

IBSC Revision Pig Version 4

OR 'The test was really easy when you had learnt something.'

Before you stand two very experienced teachers of boys who had several moments of revelation last year.

What we are going to say and show you may seem very obvious but it wasn't to us.

Here is the background story ...

Early last year we were awarded what is called an Australian Government Quality Teaching Program grant to attend professional learning sessions and develop a program focussing on differentiation to improve our teaching and our students' learning. Our AGQTP was co ordinated by Independent Schools, Victoria.

While sitting in the staffroom discussing what we could do, the Head of Year 9, who just happened to be passing said: 'Why don't you do something about revision? The Year 9 boys don't know how to do it.'

That was a bit surprising as Heather teaches Mathematics and Science and encourages boys to revise by using topic test lists and by helping the boys make 'Summary Sheets' to take into Maths tests.

I teach History and over several years have given boys Sample Exams. Although we don't go through them in detail in class they are available for boys – and some have completed them before the exam.

Isn't this revision? We do have a tendency to say: 'Revise for the test' assuming that the boys somehow know what to do. And this 'revision' often seems to make no difference to many of the boys' test and exam responses.

So ... we decided to investigate differentiation and revision.

Revision and Differentiation

Our Project had the broad aims of:

- Engaging targeted students
- Helping students use different forms of strategic learning
- Giving students a deeper understanding of the ways they learn
- Encouraging teachers to utilise a variety of strategies and resources, particularly when revising work.

We were able to use time during the four AGQTP Professional Learning sessions to plan, discuss, share and evaluate our project. We could also ask for advice and support from the consultants at Independent Schools, Victoria, who were co ordinating the program.

Boys and Revision

Googleland could tell us a lot about revision. There are many pages giving general and specific advice about how to revise. There are also complete programs available and Youtube videos but interestingly, there were no videos of boys 'revising' except one of a boy asleep! Lots of girls talking, showing off coloured folders, coloured highlighting, coloured sticky notes, coloured mind maps. What did boys do?

Perhaps part of our project could be developing videos of our boys talking about what they actually did for revision? Again, notice our assumption, that boys were revising.

In an effort to find specific research on boys and revision I typed into Google 'Boys and Revision and research' but very little emerged. Unnervingly I had more success when I googled 'Boys not revising'.

One research paper, 'Underachievement at GCSE' [Nelson1997] used questionnaires and 25 in-depth interviews, to ask 125 students (59 boys and 66 girls) at Sackville School, East Grinstead why they underachieved at GCSE. The research 'revealed that a lack of revision was the most important factor why they did not do as well as they expected' [Nelson, 1997]. According to the researchers, 37 girls and 41 boys admitted that they did not do enough revision. More importantly for us was that 'lack of revision was more a problem for boys than girls'. Boys also 'seemed to have more difficulty in imposing the self discipline needed for revising at home' [Nelson, 1997].

Among the boys' comments were 'I tried to revise with my friends. It lasted about 5 minutes' and 'I left the revision until the last minute and 'during the revision time I was on my own. I found it hard to get on with it' [Nelson, 1997].

It was also suggested that 'boys appeared under more peer pressure not to revise as ... revising at home is not considered very macho' [Nelson, 1997]. This is not an issue at Trinity where we have developed a culture that values learning and academic success. But even that culture does not naturally lead into boys knowing how to revise.

The research offered some comments from students about the value of revision such as; 'Some teachers give you advice on how to go about revising and even do some at school' including extra lessons and notes [Nelson, 1997].

This research provided a general background as to why boys don't revise but did not really address our concern of how do boys revise when they do do it. The paper did offer some suggestions as to methods of revising that make prove effective. These included:

(d) Preferred revision technique is something that varies from person to person but it is important that you ask questions of the material you are studying.

(e) Reading through your notes is not a very effective way of revising. Check that the methods that you are using are helping you to remember and understand the subject material [Nelson, 1997].

The paper also recommended to teachers that:

(c) Students need help to discover the best way to revise [Nelson, 1997].

Boys' approach to revision was also discussed by Bleach who argued that boys, unlike girls, tend to put off revision until the last moment 'meaning that they are reluctant to engage in extensive coursework and prefer cramming themselves for the final one off examination' [Bleach, 1998:3].

Neall offers this advice:

'The most useful advice I can offer is this: do not expect boys' characteristics to change – they won't; rather, take account of these characteristics and use them to set boys up to win' [Neall, 2002].

