EVALUATION

Small Shifts: Huge Changes

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Small Shifts: Huge Changes Evaluation

Introduction
Small Shifts: Huge Changes was an exciting and innovative professional learning program developed in collaboration between the Northern Adelaide State Secondary Schools’ Alliance (NASSSA) and the Teaching for Effective Learning (TfEL) team. This project was groundbreaking in its inclusion of student voice as a key driver of pedagogical change in school professional learning. Key elements of the process undertaken as the three workshops evolved, are detailed below.

Background

Planning Imperatives
The NASSSA focus on Science, Technology, Engineering and Maths (STEM) is a major strategy in achieving one of its key goals: to ensure successful levels of achievement for every NASSSA student. A second goal is to build the capacity of NASSSA teachers – a key element in achieving student success.

The NASSSA Strategic Plan (2015 – 2017) is aligned with the Department for Education and Child Development (DECD) Strategic Plan (2014 – 2017). Of particular significance to the Small Shifts: Huge Changes project was the DECD priority of ‘higher standards of learning achievement in STEM education’. This strategy is aligned to South Australia’s Strategic Plan (SASP) Target 88: Science and Maths – by 2020, increase by 15% the number of students receiving an Australian Tertiary Admission Rank (ATAR) or equivalent with at least one of the following subjects: Mathematics, Physics or Chemistry.

Pedagogy and curriculum
In 2014 the TfEL team worked with Dan Meyer and three TfEL pilot schools using Dan’s 3 Act Maths approach to the teaching and learning of Maths. In this approach the central conflict is a perplexing and compelling task that using maths can help answer. The problem requires a simple first step (a low floor) but can stretch for kilometres (a high ceiling). The protagonist/student overcomes obstacles, looks for resources and develops new tools. One method is using guessing as an engagement strategy. In addition a progressive disclosure of information lowers the difficulty in solving the task. By the end the conflict is resolved and a sequel and/or extension task is set up.

Over the last two years NASSSA and the TfEL team have forged a very productive partnership around teacher professional learning. The Small Shifts: Huge Changes project provided the opportunity to expand that partnership to incorporate the vital element of student voice. The essence was to use student voice to drive pedagogical change with teachers in learning science.

In South Australia the introduction of the Australian Curriculum was identified as an ideal opportunity to bring together this national curriculum and pedagogical approaches from the TfEL framework. The opportunity was created to move from an industrial model of education, which is teacher centred and uses a didactic coverage of curriculum content and training, to a 21st Century model of education, which is responsive to student needs and has a high challenge pedagogical approach that compels teachers to build resilience in students. This post-industrial approach is
future focused and develops skills and understandings that are transferable and durable.

**Professional Collaboration**

As indicated above strong partnerships and collaboration were an essential part of this project. NASSSA places great importance on Connected Communities to achieve success for every student as indicated in the diagram below.

![Diagram of NASSSA Connected Communities](image)

Those partnerships and the role they played will be outlined in more depth in the following section.

**NASSSA Principals**

The NASSSA Principals are a key driving force in the NASSSA confederation and were a critical part of establishing this project. Viviane Robinson’s Best Evidence Synthesis has noted the key role Principals play in effective professional learning for their staff. The largest Effect Size (0.84) was Principals promoting and participating in teacher learning and development¹.

The *Small Shifts: Huge Changes* proposal for NASSSA to work collaboratively with the TfEL team was taken to the NASSSA Principals’ meeting in April 2015. The proposal was supported from both a pedagogical approach and a resource perspective with principals agreeing to fund the proposal in its entirety. This included costs for international presenter Neil Atkin, catering for participants and, most importantly, TRT for staff attending workshops over three separate days. Future planning for the three days was made much simpler due to this initial commitment and support.

**NASSSA Council**

The NASSSA Council is the governance body for NASSSA. It is made up of

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¹ Viviane Robinson, School leadership and student outcomes: Identifying what works and why, 2009
Governing Council chairs, NASSSA Youth Action Team members and principals from the 10 alliance schools. The Small Shifts: Huge Changes proposal was taken to the NASSSA Council in May and received warm endorsement from both parent and student representatives. One student commented that she would have loved to have learned the “Dan Meyer” way from Year 8 to help her cope with the demands of the Year 12 curriculum.

NASSSA Science Curriculum Area Teams
NASSSA has a collaborative structure where every Australian Curriculum learning area forms a Curriculum Area Team (CAT) which meet twice each term to plan professional learning and work cooperatively to achieve NASSSA’s goals. The teams are composed of faculty leaders from each of the 10 alliance schools, one member from the NASSSA Leaders’ group and members of the TfEL team and Secondary Australian Curriculum Implementation Officers. This group was pivotal in providing support for organising students and teachers participation in the three workshops.

NASSSA STEM Reference Group
The NASSSA STEM Reference Group was formed in 2015 to provide a strategic oversight of STEM related activities in the 10 alliance schools. NASSSA was aware that there were many STEM initiatives happening in NASSSA schools, often in isolation and that there was a risk that schools could become overloaded if approached from a wide range of external players. The NASSSA STEM Reference Group is comprised of a Principal, Deputy Principal, chairs of the Science, Maths and Technology CAT groups, a TfEL team member and a University representative. It is intended to add an industry representative to the group as well. The NASSSA STEM Reference Group provided an important sounding board for the development of the Small Shifts: Huge Changes project.

