

## **PORTFOLIOS AS USEFUL ASSESSMENT EVIDENCE, NOT AN OPTIONAL EXTRA**

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Portfolios are seen as work learners and teachers can do when they have extra time or want to kill time. This paper shows that portfolios are useful and authentic pieces of work a teacher can rely on for evidence of learner's progress. We use examples of learners' portfolio pages that address particular assessment standards. We show how a progression table helps to identify learners' performance for a specific grade, a grade above and a grade below, and how the progression table can be turned into evidence statements that the learners can use to improve their work.

In the conference presentation the teachers will be using samples of portfolio work they collected from their learners to explain how their colleagues can use portfolios. Teachers will show how portfolios come in handy when they cannot get a chance to see all learners at once for a particular task.

### **Introduction**

The ideas presented in this paper arise from shared experiences of teachers and researchers in the Technology for All Pilot Programme (TFAPP). This is a programme in seven primary schools with the aim of finding the potential in NCS Technology.

Participating programme teachers use the same course book and do the same project (lasting 8 to 10 weeks) each term. This has an advantage of having a common ground for discussion in the twice-monthly workshops. It makes it possible for the teachers to help each other and to share solutions for the problems and challenges faced in the classrooms. Assessment of technology is a special focus this year, and we are finding how to get the most learning benefit from learner portfolios.

Portfolios are folders, files and or workbooks where learners keep examples of their written work in each stage of the project, and we use these pages as evidence of progress. The portfolio reflects completed work, the quality of work and learning progress. Our assessment of portfolios does not focus on rewards like medals, gold stars, etc. Rather we promote a culture of success that is backed by the a belief that all can achieve.

Learners take responsibility for their learning and progress, and this is reflected by the sense of pride and ownership depicted when learners write their portfolio page. The portfolio helps the learners to reflect on their learning as part of 'learning how to learn'. A portfolio in this sense gives teachers and learners the platform to discuss the work done alongside the assessment standards in a simple understandable language.

## Assessing the learner's portfolio page

We have found that learner portfolio pages are useful and reliable evidence of what the learner has been doing. If the teacher cannot talk to the learner at work, the portfolio page provides a substitute for the learners' description of what he / she was doing.

The learners must write and draw their portfolio pages immediately after they have completed a stage of the project, so that their actions, or the reasons for their choices, are still fresh in their minds.

The examples that follow are from the *Technology for all* Grade 6 course book. The particular Grade 6 project we completed in April to June 2008 is called "Animals, Toys and Stories." The context is that young children in an orphanage need entertainment; the Grade 6 learners find a traditional story about animals (a story that teaches some traditional wisdom) and they investigate, design and make a toy animal with a moving mouth; in the final evaluation they use the toy animal to tell the story. The technology knowledge we are developing is **Tech2-Structures** and **Tech2-Systems and control (Mechanical Systems)**. The Tech3 Assessment Standard is **Tech3-Indigenous Knowledge**

### Example 1 – Ashleigh's investigation of animals

Look at the animal pictures. This is an extract from the *Technology for all* Grade 6 book, and it sets out what the learners had to do.

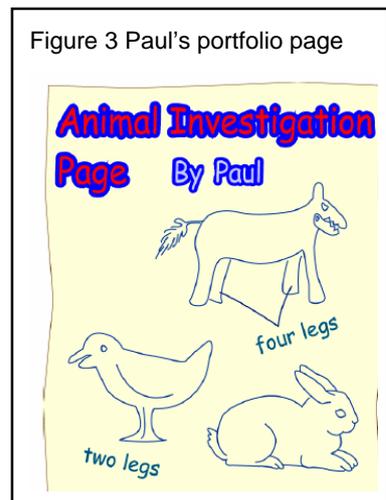
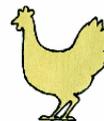
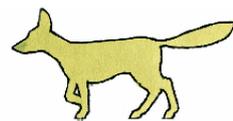
#### How animals move: Page 2 of your project portfolio

Collect pictures of some different animals that might be found on Linda's farm. Try to make sure that at least one of them has four legs and one of them has two legs. Then find out as many of the things below as you can.

