HOTS for Feedback

Integration of Higher Order Thinking Skills and Student Driven Feedback

Effective feedback is instrumental to effective learning. Current feedback models tend to be educator driven rather than learner-centred, with the focus on how the supervisor should give feedback rather than on the role of the learner in requesting and responding to feedback. In Hattie's article (2003) on teachers making a difference, he outlines that feedback has the highest influence on student learning. This mainly comes from the educator to the learner. In the model adopted by Cedar Creek State School (CCSS), the feedback is not only driven by the educator towards the learner but also the learner towards the educator and the parent.

In 2012, due to a recommendation in the 2011 Teaching and Learning Audit, CCSS adopted an emphasis on the use of higher order thinking skills (HOTS) across all aspects of the curriculum. This emphasis was two fold: to extend the higher performing students and to encourage 'out of the box' thinking processes across all of the school. This also aligned with the implementation of the general capabilities within the Australian Curriculum, which has an emphasis on critical and creative thinking. From this, whole-school plans were drawn up for the direct teaching and reinforcing of HOTS, plus specific lessons were designed so that students were taught the skills. These were reinforced through newsletter articles to parents, weekly challenges and competitions. In conjunction with these HOTS, the school was engaging in a high level of professional development around the influences as outlined by Hattie and how these could be adopted within the school.

When CCSS researched HOTS and how they can be used across all domains of the curriculum, the administration came across the itc thinking tool, the **Extent Barometer**. Using the **Extent Barometer** teachers were able to integrate both the need for student directed feedback and HOTS to our parent conferences. During scheduled parent conferences, students would have the opportunity to actively reflect on the learning process and articulate this learning method to both teachers and students.

the thinking teacher's diary

This type of feedback process fitted nicely with the school's pedagogical framework which is based on the Dimensions of Teaching and Learning. This framework has an emphasis on student strengths and areas for improvement which is based on school assessment. The feedback segment of the Dimension of Teaching and Learning has a direct reference to HOTS. Combining the feedback section of the pedagogical framework (based on the Dimensions of Teaching and Learning) with the **Extent Barometer** creates a unique way of presenting parent teacher interviews. This can be seen in Diagram 1.
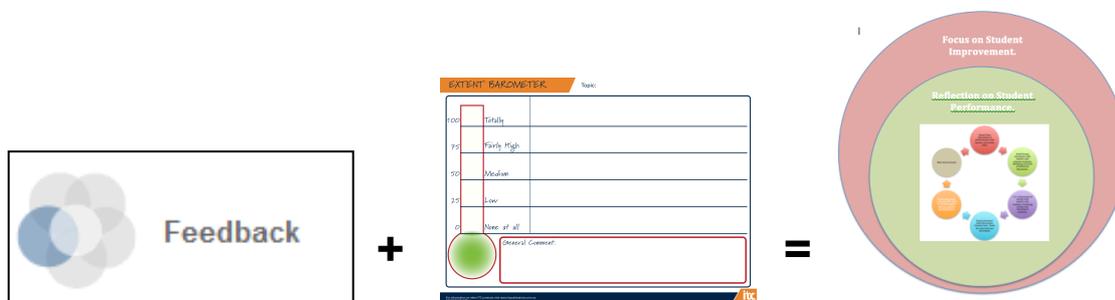
Diagram 1: The combination of the **Extent Barometer** and the feedback section of the Dimension of Teaching and Learning.

The process of HOTS for a feedback model is differentiated depending on the classroom teacher and also the students in the class. The teacher, at all times, works with the students to help create an experience that allows both the students and parents to get the most out of the interview process. By getting the students to choose their own rating it allows the child to then justify their decisions based on work samples, formative assessment and portfolios. The teacher discusses with the students and parents the progress of the student over the term plus where they could improve their results.