Other schools
The Small Shifts: Huge Changes project also involved two of the TfEL pilot secondary schools outside of NASSSA. This served the dual purpose of sharing best practice beyond the alliance as well as getting a critical independent appraisal of the effectiveness of the process.

Purpose
The purpose of Small Shifts: Huge Changes was to position students and teachers as co-innovators of science learning at their site with the aim of increasing both learner engagement and intellectual demand as well as improving higher order learning achievement. The collaborative approach was intended to address the tension between the shift in teacher pedagogy that results from current professional learning (particularly that associated with a problem solving approach) and the student (and wider community) expectation of science education.

The three Small Shifts: Huge Changes workshops were designed to support students and teachers in understanding the reasons for change, the challenges of change and assist them to co-design approaches that could be taken to achieve increased engagement and intellectual demand in the science classroom. A significant focus of the Small Shifts: Huge Changes workshops was to encourage students to explore ‘thinking in the teacher space’. The process used encouraged students to understand the complexities in changing deeply held beliefs and well-
rehearsed behaviours so they could see the role they could take in innovating with their teachers. When asked “How do you rate the approach taken in these workshops – students and teachers working together” both sets of participants rated this approach highly at the end of the series of workshops (8.7 out of 10).

Project Implementation

The selection of students and teachers was fundamentally important to the success of the Small Shifts: Huge Changes project. Principals were engaged in the selection criteria for students and the Science CAT group was responsible for the mechanics of making selections of staff and students at the Science faculty level.

Method

Each school was invited to bring five teachers and five students. The reasons for a 5-5 model were to:

- promote an understanding that we see students and teachers as ‘equal partners in this learning’
- ensure that there is sufficient student support for each other when they are back at their site
- increase student capacity to work with other students and the broader community at their site
- support teachers to tweak an aspect of their practice or unlearn an outdated routine and see the impact of their practice

Professional learning was spaced over a school term involving three workshops. This spacing avoids the learning being seen as “one-off” and allows concepts to be processed, experienced and internalised in-between the workshops.

Student selection

Student selection was a very important part of the planning process for Small Shifts: Huge Changes. Increasing science participation rates in the latter years of secondary schooling was a key outcome that Small Shifts: Huge Changes was aiming to achieve. The Conversation2 has reported an OECD study which says “we know that students who do less well in science at school are less likely to continue with it, and we also know that students who take STEM degrees end up glad that they did and get well-paid jobs”. This meant it was necessary to target students from both genders who were “on the cusp” of continuing/not-continuing with science in Year 11 (currently achieving in the B – C grade range).

Some of the key qualities identified to select students were: good communication skills, independent thinking, and the ability to be self-directed in their learning.

Given the desire to have these students act as agents of change back at their schools, a focus on interpersonal skills such as confidence (when not with peers), good self-esteem and being a team player were identified as important criteria for student selection.

These interpersonal qualities were combined with motivational qualities such as being enthusiastic and enthused by opportunity and challenge, demonstrating

2 http://theconversation.com/alarming-gender-gap-in-school-science-sets-women-up-to-fail-38344
willingness to challenge and someone who wants to mentor, lead and co-design.

**Staff selection**

Equally important was the selection of staff, ideally those currently teaching some Year 10 Science who would be continuing in their school beyond 2015 (to enact change). Good communication skills were seen as very important to transfer the message to other colleagues and students.

Being able to instigate and implement change meant that it was essential and crucial for the school's Science Coordinator to be part of the group along with teachers who are open to innovation, intrigued by student voice, able to take risks with pedagogy and “willing to jump into the PIT”.

The teachers selected needed to be willing to be a learner rather than a knower, be prepared to take their learning beyond their local context (for example, link to AITSL standards), look for opportunities to build on existing relationships with students and be open to opportunities for self-growth.

**Workshops**

**Day 1: 28th July**

The first day of *Small Shifts: Huge Changes* was crucial in setting the tone for the three days of professional learning. Not having embarked on this approach previously meant there were many unknowns to contend with at this early stage.

The aim of Day 1 was to establish the participants as a group of leaders in science education who have been brought together to share their expertise, generate new learning and support each other to share the learning from this project with a wider audience. The combined group of students and teachers had the wonderful opportunity to develop a shared understanding about the imperative for change and a view of what ‘post-industrial pedagogy’ could look like in NASSSA schools.

The strong focus on pedagogy and collaboration allowed participants to develop understanding about quality questioning, integrating different concepts (through shared example) and differentiating through problem solving.

Day 1 commenced with students and teachers arriving with a slight air of apprehension. Presenters from the TfEL team were in a huddle ensuring that they were well prepared for the ground breaking work to follow.
Initial seating was highly segregated with both students and teachers arranging themselves in separate (protective) groups. Groups rearranged themselves at the request of the presenters and quickly relaxed as the morning progressed and they started to work collaboratively together to solve science based problems.