She suggests that the techniques you offer should be:

up beat, challenging, immediate, achievable and not take too much of their valuable leisure time! Concepts like: "economy of effort", "work smart not hard" and "return on investment" are likely to appeal. Ask them for creative and time-efficient revision techniques for your subject. Have 'Ideas for Revision' on the notice board; include suggestions from all exam groups [Neall, 2002].

She summarizes her approach:

The key to getting work out of a boy is to set up a process that is easier for him opt into than opt out of, to give him work that has to be done in short regular bursts, to provide him with immediate feedback on his progress, and to create an environment that he enjoys and where he feels he can win. Set boys the challenge of finding imaginative ways to combine exam preparation with ample leisure time and they are more likely to achieve the grades they should [Neall, 2002].

In 2008 at an IBSC Conference, Abigail James gave a paper entitled, 'Inquiring Boys: Using brain based strategies to develop learning skills'. She suggested that as boys' brains develop differently from girls' brains. When they are asked to 'study', they 'glance at the book, underline material (usually examples) and answer questions (under duress)'. This creates problems as 'reading the assigned material takes too long', and this is 'an inactive method of studying' and 'does not provide any organization for review' [James, 2008].

James also argued that: 'Boys think that ability not effort is what gets the best grades' [James, 2008]. This is supported by comments from Linda Bryan that: 'Boys believe in luck. They think that some kids get good grades because teachers like them. They don't connect practice with success. They believe that natural athletes become professional athletes: that smart kids naturally get the good grades' [Bryan].

Revision Pig

We decided that we would set up a Web site on our internal Intranet that would contain advice, hints and tips on revision.

Remember that this project had a Year 9 focus so we wanted material to appeal to Year 9 boys. I did not find many useful videos but I did find Revision Pig – a cartoon pig that gives very good advice about learning and revision, and makes rude noises! In the end the Intranet page was called Revision Pig as the name stayed in boys' (and teachers') heads.

<http://www.youtube.com/watch?v=UThlcoyE1zk>

What we did next ...

Different Learning Styles

At the start of the Intranet Page we placed an online VARK survey on different learning styles so boys could use the test to begin to think about different styles of learning. They could consider whether, depending on the task, they were a Visual, Auditory, Read / Write or Kinaesthetic learner. We agree with Tomlinson's view that:

...teachers should not try to fit their teaching to each child's style, but rather should become aware of different styles (and help students also to become aware of different styles) and then encourage all students to use as wide a variety of styles as possible. Students need to learn both how to make the best use of their own learning styles, and to understand the dangers of taking a limited view of their own capabilities [Tomlinson, 2012].

Heather has now completed several surveys with boys on their learning styles. It appears that in each class the learning styles – visual, auditory, read/write or kinaesthetic learner are evenly divided. We also feel that at different times and for different tasks, boys may vary their learning style.

Let me just tell you that by the end of the year I had a discussion with a Year 9 boy who argued that what I was doing as 'revision' wasn't really any help if you were a visual learner! He had discovered this through Revision Pig.

Finding and disseminating information about revision

About half of our information came from on line revision Web sites and the rest from our own experience and that of other teachers. Most on line Study Skill sites offer advice about motivation and attitude, organisation – both of the space and time for revision, what not to do, the value of revision and the need for regular revision and finally, a list of revision techniques.

These techniques are generally the same but we were interested in them from the point of view of differentiation. We wanted to think about different revision techniques for different learning styles. We invited several teachers to be part of our Learning Team.

We discussed differentiation and revision and developed parts of the Intranet web site.

In class the major difference was that instead of just saying 'revise' or 'you could use a mind map', we would actually teach revision techniques and then try to judge what effect this was having. I suppose we were modelling 'active learning' and making our boys do something instead of just reading and re reading.

We wanted to keep the information on the Intranet site short and provide examples where possible. In the long term these examples would be illustrated by our own boys talking about their revision techniques. Again, we wanted our boys to model their techniques for other boys, as there seemed to be very little of this available.

What we actually did with the boys in 2012

Flash Cards

We started with a technique that we had used ourselves and that some boys already used.

In Science Heather asked the Year 7 boys to draw up a table with columns headed 'Heading', 'Page Number' and 'Content.' The boys then went through the chapter in the text book relevant to the upcoming test. (This is another of our concerns – getting the boys to effectively use the features in the text book.) Heather commented that diagrams might be useful. She stressed that this table had to be handwritten, that 'learning must go through your hands' and that 'cut and paste is not the same. It doesn't mean that you've learnt it ... you haven't processed it if that's all you do.'