Step 1: Initial class discussion
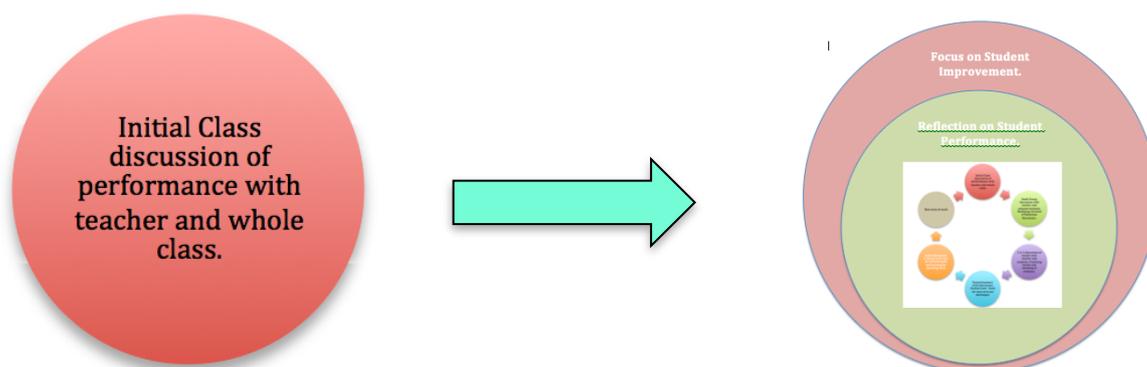
**Diagram 2:** Step 1 in the process – initial class discussion.

The classroom teacher does a great deal of background work before the conferences start. Teachers take the students through the **Extent Barometer** and get them to actively reflect on where they think they have achieved in the areas of English, Maths, work ethic and behaviour. Teachers talk the students through their own perceptions of what they have achieved in the given areas, and also help them hunt through their work to justify their achievements (Diagram 2).

Steps 2 and 3: Small group discussion and modification of *Extent Barometer* if necessary. One-to-one conferencing with student and teacher
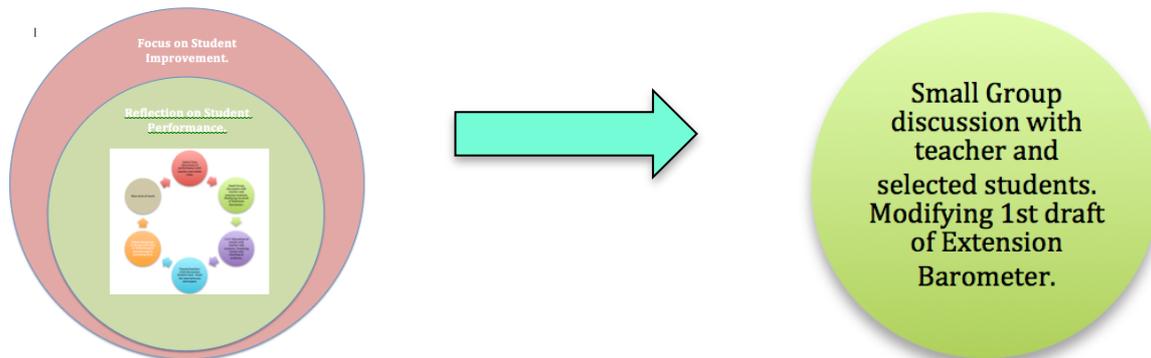
Diagram 3: Step 2 of the process – small group discussion and modification of 1st draft of **Extent Barometer**

The teacher will then work with small groups to refine the **Extent Barometer** to suit the individual learning progress of the child (Diagram 3) and to refine the work samples to ensure that they are a true reflection of what needs to be discussed on the night. At times, teachers found the need to conference with students one on one to discuss their decisions around achievement (Diagram 4). Ironically, it was found that most students underestimated their achievement rather than overestimated it (see parent and teacher testimonial).
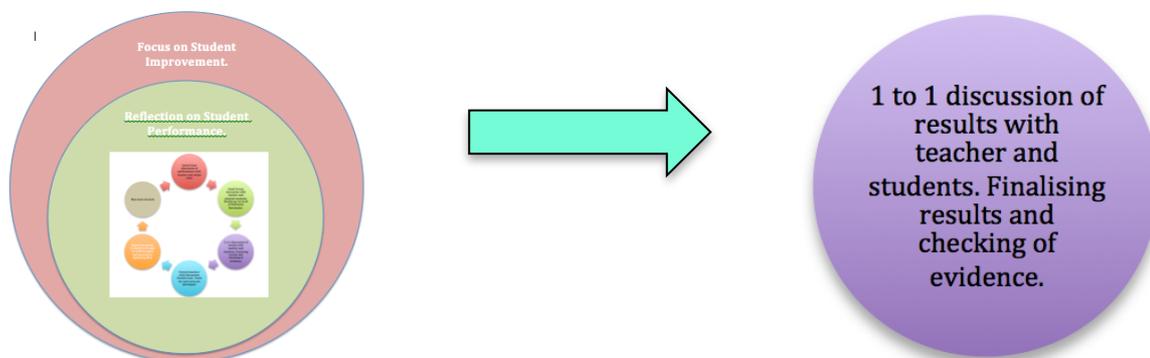
Diagram 4: One to one conferencing with students