Introducing teachers and students to a range of innovative approaches was a key strategy in putting the goal of collaboration and co-design into practice. The group were introduced to questioning strategies as a pedagogy and Community of Inquiry\textsuperscript{3}. All participants were informed about the TfEL pilot (student voice) initiative, of which they will be kept informed and potentially supported post the workshop to experiment with for themselves back at their schools.

\textsuperscript{3} Community of Inquiry is a structured group process where students work cooperatively to solve a set problem
Ensuring student voice was heard was encouraged. The identification of group needs developed clarity with the student group about the challenges of learning in a post-industrial model of pedagogy. They then focused on how they could develop and model resilience and explored with the student group their role in this initiative.

A very successful Day 1 concluded with participants being introduced to Neil Atkin (via YouTube) in preparation for Day 2 so that they could think about his message in the context of the entire science curriculum.

**Day 2: 20th August**

Neil Atkin⁴, an international educational consultant in pedagogy from the UK, facilitated the second day. Neil’s blog says: “We were focusing on Science through Three Act Science and also on co-construction – using the students as stakeholders in devising activities in the classroom”.

Neil started the day by deconstructing the concept of failure. For Neil there is no failure, merely attempts in learning are made:

First Attempt in Learning

Neil’s concerns about the dynamics of students and teachers working together were quickly allayed by an origami challenge to break down barriers – a scientific levelling of the field. In Neil’s words “as the day went on the teachers moved from dominating to listening and valuing. [This is a] first step towards genuine co-construction and partnerships”. The photo below is an example of students and teachers collaborating to solve problems being set by Neil.

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Neil challenged the group to think about divergent thinking as shown in the following extract from his blog:

In their study “Break Point and Beyond”, Land and Jarman found that divergent thinking – the ability to find creative solutions to problems diminished rapidly as the students aged – Possibly due to us teaching that there is only one real answer? We need to find questions that google cannot answer and that don’t limit creative solutions. So:

“How many ways can you think of to make a teabag fly?”

Give several minutes to do this with teachers and students working together. Older people tend to suffer fixation – when we have a solution in our minds we struggle to see others. Remember when you have a word to answer a crossword puzzle that doesn’t quite fit, how hard is it to get that word out of your head?

Younger students don’t have this fixation problem and we need to find ways to keep them practicing

Neil introduced the concept of 3 Act Science based on the work of Dan Meyer in Maths. The principles of this approach are:

- Act 1: the Hook
- Act 2: the Explore
- Act 3: the Reveal

Students and teachers were asked to predict the stability of three cartons – one full, one half full and one empty. Once the hook has been set participants are able to explore and develop problem solving skills. What do we need to know in order to find
out? What information have I got? How might this link to other things I have learned

Remembering the learners

We spend huge amounts of time and effort improving teachers but tend to forget about the learners. In the first two days of Small Shifts: Huge Changes
there has been considerable focus on implementing realistic and practical strategies based on the work of Daniel Kahneman’s “System 1 and 2 Thinking”,
Visible Thinking and Carol Dweck’s “Growth Mindset”.

Small shifts in teaching practice can lead to huge changes in outcomes.

or seen before? In the reveal Neil drew on the Zeigarnik affect – basically we lose interest in the cartons when we know what the answer is. We continue to think about incomplete activities so don’t rush to do the reveal.

More predictions rounded out the day. Teachers and students were asked to predict which fruit would fly the furthest in a sling shot. Once predictions had been made the group moved to the oval to test them.

Students and teachers testing their predictions

Executive Function plays a major role in students achieving successful outcomes. One element of Executive Function is the ability to Stop and Think. Day 2 helped to identify metacognitive process to unpack, raising questions such as:

- What are the teacher moves?
Day 3: 18th September
The final workshop on Day 3 was vitally important to consolidate the learning and ensure that there was a tangible commitment to action, so both students and teachers had the opportunity to leave at the end of the day with a clear sense of what they would take out of the three days (*Their Legacy*) and a plan to keep the momentum going.

The TfEL team structured the initial part of the day to respond to the group needs. There was some reflection on progress so far and an opportunity to share the developments that they have made at their site (and beyond) in relation to the work so far.

The sharing section was one of the most dynamic elements of the three days working together. Two concentric circles were formed with an inner circle of students and an outer circle of teachers. Each circle had to interact with the other circle and reflect on the ways they had been interacting with, and implementing, the approaches that they had co-designed over the previous two sessions. After a set period of time the two circles rotated in opposite directions so both teachers and students had the opportunity to share with a wide range of other participants. This can be clearly seen in the photo below:

Student and teacher sharing reflections and learning

A significant part of the third day focused on growth mindsets – exploring the notions of sharing power and collaboration (which the evaluation graph below shows was
well received by participants). Students and teachers were engaged in the challenging task of creating a cardboard chair which incorporated creativity with the need to scientifically work out how it would hold the weight required (5 kg).

Following on from the concept of exploring in science that Neil Atkin presented and the importance of acknowledging that FAIL is the First Attempt In Learning the group embarked on an examination of misconceptions in science. This was combined with the need to hypothesise and both teachers and students were given the task of predicting how far the moon was from the earth.