The boys then transferred the information in the table to their Flash Cards.

In History, as usual, I wrote a Sample History exam before the Semester 1 exams. It was very, very similar in layout, the wording of questions and in the allocation of marks to the real one. It also included page references in their text book.

But ... I did something different. Instead of assuming that they knew how to use the exam to revise we practiced some techniques.

For a short paragraph question we wrote 5 relevant points on the board.

I talked about 'chunking' information in relatively small pieces.

I then asked the boys to shut their eyes and put their hand up if they could remember anything on the list.

In tones of surprise a boy said: 'Is that what you're meant to do?'

Flash Cards

I then handed out small cards. They chose a topic, wrote a subheading at the top then 5 relevant bits of information, including a date and some primary source quotes.

Then we practised learning. I said: 'Again, Read what you have written. Cover it (by turning it over) and then Write again on the back what you remember. Check how correct you are.

Then ... do it AGAIN.'

We also talked about the need to revise and re revise as per the Forgetting Curve.

I then showed the boys where this advice was on the Intranet

From Revision Pig

How to make Revision / Flash Cards

- *Make cards. Reduce your notes to the key points*
- *Chunk into 'Bitesize' information*
- *Bullet points 4-6*
- *Then Highlight key words, 'Text Tagging'*
- *Cover, check*
- *Can you remember the whole point from just one or two key words?*
- *Cover, check again*
- *What's in my bullet points – History, dates, names and quotes. English – characters, who does what, who says what, quotes, separate cards for themes, characters, plot.*

From Revision Pig

The Forgetting Curve

All newly learned information enters our short term memory. Unless the information is strongly associated with what you already know, or proves useful quickly, then it will be forgotten.

70% of what you learn is forgotten in 24 hours; about 40% is forgotten immediately.

You must review.

Did it work?

Our boys really liked Flash Cards – neat, portable, fitted into a blazer pocket, didn't seem like too much work. Our Special Education teacher also went through parts of Revision Pig with her group of boys with special education needs and commented that they found it engaging and helpful as well.

This raises a question that we are still exploring at Trinity. The 'Big Question', is how we learn but the smaller 'Big Question' is how do we learn to revise? We probably, as successful learners, just worked out our own strategies. Some of our staff say they didn't learn to revise until they got to university. 'when it really mattered.' Some of our boys just say they 'know' how to do it but these tend to be our best and most successful learners – not the boys in the middle and at the lower end. Does revision start with the organisation of notes, work sheets and question sheets? How do our boys know what to do next? Do they need to understand that these notes will be the basis of revision? But, should all learning and teaching be about passing the exam?

Mind Maps

A lot of revision guides recommend the use of mind maps. Mind maps act as a metaphor for key concepts and key ideas and the ways in which they relate to each other. If you then use size and colour to organize the sections of a mind map this can also help to clarify thinking.

They are quick for boys – just key words. As a boy says: 'Cos just seeing one world can help you remember it all' [Wilson, 2008:83].

And they can include words (for the verbal learners) or diagrams (for the more visual learners). Also Wilson suggests that mind maps help boys to see the big picture as well as the details they choose to add.

However, they have not been as successful for us. Even when we suggest that boys cut and paste an image into their work that may remind them of aspects of a topic, and then provide a 'jumping off' point for recall, most do not utilise this technique. Di provided images in History but they were politely ignored, except for one boy who cut the image out and stuck it on his flash cards. Clearly, they need more practice with this.

The videos

We now filmed some boys talking about their revision techniques – and the Headmaster. He had talked to the boys about his own failure at school because he didn't understand that learning had to be active and that simply reading his notes and the text book was not enough.

The boys were unrehearsed and their comments uncut.

Ben, a Year 7 boy, in Heather's Science class, used them to prepare for a Science Test. He found them convenient: 'You can just flick through them when you have a moment.' He had made them by using his text book and picking 'the key idea of each page ... then you add 5 – 10 words or a diagram.' And finally, 'Handwriting is one of the most important things ... If you see the words in your own handwriting it is easier to remember than when they're typed up.'

We could hardly ask more than this!

Jonathan, the Year 9 student in my History class, also emphasized the convenience: 'You can quickly flick through them ... even go through them on the tram.' He also felt that 'they are better than having a work book to look through ... it's the last little things before the exam that you will remember when you go in'.

