

The Effect on Students' Attitude Towards Writing Reflection on an Eportfolio when
Scaffolding Material is Provided

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Abstract

Twenty-three Grade Six students participated in an action research project that examined the question, “How can providing specific reflection questions on an eportfolio improve students motivation and writing ability when writing reflections?” When conducting this research a two-group pre-and-post design was chosen to compare student’s attitude and performance when writing reflections. The intervention consisted of four projects that each student needed to complete and then a final reflection on the unit. Post intervention data collected on both groups did not indicate any significant improvement in either group. Indicating that there is no statistically significant data to indicate which method is better at this stage.

Keywords: reflection, scaffolding, eportfolio

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Introduction

I am a Technology Integration Facilitator (TIF) in an international school in Qatar. As a TIF I am responsible for helping students set up their eportfolio, and teaching expatriate students from Grade Six and Seven in a course called Digital Learning. Last year whilst working with students on their responsibilities when producing an eportfolios for a student led conference. I noticed that students did not regularly engage in a reflective process on their eportfolios. It was only when they needed to present their work to their parents would they engage in reflections. In order to address this issue I spoke to some students about why they do not engage in a reflection process associated to a task, project or even an experience from class. With many of the students responses being "I don't know what to reflect on" or "I don't know how to reflect".

I believe an important part of learning is being able to reflect on our experiences good or bad, and is one of the main function and purposes an eportfolio is used for in schools. I believe, it would be worthwhile to investigate student attitudes towards writing reflections in a digital medium whilst providing them with opportunities to improve their skills in a structured and supportive environment.

Literature Review

This literature review looks at three main areas relating to the research question. Firstly the main purpose and function of an eportfolio, secondly the importance of reflections within any learning context and finally the purpose of scaffolding instruction to help student succeeded.

A portfolio is a purposeful collection of student's work that exhibits the student's efforts, progress, and achievements in one or more areas (Guenter, 1999). Using portfolios as an educational tool is not a new concept, but as student are asked to represent their work in more creative mediums because of new and emerging technologies, it is becoming essential to the 21st century classroom. The eportfolio that we currently use in many professional and educational fields originated in the fine arts and has been adopted and amended to fit into an ever-increasing digital environment. According to Barrett "an ePortfolio is an electronic collection of evidence that shows your learning journey over time" (2008). Eportfolio processes should also include ideas from both informal and formal learning activities, which should be personally managed and owned by the student (Beetham, 2005).

A K-12 portfolio has always been a place to display both written and visual sources of data that has contributed to the learner's understanding of what has happened in both the classroom and in particular a learning experience (Mills, 2007, p.72). These sources might be best referred to as student learning artifacts, but presenting these artifacts in a portfolio does not attribute to authentic learning on its own (Lorenzo, Ittelson, 2005). For this reason many writers mention the idea of the life long learning and how an eportfolio can or should reflect that (Beetham, 2005). This concept highlights the importance of the students engaging in reflections as important part of the learning process and learning journey throughout school.

Student reflections are considered a fundamental concept of life long learning. Therefore it is important to consider the pedagogy behind reflections and how it is related to this study and what that process might look like.

It was John Dewey (1933) who said that "We don't learn from experience; we learn from reflecting on experience." Without purposeful reflections then there is no real avenue for students to measure and record their own growth over a period of time. Thus the use of

reflections in any learning environment is an important part of the educational program and the student's development. Students are often engaged in reflecting on a book, a learning experience, as well as past events. It can be a crucial strategy for checking a student's understanding of a core concept, and is the most common method of use by teachers (McKenzie, 2000). Homick and Melis state that it is important for student's to engage with content correctly soon after it is learnt. If they do not actively work with the content studied close to the time then they generally forget it rather quickly (2006). An eportfolio can be a suitable platform for a student to engage in a reflection process especially within a one-to-one laptop program. How do we develop intrinsic motivation for students to reflect on their work? This is an important aspect to consider when looking at the eportfolio process.

Homik and Melis researched "How do students reflect when they can write logs freely without being guided by prompts?" They conducted two separate experiments. In the first, they found that students at a tertiary level engaged in the reflection process regularly, but only once they were made aware that the quantity of written blogs would contribute to their end grade. In the second experiment they arranged the students into two groups and allowed one group to blog freely and gave the other a structure to follow. Although their results were hindered due to technical problems with their email, an observation was made that out of the ten students three posted quite often. A reason for this was that they were following their own interest. The others student where found to be posting the night before the final submission date. They finally concluded that students who posted "*reflected*" regularly and actively dealt with the seminar's topic in depth. This resulted in them gaining a broader overview of the content (2006).