- What kind of mouth does the animal have?
- A sharp beak, a flat mouth for eating grass?
- A short strong jaw with teeth for catching and eating other animals?
- Do you think the shape of the mouth has anything to do with what the animal eats?
- How does the animal stand up? On two legs? On all four legs?
- Which ways do the knees bend to help the animal stand up and move? Do the knees come forward like ours or do they bend backwards?
- What kind of feet does the animal have to help it balance? Hard hooves to help it grip? Padded paws so that it can move quietly? Claws to help it to catch other animals? Webbed feet to help it swim?
- Does it have a tail? What does it use the tail for?
- What noise does the animal make?

Look at **Figure 3**. Paul has done a page for his project portfolio to show that he can investigate. Do a page like Paul's for your project portfolio. Your page should have:

- Cut-out or traced pictures of different real animals and toy animals pasted onto the page.
- Notes around each picture describing what you found out about how the animal or toy animal moves and how it stands up.



## The portfolio page that Ashleigh produced

ANIMAL INVESTIGATION  
PAGE ♡ By Ashleigh! ♡



**ELEPHANT** ♡ It has four legs with big hooves. It has a flat mouth and a long nose (trunk). It eats grass and drinks water. They walk by moving their feet. Elephants also have a short tail.



**DOG** ♡ It has four legs with padded paws. It has a flat mouth for eating dog food and for drinking water. Dogs walk with their feet. A Pug has a curled tail.



**SPIDER** ♡ It has eight legs. It has a flat mouth for eating other smaller insects. It walks on walls and floors with its eight legs.



**PENGUIN** ♡ It has two legs. It has a sharp beak for eating fish. It has webbed feet to help it swim. It also has a short tail.



**KANGAROO** ♡ It has two legs. It has a flat mouth for eating grass. It jumps on its two legs. It also has a long tail. The legs are two legs with padded paws.

Now we need to decide whether Ashleigh is working at the level we expect for Grade 6.

The basic guide is the Progression Table in the *Technology for all* books. The Progression table lays out the Assessment Standards side by side, so that one look at the Grade Level 6 Assessment Standard and compare the expectations at Grade Level 5 and Grade Level 7. The table below is an extract showing only a part of the first two Assessment Standards.

## Sections of the Technology Progression Table for Grades 4 to 7

**Learning Outcome 1** The learner is able to apply technological processes and skills ethically and responsibly using appropriate Information and communication Technologies

Grade 4	Grade 5	Grade 6	Grade 7
<b>Learner investigates</b>			
Finds out with assistance about the background context (people, environment) when given a problem, need or opportunity.	Finds out about the background context (people, environment, nature of the need) when given a problem, need or opportunity and lists the advantages and disadvantages that a technological solution might bring to people.	Finds out about the background context when given a problem, need or opportunity and lists the advantages and disadvantages that a technological solution might bring to people and the environment.	Investigates the background context, the nature of the need, the environmental situation, and the people concerned when given a problem, need or opportunity set in a local context.
Finds out about existing products relevant to a problem, need or opportunity and identifies the main design aspects (who is it for, what is it for, what does it look like) that make them suitable as a solution.	Finds out about existing products relevant to a problem, need or opportunity and identifies some design aspects (who is it for, what does it look like, what is it for and what is it made of).	Finds out about existing products relevant to a problem, need or opportunity and identifies and compares their design aspects (who is it for, what is it for, what does it look like, what is it made of, how well it works, will it affect the environment). <b>(Tech1- Investigate existing products)</b>	Examines existing products relevant to a problem, situation or need based on the following key aspects of design: People Purpose Appearance Environment, Safety, Cost.
<b>Learner designs</b>			
Suggests and records at least two possible solutions to the problem or need that link to the design brief and to given specifications or constraints (people, purpose, safety, environment)	Suggests and records at least two alternative solutions to the problem, need or opportunity that links to the design brief and to given specifications and constraints ((people, purpose, safety, environment)	Suggests and records at least two alternative solutions to the problem, need or opportunity, that link clearly to the design brief and to given specifications and constraints. (people, purpose, safety, environmental impact, appearance) <b>(Tech1-Design Ideas)</b>	Generates at least 2 alternative solutions and annotates the ideas
Chooses one of these solutions, giving reasons for the choice.	chooses one of these solutions, giving reasons for the choice and develops the idea further.	Chooses one of these solutions, giving valid reasons for the choice and further develops the choice with graphics and/or modelling. <b>(Tech1-Design Reasons)</b>	Chooses possible solutions and gives sensible reasons for choice and  Develops a chosen idea using graphics or modelling techniques