The Year 9 and the Year 7 boy also discussed the use of Flash Cards. Ben showed that he had included a diagram and Jonathan found them useful to learn French verbs as you could: 'just constantly go through them'.

The boys have taken to Flash Cards but now we have to try to get them to use other methods as well.

Fattening the Pig in 2012

We are both very aware that no pedagogical change happens in a school unless the teachers and the students have ownership of the learning.

We had meetings with other members of our learning team and our consultant to show what we had done and to ask for feedback and suggestions.

Revision Pig began to grow. The Front Page has a list of useful headings / links that then lead to further information. But we are conscious of keeping the information relatively brief. We have link-to-link pathways that add depth and detail.

On the Front Page, if the boys click on the heading General Revision, they can then find links to What sort of learner are you?, Develop your own techniques, Using old exam papers, Exam 'tricks' and Video links.

For differentiation, we have links on the Front page to Revision: reading and writing, and Revision: Other ways to learn.

Some staff requested their own page for subject based revision and another for revision skills for a particular year level. After a PL session with other staff we added Mnemonics and Essay Revision as links on the Front Page. Again, something we hadn't thought of but others had.

At Trinity in the last few years we have begun to use *Microsoft OneNote*. It is a computer program for free-form information gathering. It can gather users' notes (handwritten or typed), drawings, screen clippings, and audio commentaries. It enables information to be 'tagged' and then searched for, including electronic ink annotations. Heather gave a lot of time in class to using *OneNote* and the 'tagging' tool.

There are some some glowing recommendations as to the usefulness of *OneNote*:

Being able to take the moral equivalent of sticky notes (with hooks to the web, documents, etc.) and organize them, create them intuitively, share them, and access them anywhere suddenly gives us a means for sorting all of the information that comes in and managing all of the ideas and activities around the data streams [Dawson, 2101].

Dawson continues that:

OneNote makes the notecards that many teachers still require students to painfully write out when conducting research completely antiquated and you really do have a killer educational app. ... students actually stand a chance of synthesizing their copied and pasted notes into meaningful research and writing when they break open their *OneNote* notebooks and a word processor [Dawson, 2012].

Heather's results fit this pattern to some extent. Boys were asked whether or not making a Summary page of their tags in *OneNote* was useful. From three surveys of Year 7 boys and 64 responses, 24 were positive and 7 negative. Positive responses included: 'Yes, it became a revision page of all the things we had learned about'. 'It was helpful and easy to access', 'To have all my notes in one place' and because 'all the important stuff was there on one page'. But some boys felt it was 'jumbled up and not organised', 'it was confusing' and 'I probably did not put enough information into it'. Finally, 'it had nothing to do with the test'.

We feel it can be useful but like so many other revision techniques it has to be thought about before the boys begin any written task and then taught and reinforced.

We also introduced the Cornell method of note taking to the Year 10 History boys. One boy even said at Parent Teacher Night that he liked it as: 'It helped to organise my thinking.'

We put slogans up in our classrooms and put an article in the *Trinity News*, our weekly newsletter prior to the exam period.

Has Revision Pig helped our boys?

Anecdotally we say yes.

The number of boys who were standing outside before the Year 9 History exam with Flash Cards was astonishing compared to the previous year when it was only the top end boys and the debaters who had cards. This semester the Book Room ran out of flash cards.

Before the end of Semester 2 exam period, when we had been consciously teaching revision techniques for a semester, I supervised a Year 9 class. 20 of the 25 actually were revising, either History or Mathematics. About 1/3 were making and using Flash cards, another 1/3 were using Sample Exams and discussing their answers with others. I read one boy's handwritten History answer and then he asked me if I would print another copy so he could rewrite a better answer! A

boy, prepared to handwrite and twice! Another boy was consciously looking at diagrams in his Maths book and when I asked why said: 'The pictures help me to learn better.' Another boy wanted to know if there was something on Revision Pig that would help him to organise his notes.

What our data shows

Heather has collected survey data on what boys are actually doing as revision. It had provided us with information as to what we still need to do to help boys revise.

In Year 7 the most popular method of revision is still 'Read Notes' (81%) and 'Read Text' (78%), although 76% are 'making notes into dot points'. At the lower end, only 35% are 'drawing pictures' and 25% 'making mindmaps' – which boys are supposed to like.