Step 4: Parent/teacher/child discussion

During the actual conference students are invited to lead the conversation and present to their parents their **Extent Barometer**, their work samples and their results. They verbally justify why they placed their results on the Barometer's scale and show their parents their work samples that justify their position. Teachers then will prompt the students to outline what they could have changed to have done better. Throughout the conversation parents are invited to ask questions and teachers are prompt students if they are unsure of what to say (Diagram 5).
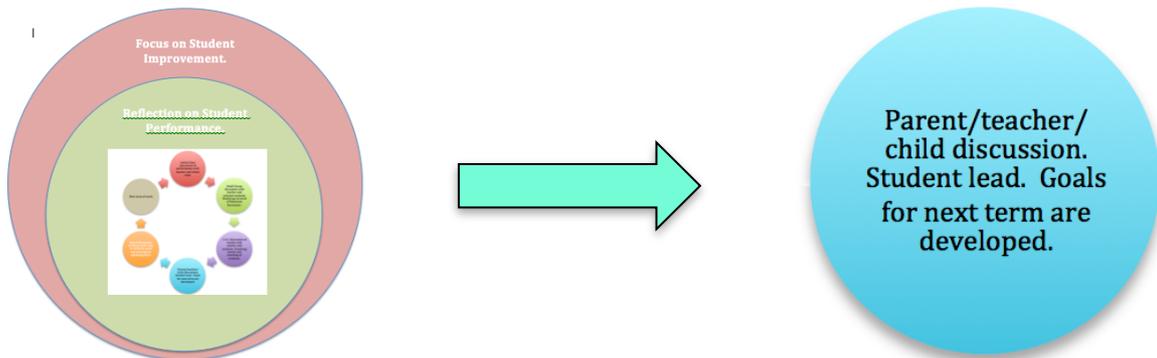
Diagram 5: Step 4 of the process – parent/teacher/child discussion