Although this study looked at students from a tertiary level I would be interested to see if there are any similarities within my study and how motivated students are to write reflection when they know their results do not affect their final grade. Further research,

investigated use of paper as a medium for student to use for their learning logs with students from different educational grades. Their results showed that learning logs (reflection) support the student's meta-cognitive reasoning and autonomy. With growth in the student's ability to plan, reflect, memorise, and exploring different viewpoints in a given situated way (Berthold, Nückles, Renkl, 2004).

By providing scaffolding for the student, the learning that occurs should result in an elimination of problems such as disengagement and boredom (Byrnes, 2001, p. 37). In Vygotsky's research he highlights four phases of instructional scaffolding. These are modeling, student imitation of skills observed, slowly removing scaffolds from students, and finally achieving expert level of mastery (Cited in Byrnes, 2001, p. 37). Within each of these phases the teacher allows the student to have more control over how they engage in the task, to the point where they (the teacher) no longer need to supply the students with specific guidance.

Providing students with scaffolding such as graphic organisers, outline templates, note taking guides and strategies for remembering helps them not only with the task at hand, but also later on in their educational careers. The goal of any educator, in any subject, is to help students develop skills that will make them self-directed, self-regulated learners (Lange, 2002, p.11). There are few drawbacks to using scaffolding as a teaching strategy, if it is utilised properly. The only time it would be detrimental is if it is somehow implemented in such a way that the student is never weaned off the support the expert provides (Pennil, 2002, p. 9).

The different models of scaffolding help in reinforcing the new skills and knowledge learned. The various methods that a teacher employs in scaffolding helps the students acquisition of new knowledge, with a greater chance that they will be able to apply these skills in other contexts (Hammond, 2001, p. 59).

An eportfolio can be used as an authentic assessment tool, but it needs to be both developed and reflected upon by the student. Eportfolios need to contain an element of self-assessment, with the teacher becoming more like a coach or a consultant than a director or an instructor (Moran, 2007). This means that the student is developing necessary skills to become creative and expressive in an environment that is no longer controlled by the teacher but rather facilitated or guided. Vygotsky theorized, children's learning must be guided and supported by adult modeling and corrective feedback (Byrnes, 2001, p. 7). It does not mean the teacher is the sole provider of instruction, but allows students to have active engagement in the content rather than being passive. This helps to build ownership and a strong interactive link between the process and the product of their learning journey. This is evident in the use of reflective writing, which allows the student to engage in an authentic learning cycle (Barrett, 2008).

The transition from passive to active engagement can be best seen when student move along a continuum of reflective learning, which starts with writing reflection or journaling motivated extrinsically by the teacher through the use of scaffolding, ending at the point where the student is motivated intrinsically to write (Hammond, 2001, p. 59). This is an important part of the eportfolio process and aids in giving the author the chance to receive feedback or communicate with others outside the classroom, developing important education and life skills. This then helps develop greater metalinguistic awareness for the student, which will assist them not only in school but also in the workforce (Smith, Eliey, 1997, p. 61). Reflections can include personal observations made by students. It can be on pieces of work, which includes their understanding of the curriculum, links to tasks, as well as evidence from assessment strategies.

There have been several points highlighted in this research but essentially a portfolio provides an environment where students can collect their work in a digital archive and select

specific pieces of work (hyperlink to artifacts) to highlight specific achievements. They can reflect on the learning demonstrated in the portfolio in either text or multimedia form; set goals for future learning (or direction) in order to improve; and celebrate achievement through sharing this work with an audience, whether real or virtual. By providing students with either instructional scaffolding or written scaffolding prompts students are engaging in new skills be it collaboratively, if a task is too difficult to complete individually, or with autonomy (Lange, 2002, p. 2). A teacher initially provides extensive instructional support, or scaffolding, to continually assist the students in building their own understanding of new content and process with the intent for them to eventually become independent.