The progression table is made up of the Assessment Standards. The Assessment Standards must be broad enough to cover all possible technology projects, and so they are abstract. So the *Technology for all* books interpret the abstract Assessment Standard as a description of particular evidence the learners must produce in each project. This evidence will be evidence for progress in that Assessment Standard.

The **evidence descriptions** go into an assessment grid in the learners book. Each learner can see what he or she has to produce. This next table is an example; it matches the abstract statements in the progression table above:

**Table 2:** A part of the assessment grid in the *Technology for All* Grade 6 learner's book

	<b>You have done excellently if you have:</b>  (the text below is the evidence descriptions; the red text appears only in the teacher's book)	<b>Some success</b>	<b>Nearing success</b>	<b>Full success</b>	<b>Success beyond this grade level</b>
<b>Investigate</b>	. . . discussed the problem and used the People, Purpose and Place questions to find out more. Written a sentence about what you could design and make, to help you tell animal stories to children. <b>(Tech1-Investigate the problem)</b>	1	2	3	4
	. . found out some things about different animals or toy animals (like the shape of their bodies, how long their legs are, how big their mouths are). Presented what you found, using pictures with notes. <b>(Tech1-Investigate existing products)</b>	1	2	3	4
	. . . done a practical investigation to test how a moving mouth system works. <b>(Tech1-Investigate concepts)</b>	1	2	3	4
<b>Design</b>	. . . Written another sentence that says something more about what the toy animal must do. You read the features given at the start of Unit 1.5, and you put them into your design. <b>(Tech1-Design brief)</b>	1	2	3	4
	. . . Sketched at least two different toy animals and you made notes about why your ideas help to tell animal stories to children. <b>(Tech1-Design Ideas)</b>	1	2	3	4
	. . . Chosen and drawn a favourite animal idea. You wrote a sentence about why it will help to tell a story and why children will like to play with the toy. <b>(Tech1-Design Reasons)</b>	1	2	3	4
<b>Communicates</b>	. . . sketched and coloured in a favourite animal idea that shows clearly what it will look like. <b>(Tech1-Communicates in sketches)</b>	1	2	3	4

## Working as a group to set levels of performance

Part of our programme's research is to decide on suitable levels of work at each Grade – we are putting **concrete** examples of work to the **abstract** assessment standards. We think this will be useful to Technology teachers everywhere.

We looked at Ashleigh's page on investigating as a teacher group, compared it to the assessment grid and this is what we came up with:

- she has put a lot of work into her investigation, and has gone beyond the simple suggestion in the Learners' Book picture.
- She has a variety of animals of different species in her page; she looked for different animals that depict different characteristics
- She has written notes with information on animal adaptations, how they move, how they eat, etc.

As a group we decided that she has reached the level we call "Full success" at Grade 6 and

has gone beyond. On the assessment grid, she has succeeded “beyond this grade level” and in terms of the 1-2-3-4 scale, we give her a “4”. This is a summative assessment.

## Example 2: Formative assessment with Belesi’s portfolio

With Ashleigh’s portfolio page we did summative assessment, but portfolios give us an opportunity to do good formative assessment with learners too. Portfolios do not have to be final – they are an opportunity for learners to work at a higher level.

Ashleigh and the other Grade 6 learners have moved on to the design stage of the project. In their groups they discuss ideas that will make their animal interesting to young children, and then they do their portfolio page called My Favourite Idea.

Look at Belesi’s Portfolio Page 4 – first draft, on the right. Her teacher looked at the page and decided Belesi could learn more about communicating ideas. She discussed the page with her, and it went something like this:

**Teacher:** Let’s look at your Favourite Idea; you have drawn a nice giraffe. Now let’s both read what the assessment grid in your book says.