As can be seen in the following photo the earth was represented by a basketball and the moon by tennis balls. Using these proportions as the basis of their predictions participants had to place the tennis ball in a position where they thought it represented the distance. Using this technique encouraged the group to take risks and think outside the square.

How far is the moon from the earth?

A fitting conclusion to the series of three workshops was having students and teachers design their legacy – what is it that they want to take away and build on from these three sessions?

Key points identified to further consider were:
- Increasing intellectual demand in class through greater exploration and asking: What if..... ?
- Transforming tasks (use the new Leading Learning resource to support teachers to personalise their learning (building on from the day with Neil)
- Focus on how the learning can be developed further using Learning Design

An immediate legacy that was apparent was the desire to continue with this approach to professional learning for teachers and students as shown when
responding to the question “How do you rate your willingness to do these types of workshops again” (8.7 out of 10).

Participants

Registration
The registration process was carried out using Eventbrite for the eight NASSSA schools and two non-NASSSA schools involved. This proved to be a very useful tool as it provided a database for future evaluation using Survey Monkey and email.

The breakdown of participants by gender and role was:

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>18</td>
<td>27</td>
<td>45</td>
</tr>
<tr>
<td>Teacher</td>
<td>18</td>
<td>26</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>53</td>
<td>89</td>
</tr>
</tbody>
</table>

Data
A number of evaluative tools were used to analyse what was occurring across the workshops. These included: Today's Meet, Survey Monkey, paper surveys, infographics. A selection of these have been included throughout the paper to highlight key findings

Today’s Meet
Today’s Meet in an online meeting tool which collects formative feedback of the process as it unfolds and allows ongoing dialogue between participants.

Infographics
Infographics were used to show key results from student and teacher feedback
forms completed after each workshop. Some interesting observations and perceptions were revealed. Before the workshops 25% of students perceived that their teacher does not talk to them about how they are going in science. After the workshops this had dropped to 18%.

Before and after: how am I going in Science?

In another instance the view perceived by students before the workshops was a mirror view to that expressed by their teachers. The same percentage responses were given by teachers and students, for the question: our teacher enables us to design our own investigations. Once again the same question asked after the workshops indicated a shift in the perception of students.
Before and after: how much say I get in choosing topics in Science?

This suggests traditional pedagogy of learning science: recipe or closed inquiry investigations. Negotiation of learning is a growth area. This correlates with research that has been undertaken by the TfEL team.

Views held by students and teachers on preferred learning styles for the 21st Century:

**STUDENTS**

“I agree that the way students are being taught needs to change, we are not learning, we cannot memorise everything.”

“I agree with people needing more creative thinking – find a balance between content and more creative thinking.”

“The way that students are being taught is more than just repeating information, students that do this the best are given better grades and this isn’t always appropriate.”

**TEACHERS**

“I agree we take away the natural curiosity of the child and replace with information.”

“Changes thinking processes – resilience needs to be developed.”

“I agree that failure should be treated as a positive learning experience”

“Skills over content knowledge – need for change to keep up with the changing needs of society”
What we learnt

Benefits of collaboration
There were a number of benefits evident in this joint approach to professional learning. These are reflected in some of the comments from Science Leaders at NASSSA schools. Samples of those comments are listed below:

Benefits of joint approach to professional learning

- As a leader the big change I have noticed is a lot more exploring before explaining happening and assessment tasks which are student driven or have multiple entry and exit points. This has been going on in both Science and Math classes for a variety of year levels.
- Teachers have been working with students to design this terms program and assessment task, which is year 9 class. Students are so engaged
- Generally there has been more:
  - Self-discovery tasks. What do they want to know?
  - Community Circle and Inquiry Based Learning
  - Non-googable questions, self-learning activities and co-wrote assessment with students input
  - Co-planned whole unit and associated assessment tasks. Amazing results and engagement!

- Explore before Explain
- Two students attend science faculty meeting when writing assessment tasks using the transforming tasks strategies.
- Presentation to staff by students at staff meeting.

The student perspective
At different stages in the workshops students were asked to create a human graph story in response to a set question.

Student responses

Students were asked:
"How is the person in this video like you?"
Students stood at various place along the line after watching a video which showed a teacher trying to explain maths to students but they just didn't get it.

Students were asked:
"Think about someone like this. Where would they be standing on the line?"

All students went down to the end of not feeling good about learning.

Students were asked:
"Which one is like you?"
Teacher talks to us -------------------------------  teacher talks with us
Most students were standing down the with us end.

Students were asked:
"Now what if we asked you this question yesterday, where would you be standing?"
Most students moved to the other end of the line.
What students enjoyed

I enjoyed co-designing how we learn science with our teachers. Why?