Method

Research Design

In order to answer my research question I designed and implemented an action research intervention with a two-group, pre-and-post test design. In this study, the independent variable was using scaffolding to support students when writing reflections on their eportfolio. There were two independent variables measured in this study, they were attitude and ability. I was interested to see if the student's ability and attitude with writing reflections would improve if structured template were provided. I hypothesized that the students in the treatment group would show more improvement in their attitude and ability to reflect when engaging in the reflective process compared to the control group.

Intervention

This intervention was designed to investigate if scaffolding reflective questions would increase student attitude towards reflection and their ability to write within an eportfolio. Both groups' attitudes towards writing reflections was measured at the beginning

of this intervention and then again at the end. Throughout this intervention each group was given the same projects and then asked to reflect on their learning experience. At the end of each project there was a whole class discussion facilitated by the teacher addressing what the students liked and disliked about the project. After that they were then given time to write a reflection on their eportfolio. To assist the treatment group with their reflective writing, they were provided with a scaffolding sheet to help them write their reflections (see appendix A).

Throughout this intervention students were engaged in four mini projects during class time and a final unit reflection. At the end of each project students were required to write a reflection based on the process they engaged in and then on the final product produced. Each lesson was 70 minutes and followed a set outline. Here is an example:

- Introduce topic
- Project Question: How does knowing my smarts help me learn?
- Class discussion: What do you think this question is all about?
- Linking activity: *Complete the Multiple Intelligence test.*
- Project: Create a short (Less than 2 minutes) movie about your preferred smart explaining how the knowing this can helps you learn.
- Present: Student share their project with class on their eportfolio.
- Reflection: Group discussion about things they liked and disliked about the task.
- Students write their reflection.

Only treatment group:

- Provide scaffolding questions and discuss them.
- Students write their reflection.

Method

This study sample consisted of twenty-three students from Grade Six, aged between

11-13 to whom I teach Digital Learning. These students are divided into two classes with a total of ten boys and thirteen girls. This is a convenience sample within an international school located in Doha, Qatar. Although the school is an international school the major population is Arabic and 35% international students. The ethnic breakdown is shown in Table 1.

Nationality	Students	Female	Male	English as a Second Language
Nigerian	2	2	0	0
American	1	1	0	0
Mexican	1	1	0	1
Indian	2	0	2	1
British	4	2	2	0
German	1	1	0	1
Colombian	2	1	1	2
Canadian	4	3	1	0
Swedish	1	1	0	1
Spanish	1	0	1	1
Bulgarian	1	0	1	1
Brazilian	1	1	0	1
Georgian	1	0	1	1
Slovakia	1	1	0	1
	23	14	9	11
<i>Note: There are no Muslims among these students. During my Digital Learning class, Muslim students attend Islamic Studies.</i>				

Table 1 (Ethnic Breakdown)

Instrumentation and Data Collection

This study used a two group, pre-and-post design to gather information regarding both

a change in attitude towards reflections and the ability to reflect. The first part of my design involved students in both groups completing a pre intervention Likert Scale Survey, named “*How I feel about reflecting*” (see appendix B). This ten-item survey was intended to gauge student attitudes towards reflecting and included statements such as “I often reflect on my learning” and “Journaling comes easy to me”. Students were asked to rate their level of agreement with these statements using a three-point scale. A rating of 1 indicated the student “disagreed with the statement”, 2 indicated the student “was not sure about that statement”, and 3 indicated they “agreed with the statement”. The sum of these ratings was used in order to determine an overall score for each student’s set of responses. A student responding to all ten questions with a 3 rating would thus have a maximum possible score of 30 points.

In order to measure the students ability to reflect, I used a simple reflective rubric, (see appendix C) that looked at how they engaged in the reflection and whether or not they were able to address the main questions regularly and authentically. The main evidence was seen in their final reflection, which helped me identify the overall ability to reflect. Students wrote a total of five reflections with each rubric having a total weighting of 12. The first and last reflection was used to measure their gains.

Threats to Validity

There were many possible threats to validity in this study. Possible extraneous variables included: English being a second language (ESL) therefore hindering both their motivation and ability to write in English, how many ESL students are in each class, student ability to use the eportfolio, gender specifically looking at how boys interact with written text compared to girls, and the time and day of the week the lesson took place. However, in my opinion, the biggest threats to validity were the rubric and teacher bias. The rubric looked at structure as apart of the weighting although I didn’t explicitly teach structure, therefore it was

harder for me to substantiate whether or not there was any true gain based on that point. The other threat to validity could have been teacher bias being especially during the marking of assessment. The rubric used was a very basic one and lacked key indicators to help identify students to writing ability. Much of what was measured in ability was completed through teacher judgment and therefore lacked consistency.