**Belesi reads aloud:** “You have done excellently if you have chosen and drawn a favourite animal idea. You wrote a sentence about why it will help to tell a story and why children will like to play with the toy.”

**Teacher:** How will your animal help to tell the story?

**Belesi:** Because the mouth can move.

**Teacher:** Looking at your drawing, how will you make the mouth move? Can you draw your idea for making the mouth move?

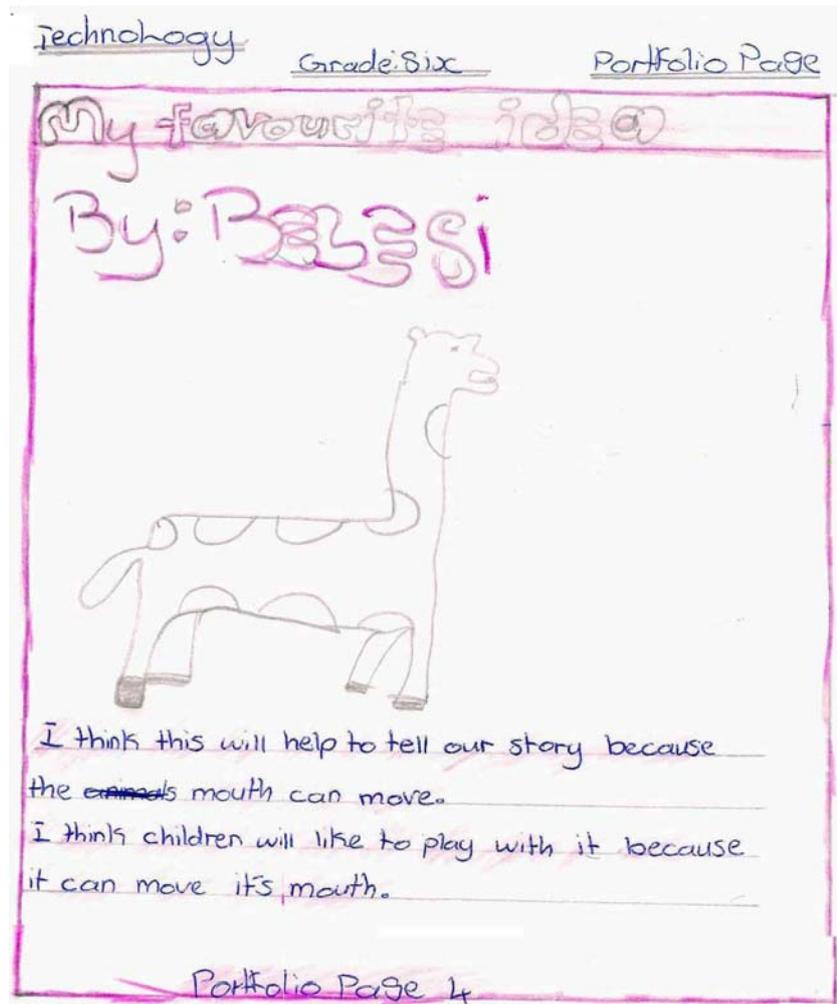
**Belesi** [points at a part of her drawing]: . . . yes . . .

**Teacher:** Remember the picture of the little child pulling off the toy bear’s eye and putting in her mouth. What did that tell you?

**Belesi:** The toy should be safe for children to play with. And it must be attractive for the children.

**Teacher:** Look at the assessment grid again. Read what it says about drawing and communicating.

**Belesi:** It says “You have done excellently if you have sketched and coloured in a favourite animal idea that shows clearly what it will look like”.



**Teacher:** Let's look at the animal you have drawn. What must you do to it so that people can understand your drawing?

**Belesi:** I need to label the things I will make in it. And colour it in.

Now look at the improved version of Belesi's page on the right. She has responded to all the points her teacher raised in the conversation. The group decided that it should get a rating of a "3" because she has done what the assessment grid required. Some of us felt she could get a "4" for communication if she showed more of the mechanism to work the mouth.

Both pages (draft and re-draft) are kept in the learner's portfolio file. The purpose is that both learner and teacher (and any teacher the following year) can see how much progress she has made.