- Because science fascinates me.
- Because it makes me feel like part of a team.
- We don't have our teacher plan our lessons but would love to.
- I feel I learn better when I enjoy the topic.
- It's fun and I learned new things in science.
- Because it's fun.
- Because even in some sciences where we learn it's not always fun.
- It seemed as if the teachers were just getting interested.
- It was good to see the teachers' new interest.
- It is very good to have input because not only will I learn better but hopefully Alex Miles can learn a few (or) tips too.
- It makes the topics more enjoyable and
- It makes things clearer to learn and then I can learn.
- Because it gives me an idea of how they teach and... more of the way they teach...

What is one big question you still have?

- How did this start?
- How do (students) have an appropriate
- How much (we) are in what we learn, without amount of (or) in what we learn.
- Change (or) change our curriculum.
- Why so much less this year?
- Why didn't we build atoms?

Positives and questions

What did you like or agree with?

- More
- Learn
- Need

Questions

What are you curious about?

- Change
- What could you do differently in Science and why?

Eureka moments

What have you discovered for yourself?
Reason for teachers and students co-designing together.
The teacher perspective
The teachers valued student voice and the cultural currency students bring, through building on students interests, using ideas that are of importance to the young adults in their particular contexts.

What the teachers value

Teachers generally reported that they enjoy teaching science. When questioned about the low percentage response of teachers inviting visitors to school to talk about science many teachers said they preferred taking students out of the school to
local universities or industries to talk about science topics.

**What teachers enjoy**

Like the student group teachers enjoyed the exercise of co-designing learning of science. Developing an understanding of what students are thinking, better engagement and the benefits of teamwork were some of the key factors identified.
Co-designing responses and questions
Key learnings that teachers reported back related to the importance of enquiry based learning, the benefits of task transformation and that students can help inform practice.

What did teachers learn?
Challenges of collaboration

ICT
Access to ICT for guest participants can be challenging in schools. Many schools have ICT protocols which are very restrictive and don’t provide access for visitors to the school. These protocols can have a negative impact on the range of activities undertaken with laptops and tablets and inhibit the pursuit of 21st Century learning approaches.

Keeping groups consistent
It is important to ensure students are chosen using the guidelines provided. This project is not intended to attract the same students that are involved in all STEM projects the school is offering. It is intended that this project improves participation in Year 11 and 12 science subjects. The focus on students in the B and C range who are influencers within their peer groups is an important element.

Complexity of day(s)
A lesson learned early in the project was that it is important to keep as close as possible to the usual school day. Day 1 had an earlier start and a later finish and it was very clear that concentration and engagement diminished once the school bell went for the end of the day.

Conclusion

Commitment to Action
A critically important part of the Small Shifts: Huge Changes workshops was to transfer the learning into practice. In the final session groups brainstormed ideas to make this happen. Strategies identified included:

- Formation of PLCs at their schools
- Year 10 students going back to their site and going into year 8/9 classes and running a ‘problem solving’ exercise and exploring what’s different/why it needs to be different/resilience needed for the new approach/ the need to work with their teacher/share their understanding of change with their parents/peers
- Students acting as mentors to support students
- Students and teachers presenting to the community/ other subject departments/primary schools
- Students and teachers uploading new resources to the site created on the Day with Neil
- Students/teachers accessing Neils blog
- Question for teachers/students – How can you raise up and generalise your learning and take it into other areas?
- At the end/during each day students could write a ‘Dear Diary’ comment about their learning/thinking/wondering/feeling about their involvement in the project etc. In this way we are hearing student voice on a regular basis.
Protocols
NASSSA students and teachers have developed a series of conditions for working together.

Students and teachers working together

NASSSA non-negotiables for student and teacher co-design

- Commit to the work and to influencing other students and teachers
- Listen to one another
- Be willing to change and learn
- Model being a learner and have a good sense of humor!
- Be willing to take risks and challenge yourself
- Show mutual respect and trust
- Challenge one another’s thinking in a respectful manner
- Speak up and share your ideas
- Create opportunities for ongoing feedback, take it seriously and respond to it
- Everyone needs to take responsibility for learning, students and teachers!
- With hold any judgments
- Have a growth mindset
- Ensure an even number of teachers and students
- Clarity of purpose and intentions
- Acknowledge all ideas and perspectives
- Contribute equally and don’t ‘opt-out’
- Shared air-time
The development of collaboration for co-design between students and teachers

Legacy
The outcomes and learnings from this innovative model include a NASSSA protocol for students and teachers conditions on working together. Following the workshops leaders have reported a change in pedagogy:

1) Increase in challenge: Teachers are enabling students to explore before explain.
2) Students co-designing learning tasks for intellectual stretch at faculty meetings.
3) Students rated professional learning experience 9/10 and recommend it continues in 2016
4) Increase in growth, student’s self-efficacy and dealing with uncertainty.
5) Increase in student engagement.

The post data surveys showed a 7% shift in more teachers providing feedback to students. 85% of students are studying at least one science subject in 2016.