Results

For the purpose of being clear, in this section, the group, which received the treatment, will be referred to as 'Group 1'. The group that did not receive any treatment will be 'Group 2'. A one tailed t test showed no statistically significant improvement in student's attitude under grouping conditions. ($t = 0.3351$, $df = 21$, $P = 1.217$). Figure 1 below illustrates the mean gain in attitude for both the groups. See Table 2 for a summary of test statistics.

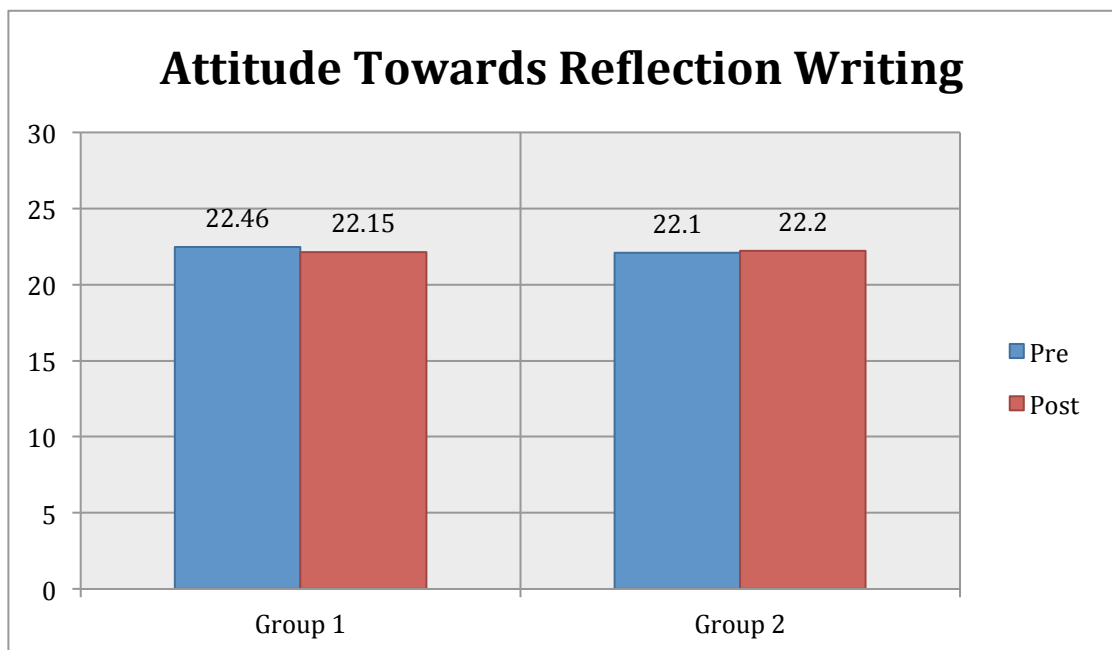


Figure 1. Mean Gains in Attitude Towards Reflection Writing

Table 2			
<i>Attitude Towards Reflection Writing</i>			
	Mean	SD	T
Group 1	-0.31	2.84	0.3351
Group 2	0.1	2.96	

Table 2

Ability to write reflections looked to have shown a change in result but only with Group 2, but the one tailed t test showed no statistically significant improvement in students. ($t = 0.3975$, $df = 21m$, $P = 2.535$). Figure 2 illustrates the mean gains in ability to write reflections. See Table 3 for a summary of test statistics.