In the *Technology for all* programme we talk about "closing the gap" between what the learner has done and what she should be doing.

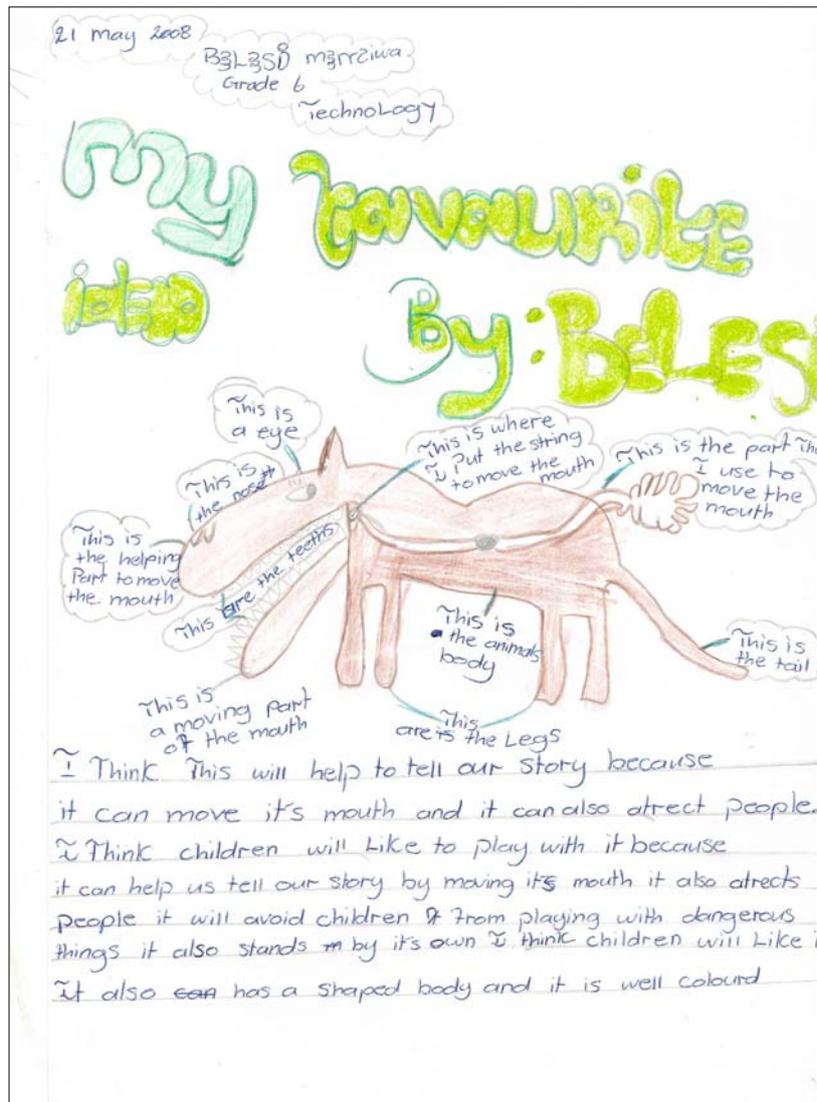
We as teachers have to know what successful Grade Level 6 work looks like, and then we have to help the learners see the gap between low-quality work and the higher quality work we want.

We use two methods to show them the gap

- the conversation between Belesi and her teacher is an example of one method.
- the other method is to show the learners examples of good work that we kept from the previous year, and ask the learner to point out the differences between her / his work and the good work example.

## Conclusion

Portfolios can be used for summative assessment and they can be very much used for formative assessment. We have noted the importance of doing the portfolio work immediately after the learners have done the relevant unit and are still heated up. In this way the portfolio becomes more meaningful in the focussed reflective dialogue between the teacher and the



learner, which helps the learner see the gap between his/her work and the standard for higher quality work.

When the portfolio is done in this manner, it helps the learners to understand the main purpose of their learning and to take responsibility of their learning and achievement.

The portfolios are not an alternative to the teacher organising lively discussions that lead to understanding of the problem and so lead to good designs, but instead they are a way to deepen learners' learning.