Acknowledgements
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Mikelle Meigel  TFEL Pilot Leader
Sarah Miller  TFEL Pilot Leader
Garry North  TFEL Pilot Leader
Yvette Riley  Senior Leader STEM, Salisbury East High School
Ashley Sykes  Coordinator Science, Salisbury East High School
Steve Clarke  Principal, Salisbury East High School
Mark Hodgson  Deputy Principal, Salisbury East High School
Participating Schools

NASSSA
Craigmere High School
Gawler and District College B-12
Para Hills High School
Parafiel Gardens High School
Paralowie R-12 School
Playford International College
Salisbury East High School
Salisbury High School

Other
Murray Bridge High School
Seaview High School

References
Robinson, Viviane, School leadership and student outcomes: Identifying what works and why, 2009


Appendix
1. Student and teacher responses: after viewing 'Most Likely to Succeed' editedpromo
### APPENDIX 3
**NASSSA Small Shifts Huge Changes**
MOST LIKELY TO SUCCEED  Student and Teachers responses after viewing the promo version.

<table>
<thead>
<tr>
<th><strong>Student responses</strong></th>
<th><strong>Staff responses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>They think we shouldn’t be lectured</td>
<td>Content is no ‘free-' don’t need a teacher for this anymore</td>
</tr>
<tr>
<td>I agree that skill is more assessed than the ability to learn</td>
<td>I agree we take away the natural curiosity of the child and replace with information</td>
</tr>
<tr>
<td>I have discovered that science is important to learn so I should pay more attention</td>
<td>I agree that failure should be treated as a positive learning experience</td>
</tr>
<tr>
<td>I agree that the future is going to be built on ideas and innovation rather than facts and knowledge</td>
<td>We are changing as the technology and times change</td>
</tr>
<tr>
<td>I agree that the way students are being taught needs to change, we aren’t learning, we aren’t memorizing everything.</td>
<td>The understanding we don’t need cookie-cutter kids, we need independent, creative thinkers</td>
</tr>
<tr>
<td>Teachers can act as good friends to students, need to understand that everyone one of us is human, we are all the same and equal</td>
<td>Teaching and learning needs to change</td>
</tr>
<tr>
<td>I agree that the teachers just spew out information and expect us to memorise information</td>
<td>Agree that students are being taught facts and to memorise these facts</td>
</tr>
<tr>
<td>I liked that the clip was trimmed to 4 mins and not 26</td>
<td>Creativity is valued in the real world</td>
</tr>
<tr>
<td>That failing is part of the process</td>
<td>Small class sizes- homework- higher order thinking</td>
</tr>
<tr>
<td>The way that students are being taught is more than just repeating information- students that do this the best are given better grades and this isn’t always appropriate</td>
<td>It sounds, interesting, exciting, a new way of learning that fosters creativity and team work</td>
</tr>
<tr>
<td>Truthful, teaching differently</td>
<td>Stimulating the observation skills</td>
</tr>
<tr>
<td>That we are just taught to memorise and repeat</td>
<td>Science education has to change</td>
</tr>
<tr>
<td>Having a high overall grade average doesn’t tell them about you, it just says, it just says you did well in some of your courses</td>
<td>Learning should be more of ‘ understanding and not recalling information”</td>
</tr>
<tr>
<td>I agree with people needing more creative thinking- find a</td>
<td>Learning to learn- not content driven- about experiences</td>
</tr>
<tr>
<td>Topic</td>
<td>Response</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Balance between content and more creative thinking</td>
<td>Role of skills not content as employment factor</td>
</tr>
<tr>
<td>To bring out the fact that teaching needs to change for the better</td>
<td>Failing is just part of the process! RESILIENCE is important—getting up and having another crack at it.</td>
</tr>
<tr>
<td>I agree that education should be about experience and not just copying and pasting</td>
<td>Not about failures</td>
</tr>
<tr>
<td>Working with others is better than working alone, have more ideas</td>
<td>Not about failures</td>
</tr>
<tr>
<td>Students should continue questioning things and being curious</td>
<td>Resilience is needed</td>
</tr>
<tr>
<td>Remembering is not learning</td>
<td>A degree from a fancy UNI does not mean anything in a real world</td>
</tr>
<tr>
<td>The students that recall the information the best, get the best grades</td>
<td>Revolutionary thought regarding education reform+ purpose for the future</td>
</tr>
<tr>
<td>That teachers tell us information and we have to say it back</td>
<td>I like short videos with 1 theme and lots of short snippets</td>
</tr>
<tr>
<td>The comments were accurate in the way that we currently learn</td>
<td>We can teach collaborative problem solving regardless of technological developments</td>
</tr>
<tr>
<td>The emphasis that failing isn’t the end of the world</td>
<td>Change is a continuous process</td>
</tr>
<tr>
<td>Understanding that we are learning differently, and at different speeds</td>
<td>The statement, ‘how you look on paper does not reflect the person you may be”</td>
</tr>
<tr>
<td>I agree the world is changing and better skills are needed</td>
<td>Changes- thinking processes-resilience needs to be developed</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Learning is not retention of facts</td>
</tr>
<tr>
<td>The statement, ‘how you look on paper does not reflect the person you may be”</td>
<td>Teaching skills not just content means that we are preparing students for all subjects not just our own</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Education must allow for the creation of independent thinkers</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Focus on how- cognitive skills</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Build in the confidence to learn</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Industrialised structure of schooling is no longer relevant</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Skills over content knowledge- need for change to keep up with the changing needs of society</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Executive functions rear their heads again</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>I agree with the main ideas</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Learn for learning or passing</td>