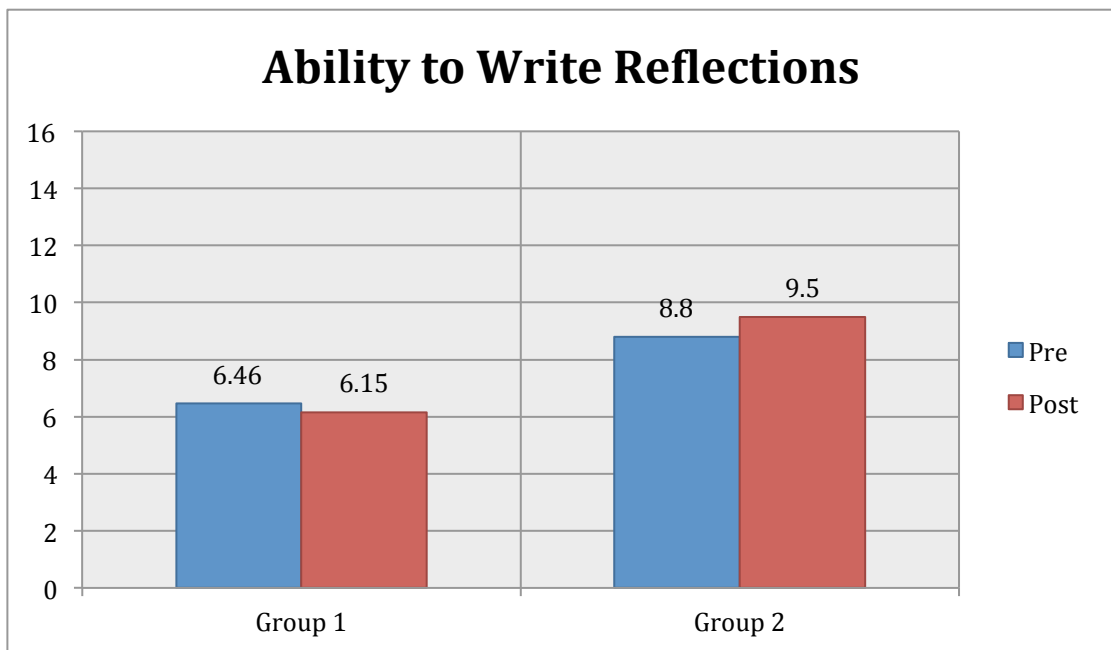


Figure 2. Mean Gains for Ability to Write Reflections

Table 3			
<i>Ability to Write Reflections</i>			
	Mean	SD	T
Group 1	-0.31	7.53	0.3475
Group 2	0.7	3.02	

One of the extraneous variables mentioned as a threat to validity, was gender. Due to the way that the data was collected I was then able to identify the gender in both groups and then compare the gains for both attitude and ability to write. Figure 3 illustrates the mean gains in attitude and Figure 4 mean gains in ability to write reflections based on gender. The data hinted that the boys in the treatment groups benefited from the scaffolding. Although a one tailed t test showed no statistically significant improvement ability when comparing boys to girls in Group 1. ($t = 0.3964$, $df = 10$, $P = 4.730$). See Table 5 for a summary of test statistics.