Year 9 boys are following the same pattern. The most popular method again was 'Read Notes' (84%), then 'Read Text' (77%). However, 57% are Highlighting Notes (we assume key ideas) compared to only 40% in Year 7. We have been stressing this practice, particularly in Year 9 History. Again 'drawing pictures' (6%) and 'making mindmaps' (5%) were at the bottom of the revision technique list.

We don't yet have research data to assess the types of revision boys are doing and how and if it is affecting their results. But we do have the development of a language about revision and the spread of some techniques across a range of boys. We have teachers who are now thinking, with some surprise, that we do need to 'teach' revision. And that we need to find time in our classes to do so. And, as one boy said: 'The test was really easy if you had learned something.'

Study Skills may not be enough

Carol Dweck

Recently we were introduced to the work of Carol Dweck, who has developed the concept that 'it is not just our abilities and talents that bring success – but whether we approach our goals with a fixed or growth mindset' [Dweck, 2008]. Those with a fixed mindset believe that talent is a fixed trait that cannot be affected. It is innate. By comparison, a growth mindset believes that these same traits are malleable and have the potential to be developed.

Someone with a fixed mindset will:

- Want to look good / smart at all costs
- Avoid challenges
- Pursue only activities where they are sure to shine
- Believe that talent should come naturally
- Get defensive or give up easily
- Hide mistakes and conceal deficiencies
- See effort as fruitless or worse
- Ignore useful negative feedback
- Feel threatened by the success of others

By contrast, someone with a growth mindset will:

- Emphasize learning something new over everything else
- Embrace challenges
- Take risks and don't worry about failure
- Sees each mistake becomes a chance to learn
- Persist in the face of setbacks
- Believe the harder you work the better you become
- Learn from criticism
- Capitalize on mistakes and confront their own deficiencies
- Find lessons and inspiration in the success of others

[Adapted from Dweck, 2008:245]

In an experiment one group of students attended eight sessions of a study skills course and another, eight sessions of study skills course accompanied by sessions on developing a growth mindset and how to apply this to their studying and homework. The intervention 'described the brain as a muscle that becomes stronger the more it was used' [Trej, 2007].

The latter group improved their motivation to learn. This was noticed by teachers who did not know which students attended which sessions. They also improved their Math test results [Dweck, 2008:219-221].

Dweck argues that 'Study skills and learning skills are inert until they are powered by an active ingredient ... Students may know how to study but won't if they believe their efforts are futile' [Dweck in Krakovsky, 2007].

So, study skills alone may not be enough. We need to encourage students to develop a growth mindset where they feel a sense of achievement not when they get something right, but 'When it's really hard, and I try really hard, and I can do something I couldn't before' [Dweck, 2008:24]. Those with a growth mindset believe that achievement needs effort and hard work. And as they work, 'The brain can form new connections as you meet the challenge and learn. Keep going' [Dweck, 2008:53].

Dweck argues that students who have completed the Brainology computer program, now say: 'I have to be more patient because learning takes great deal of time and practice' [Dweck, 2008:223]. And 'I will try harder because I know that the more you try the more your brain works' [Dweck, 2008:221].

She stressed, however, that change is hard.

Dweck does describe how fixed mindset college students study: 'They read the textbook and their class notes. If the material is hard they read it again. Or they try to memorise everything they can like a vacuum cleaner' [Dweck, 2008:61]. On the other hand growth mindset students 'took charge of their own learning and motivation ... they look for themes and underlying principles and go over mistakes until they understand them ... They were studying to learn, not just to ace the test' [Dweck, 2008:61]. We have been trying to move from the former to the latter.

Dweck also makes some interesting comments about the differences between boys and girls. Girls are seen as 'perfect' and get praised more in the classroom. So they take any criticism much more to heart. Boys are four times more likely to be criticized but it often takes the form of: 'Pay attention, listen to instructions and you can do better.' In a way they are being exposed to a growth mindset. To some extent the criticism also rolls off boys' backs and they don't take it to heart so much [Dweck on *ParentMap*, 2012].

A challenge may be how to use Dweck's mindsets as a broad focus underpinning our revision program.

Interestingly for us, as we were reading Dweck, we came across the Year 9 boy who said, when being offered some revision strategies, 'Why do I have to learn anything? It's all on Google'. Is this a reflection of a fixed mindset? Someone who already is 'smart' but now may be avoiding a challenge? Or, is it because as a child of the digital age it is all out there on Google?

This is yet another challenge we are facing. And ... we are still fattening the Pig.

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