</tr>
<tr>
<td>You can always learn more- be a continuous learner</td>
<td>Learning for learnings sake is hard to mark objectively</td>
</tr>
<tr>
<td>Student responses</td>
<td>Staff responses</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I'm curious about why teachers get told what to teach by the government and education when they aren't teachers?</td>
<td>How can we allocate time for skill, inquiry, trial and error but still meet content demands of the AC?</td>
</tr>
<tr>
<td>I'm curious about how things work</td>
<td>How can we build skills when our only available resources are targeted at building knowledge?</td>
</tr>
<tr>
<td>Why are we being taught irrelevant skills for life after school?</td>
<td>How to link the real world at appropriate levels for all students?</td>
</tr>
<tr>
<td>Will be able to live on another planet? Self aware robots?</td>
<td>Is content knowledge really dead?</td>
</tr>
<tr>
<td>How can students be more engaged with learning rather than consuming facts?</td>
<td>What else is on the video, I have not seen anything new here?</td>
</tr>
<tr>
<td></td>
<td>Are we actually doing anything right?</td>
</tr>
<tr>
<td></td>
<td>Why do I feel like I am not valued?</td>
</tr>
<tr>
<td>America's schooling system</td>
<td>Why is America the leading country?</td>
</tr>
<tr>
<td></td>
<td>They test, test, test, we actually teach</td>
</tr>
<tr>
<td></td>
<td>What do we do right?</td>
</tr>
<tr>
<td>How does the US teach differently?</td>
<td>How would this approach be accessible?</td>
</tr>
<tr>
<td></td>
<td>How could we develop effective learners?</td>
</tr>
<tr>
<td>I am curious with What's in the boxes</td>
<td>How do I make this work for my students when I am told to get through the content?</td>
</tr>
<tr>
<td>What does a problem solving skill look like?</td>
<td>Create curiosity amongst students</td>
</tr>
<tr>
<td>I am curious about whether people prefer being assessed specifically or just meeting the standard?</td>
<td>How do we teach to fail and go again when our system rewards success?</td>
</tr>
<tr>
<td>Learn more from your own curiosity, teaching and learning need to change</td>
<td>Ho will it be developed?</td>
</tr>
<tr>
<td></td>
<td>Any assessment?</td>
</tr>
<tr>
<td></td>
<td>Types of assessments?</td>
</tr>
<tr>
<td></td>
<td>Check the knowledge?</td>
</tr>
<tr>
<td>Thinking creatively</td>
<td>How does it work in practice?</td>
</tr>
<tr>
<td></td>
<td>How do you apply it to the various science topics?</td>
</tr>
<tr>
<td>Using new and different methods to solve problems</td>
<td>What skills are needed for students moving into the 21C</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>----------</td>
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</tr>
<tr>
<td>I'm curious about solar and all the plants and how that works. The school/teacher can ask us what we learn and like and have a discussion on student questions.</td>
<td>How do we give students more freedom of choice if they aren't responsible enough to drive their own learning and choose responsibly? (maturity?)</td>
</tr>
<tr>
<td>Why is the main focus following an education model?</td>
<td>What will this look like in my classroom?</td>
</tr>
<tr>
<td>Why don’t the teachers teach the skills?</td>
<td>Teachers are unsure about what jobs will look like in 5 years time?</td>
</tr>
<tr>
<td>I’m curious to how the most effective method of education is put into process?</td>
<td>Why are traditional, manufacturing, trades considered ‘dead’?</td>
</tr>
<tr>
<td></td>
<td>Competency based progressions, vs yr level based progression</td>
</tr>
<tr>
<td>Why are exams such a large part of education at school and Uni?</td>
<td>If we are so data driven as a school, how do we begin to move towards an inquiry based learning environment?</td>
</tr>
<tr>
<td></td>
<td>How I could teach the curriculum but still allow curiosity to lead?</td>
</tr>
<tr>
<td></td>
<td>Check the validity of inference?</td>
</tr>
<tr>
<td></td>
<td>What qualifications are needed to get a job with Salam Khan?</td>
</tr>
<tr>
<td></td>
<td>How useful is the data (scores) in this more skill driven style of education?</td>
</tr>
<tr>
<td>Student responses</td>
<td>Staff responses</td>
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<tr>
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</tr>
<tr>
<td>More class discussions</td>
<td>What I could do is limited by my obligations within the present economic/political climate. We need to change the system but are largely constrained</td>
</tr>
<tr>
<td>Use different programs and tools to extend our thinking</td>
<td>Allocate more class time to collaborate, investigate and less time teaching content</td>
</tr>
<tr>
<td>Not just be forced to sit and record info for lessons with no discussions</td>
<td>Asking questions (open ended) – stimulating thinking skills</td>
</tr>
<tr>
<td>Failed pracs should be good</td>
<td>Increase student centered inquiry</td>
</tr>
<tr>
<td>Solving big problems with more students</td>
<td>Inquiry base not content</td>
</tr>
<tr>
<td>My point of view on science teachers</td>
<td>Develop skills among students in terms of collaboration and problem solving through more inquiry based teaching</td>
</tr>
<tr>
<td>Think deeper to find new solutions</td>
<td>Take science outside of the classroom and relate it to real life</td>
</tr>
<tr>
<td>Continue with independent learning</td>
<td>Explain task more thoroughly write what about what?</td>
</tr>
<tr>
<td>If I’m curious make the effort to find the answer</td>
<td>LOTS! Have started small things, need to be more courageous and just jump in!</td>
</tr>
<tr>
<td>Failure is OK as you are going to fail in life</td>
<td>More hands on student guided learning- give them opportunities to ask questions and investigate</td>
</tr>
<tr>
<td>And people who work the best</td>
<td>Be more of a facilitator guide of learning rather than a director of learning</td>
</tr>
<tr>
<td>Blow stuff up- lots of pracs</td>
<td>The information is all freely available but children do not automatically look for the important information. They do need some guidance from others who know where to look</td>
</tr>
<tr>
<td>More experiments and interesting tasks</td>
<td></td>
</tr>
</tbody>
</table>