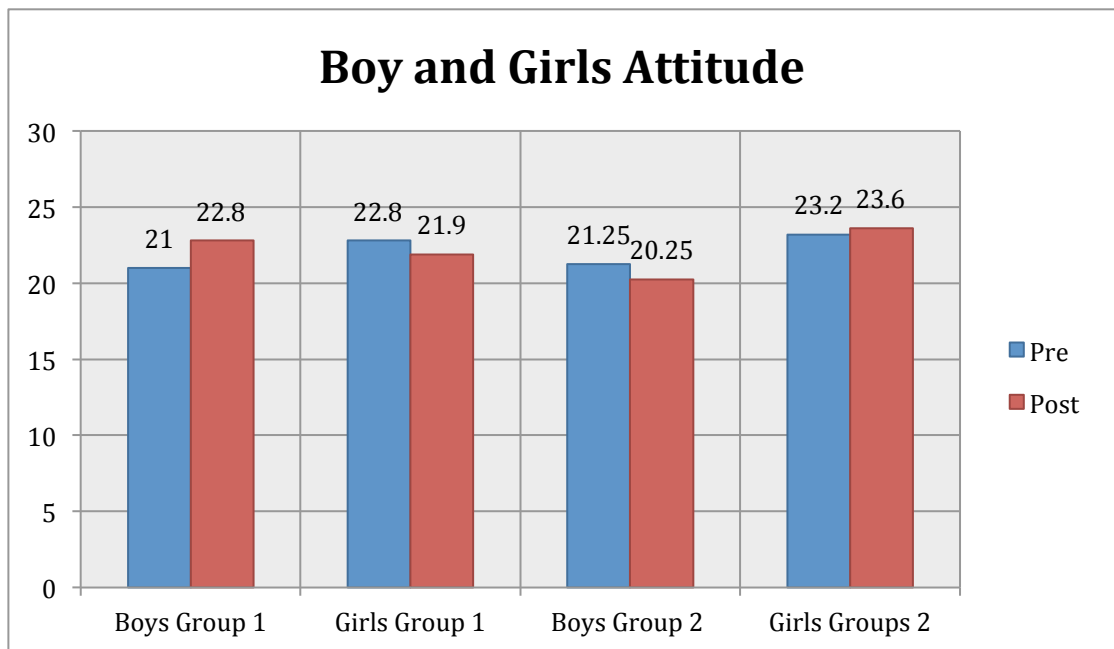


Figure 3. Mean Gain in Attitude of Boys and Girls

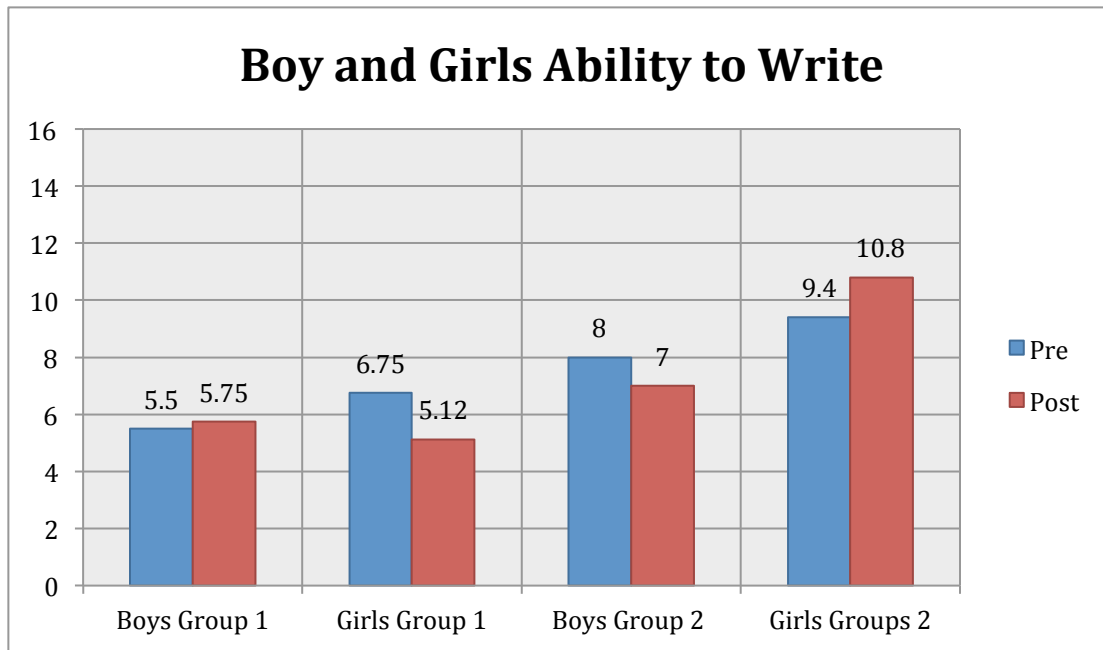


Figure4. Mean Gains in Ability of Boys and Girls

	Mean	SD	T
Comparing Girls to Boys in Group 1	-1.63	7.41	0.3964
	0.25	8.42	
Comparing Boys in both Groups	0.25	8.42	0,2702
	-1.00	3.83	
Comparing Girls in both Groups	-1.63	7.41	0.8832
	1.4	1.82	

Table 5

Discussion and Action Plan

The results of this study showed that although student attitudes towards writing reflection were not greatly affected in any statistically significant way, student engagement in the writing process was improved post intervention. Although there looks to be gains from Group 2 in writing ability, two things are worth noting based on the result collected. Firstly Group 2 already had a high level of competency when writing reflection compared to Group

1, therefore one could hypothesize that Group 2 already had a strong foundation in writing ability. So therefore needed less support to help them succeed. Secondly the boys seemed to benefit from the support in Group 1 yet the boys in Group 2's ability to write didn't seem to improve. Both these factors are worth considering as I plan to replicate this study again this year.

