</tr>
<tr>
<td></td>
<td>I can teach student and other to create their own blog, class blog.</td>
</tr>
</tbody>
</table>
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(ii) Students’ Task Value

Reports on the benefits of e-portfolio development include:
(i) resume for employment or promotion
(ii) document career development
(iii) staying abreast with digital natives
(iv) as a tool to motivate students
(v) teaching and learning resource
(vi) as reflective tool and,
(vii) information sharing.

These findings are supported by previous research on e-portfolio; as a reflective tool (Bartlett, 2002), showing their e-portfolios to students (Bartlett & Sherry, 2004), using technology in their future teaching (Goldsby & Fazal, 2002), and as a means to create and share teaching portfolios (Constantino & De Lorenzo, 2002).
Research Question 3

What are the motivated strategies for learning elements enhanced by e-Portfolio development?

(iii) Self-efficacy

Both quantitative and qualitative data analysed revealed a boost in students’ self-efficacy during e-Portfolio development. A high post score ($M = 5.75$, $Sd = .701$) suggest an increase in students’ self-efficacy.

All nine samples interviewed narrated high involvement in their e-portfolio development through self-exploration and time spent on this task. This is a clear indicator that these postgraduate students demonstrate high self-efficacy.

Active participation, greater effort shown and a high level of persistence are amongst the factors that contributed to the complete development of their e-portfolios. The nature of the tasks embedded in the development of the e-portfolio could well be a contributing factor.
<table>
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<th>SRL ELEMENTS</th>
<th>INTERVIEW EXCERPTS</th>
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<tbody>
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<td><strong>SRL SUB-SCALE- SELF-EFFICACY</strong></td>
<td><strong>INTERVIEW EXCERPTS</strong></td>
</tr>
<tr>
<td>i. Self-efficacy can be defined as the self-appraisal of one’s ability to master a task and this includes judgments about one’s ability to accomplish a task as well as one’s confidence in one’s skill to perform that task.</td>
<td>As long as we have the time and semangat nak belajar <em>(the will to learn)</em>. We need to learn and then it is nothing is impossible. <em>(T5)</em></td>
</tr>
<tr>
<td></td>
<td>Proud with myself. …then ohhh actually I found this already, I can do it also and ya... now I [am] better at computer and internet. I am more confident in exploring internet now …I will explore, it’s easier for me. <em>(T4)</em></td>
</tr>
<tr>
<td></td>
<td>… I stay for hours in the cyber café <em>(CC)</em>.. If it’s Sunday I go there from 10 am till 2pm <em>(T8)</em></td>
</tr>
<tr>
<td></td>
<td>Actually I spent more time for it … self-exploration more that I also get other information from the website to create the html to put in the video… information because I explore many things so I learn many things in e-portfolio.</td>
</tr>
</tbody>
</table>
CONCLUSION

The quantitative and qualitative analysis of the data revealed that there is a significant increase in the motivated learning strategies employed by these teachers especially in the expectancy and value components.

The postgraduate teachers’ responses indicated that developing their e-portfolios resulted in a higher degree of participation in the task even if challenged by the lack of skill in the technology involved. These students also exhibited the urge to perform better to be able to demonstrate their ability i.e. displaying and sharing their e-portfolio with others.
CONCLUSION

Another significant impact of e-portfolio development is in the increase in students’ perception of the task at hand.

All respondents agreed that developing the e-portfolio has many benefits amongst which documenting evidence of their learning and performance, and sharing of information tops the list.

Respondents also found that the acquisition of the ICT skills and competencies is a very rewarding experience during e-portfolio development.
CONCLUSION

In teacher education, the teaching e-portfolio can be developed as lesson related plans, strategies and artifacts to be shared amongst teachers, which can improve teaching and learning.

Reflections on artifacts produced, ICT skill acquisition, independent learning and overcoming challenges are crucial elements in developing high self-regulators of learning.
Terima kasih

Thank you