**CHANGE** What could you do differently in Science and why?
<table>
<thead>
<tr>
<th>Consider school as not such a hole and more of a special place for innovative ideas for the future</th>
<th>Modify and retry if the lesson isn’t successful, Engage students in design process.</th>
</tr>
</thead>
<tbody>
<tr>
<td>We should be asked what we want to learn, not what they think we should learn</td>
<td>Student directed Engagement through ownership Knowledge through design and investigation</td>
</tr>
<tr>
<td>Make it more interesting, more hands on learning and not just theory and practicals</td>
<td>Show the content of the content</td>
</tr>
<tr>
<td>If I could, I would have students working on a level that they were comfortable with, but based on content that they were attracted to, and rise up the levels at their own speed. Students should learn the way they play video games. I am at this level, test if I can reach the next level, instant accreditation, rise up through the levels, receive rewards.</td>
<td>The curriculum says- get through most of this content now and quickly, this is constraining. Students need to be able to choose more of the content (more choice)</td>
</tr>
<tr>
<td>I would broaden the curriculum to let teachers work in their area of expertise</td>
<td></td>
</tr>
<tr>
<td>Turn my students into the teachers- they have more control</td>
<td></td>
</tr>
<tr>
<td>Look at the skills in science that will create more resilient, creative and other</td>
<td>More problem solving in science</td>
</tr>
<tr>
<td>Prefer for students as groups or individuals to take charge of teaching and learning (flipped classroom)</td>
<td></td>
</tr>
<tr>
<td>Begin to facilitate student inquiry skills</td>
<td></td>
</tr>
<tr>
<td>Try activities where students are given open questions</td>
<td></td>
</tr>
<tr>
<td>Student responses</td>
<td>Staff responses</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>I am good at learning when I am curious</td>
<td>We do lots well</td>
</tr>
<tr>
<td>Students are expected to absorb lots of information and are expected to know everything they learn in class</td>
<td>To prepare students for life out of school, they need to be in charge of their own independent though</td>
</tr>
<tr>
<td>Students are expected to memorize information and repeat it exactly! (sad face drawn)</td>
<td>Improving pedagogy towards student centered learning and investigations</td>
</tr>
<tr>
<td>I have discovered that other schools are the same, they are getting taught like us and they are doing the same things</td>
<td>Marking for improvement What are we currently doing at our school in the science faculty</td>
</tr>
<tr>
<td>Failing is good</td>
<td>Failure is not necessarily bad</td>
</tr>
<tr>
<td>The world won't blow up when people say</td>
<td>Always questioning (let kids always ask questions)</td>
</tr>
<tr>
<td>That America has a tougher schooling system</td>
<td>Confirmed that the world is changing very fast</td>
</tr>
<tr>
<td>Knowing things is obsolete to learning something</td>
<td>I don't give students enough time to investigate and ask why</td>
</tr>
<tr>
<td>It is easy to work in groups because you have more ideas than by yourself</td>
<td>Marking for improvement – what we are currently doing at our school in the science faculty</td>
</tr>
<tr>
<td>That there are many jobs available, research</td>
<td>The world is already looking for curious, resilient, rigorous team players Education is not currently catering for this</td>
</tr>
<tr>
<td>That we will constantly progress and advance quickly</td>
<td>No clue- didn't really have that light bulb moment</td>
</tr>
<tr>
<td>We get taught to memorise and repeat back the same way as we were taught and we aren't taking it all in.</td>
<td>This sounds like IB</td>
</tr>
<tr>
<td>I have discovered that one of, if not the best method of teaching is not being extra nice to students or giving them rewards for work. The kids need to feel like they are in a special place, they have to understand that they are special for the future and that their innovation is needed in this day and age</td>
<td>Focus on science by doing, it works! (smiley face) Students learn more when they are happy</td>
</tr>
<tr>
<td>IB</td>
<td></td>
</tr>
<tr>
<td>I didn't get one, heard it before</td>
<td></td>
</tr>
</tbody>
</table>