It was observed that when students were provided with an engaging project they were more likely to produce more authentic reflection with deeper consideration of the education benefits of the task. The use of scaffolding to aid the students writing ability only really benefited the student that struggled with the writing process, indicating that scaffolding may have hindered some of the student's ability to write if they already had good writing habits. This was highlighted in Pennil research as a considerable factor when using scaffolding. These results have helped to identify the need to provide students with the right type of support within the classroom.

Although I believe these results are a fair representation of the study, I believe it would be worthwhile to replicate this study throughout the year to see if student attitude and ability to reflect changes compared to my initial findings. In consideration of the result collected I would make some changes however. Instead of having a treatment group and a controlled group based on two separate classes I will offer the student to form their own groups within the class. Those that think they are capable of reflecting, and those that would like more support. Allowing students to identify their own strengths and weakness, and providing support to the group that needs it. This would be until they feel or deem it unnecessary for their own success.

Furthermore the rubric chosen to support the data collection process, I believe was insufficient. It was only once I began the marking process did I realise that the rubric designed was not specific enough for my intentions. Making it hard for me to give consistent

grades due to teacher bias. Through introducing key indicators onto the rubric, the students will then be able to identify and evaluate their own writing ability; I believe this will help both the student and the teacher when grading reflections.

It is in my opinion that reflections are an important part of the learning process at any stage of development. Although students may not see the true gains in reflection this paper itself highlight the importance of reflecting on ones experience and learning from them. “We don’t learn from experience; we learn from reflecting on experience.” (Dewey, 1933) “But it is when we act on the reflection, we can truly measure the growth in our experience” (A Joe Lewczuk corollary).

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Appendices

Appendix A: *Reflection Scaffolding*

Here is an outline of what you should include in after each task in Digital Learning.

Section 1 is all about the project

Section 2 is personal reflections

Section 1

Title of Project:



How does this task link to the other subjects?

Unit Question: _____

Area of Interaction focus (AOI) This is for your reference and does not need to be included in your reflections

Community & service	Health & social ed	Environments	Human Ingenuity
<ul style="list-style-type: none"> • <i>How do we live in relation to each other?</i> • <i>How can I contribute to the community?</i> • <i>How can I help others?</i> 	<ul style="list-style-type: none"> • <i>How do I think and act?</i> • <i>How am I changing?</i> • <i>How can I look after myself and others?</i> 	<ul style="list-style-type: none"> • <i>What are our environments?</i> • <i>What resources do we have or need?</i> • <i>What are my responsibilities</i> 	<ul style="list-style-type: none"> • <i>Why and how do we create?</i> • <i>What are the consequences?</i>

Section 2

This project has helped me develop my understanding of (AOI) and I can see how this AOI concept is linked to other subject through.....

Brief explanation of the Task and any tools used.

I like this piece of work because...

Through out this task I have used different skills.....

I have developed as a (learner profile) because.....

I choose to use this web2 tool/ software program/ other because....

My learning has improved from this task because.

Why did you choose this project for your eportfolio?

What does this piece of work show about your learning?

How successful was this project at helping you answer the unit question?}

What would you do differently next time?

Appendix B: *How I feel About reflections*

***1** Please complete the statements below by selecting how much you agree with them.

	Agree	Not sure	Disagree
1. I often reflect on my learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I enjoy reading my past reflections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Reflecting help me improve my skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I learn from my mistakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Journaling comes easy to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Reflections questions are easy to answer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I enjoy sharing my reflections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I enjoy writing my reflections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I know how to write a good reflection question	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I reflect on my reflection.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix C: Reflection Rubric

Reflection Rubric for Digital Learning		4	3	2	1	0
Thinking		Reflection shows thorough thoughtfulness.	Reflection shows some thoughtfulness.	Reflection shows little thoughtfulness.	Reflection show no thoughtfulness.	Not enough work completed for assessment.
Understanding		Reflection has supporting details and examples.	Reflection has some supporting details and examples.	Reflection has few details or examples.	Reflection has no details.	Not enough work completed for assessment.
Analyse		All parts of the reflection are complete and well done.	All parts of the reflection are complete.	Most parts of the reflection are complete.	Reflection is incomplete.	Not enough work completed for assessment.
Reflect		Reflection addresses all of the project profile requirements and beyond what was required.	Reflection addresses all of the project profile requirements.	At least some of the project profile requirements mentioned.	Student Learning within the project profile requirements not mentioned.	Not enough work completed for assessment.
Total						