Step 5: After the conference

Once the conference is over the students are then given time to share their **Extent Barometer** with their classmates. Some choose to do so, some turn down the offer. In this session, students are encouraged to verbalise their learning once again but more importantly verbalise how they are going to improve in the upcoming term of work (Diagram 5). Sharing their ideas encourages students to become more accountable.
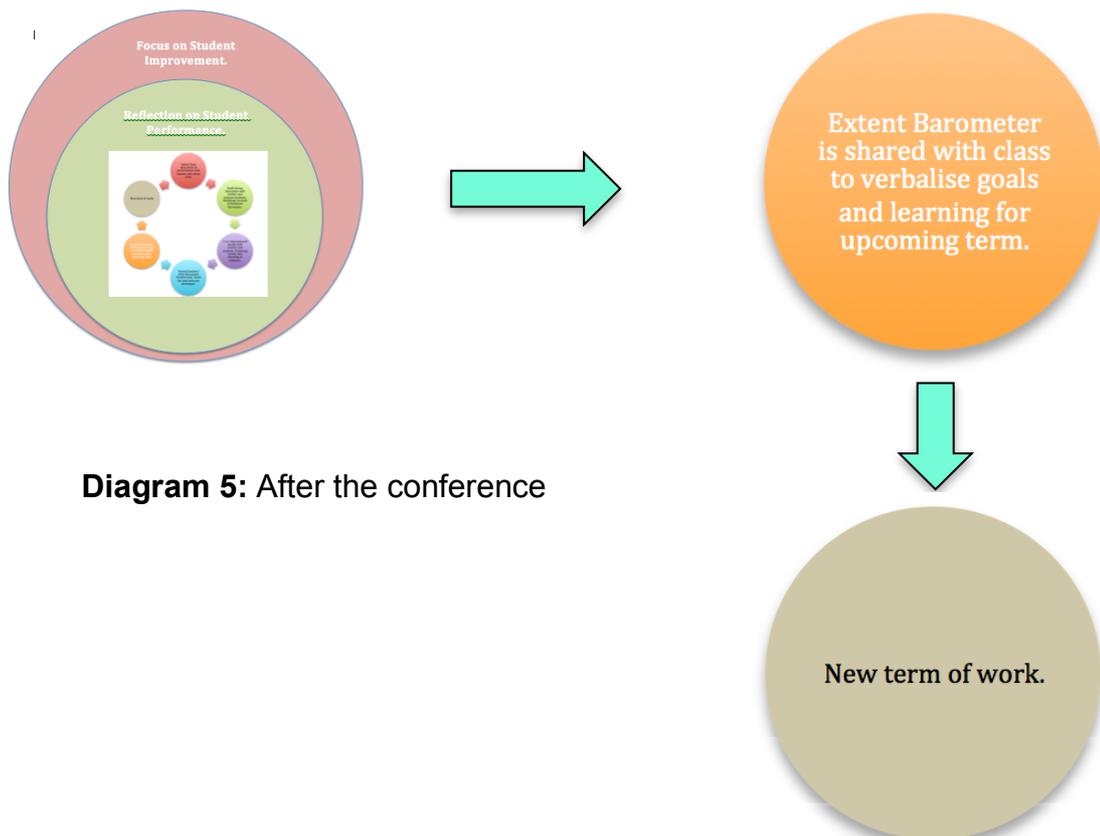
Diagram 5: After the conference

All of the steps in the process allow the students to reflect on their learning and how they can make improvements to not only their academic work but also their work habits/ethic and behaviour. All students, no matter their achievement level, are able to actively partake in their own learning and reflect on their performance. These two factors encompass all parts of the feedback cycle and the main reason behind taking on this type of parent/teacher interview format (Diagram 7).
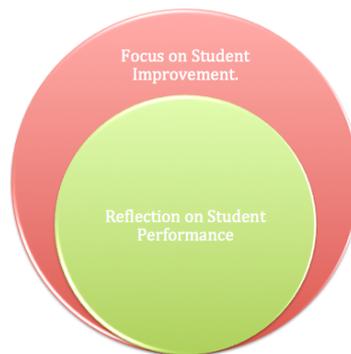
Diagram 7: The main aims of the process –
student improvement and reflection on performance.

Evidence of Student Learning

Significant Evidence 1: Student Achievement

Throughout the whole process, the overarching aim was to improve student achievement through a process that was sustainable, inclusive and transferrable. From the integration of the HOTS for feedback model into the parent/teacher process, it is obvious that this has been successful. Below are four testimonials from students in the school.

Student 1: Claire

Claire is a high performing student who, although can recite back facts and figures to anyone who listens, does not tend to put herself outside her comfort zone and does not tend to think "outside of the box". When first confronted with the **Extent Barometer** she was quite nervous as it meant that she needed to reflect on her own learning. However once the whole process was over, Claire was quite pleased that she had been pushed to do it.

> *"I really enjoyed seeing the look on Mum's face when I showed her how I had rated myself and the activities I found in my book to back it up."*

Claire also found that she underestimated her performance and had to make some changes to her initial **Barometer** through the one-to-one conference with her teacher. She told the writer that she was shocked that she had performed well that term as she found year 5 a little more challenging than she had with other grades.

When looking at Claire's A to E data, it can be seen that she had improved in her English results after the introduction of the goals in her work. Claire even said that she liked the way the goals "helped her focus on what she needed to do in class." Supporting evidence 1 shows Claire's academic performance after the implementation of the HOTS for feedback cycle of parent/teacher/child conferences. In semester 1 her academic achievement was rated as a "B" yet in semester 2 it had improved to an "A". Although this was not the first round of implementation of the HOTS for feedback model, another conference was done with the parents at the beginning of term 3 2013 after the first semester reports had been handed out. The students went through the same process as above however just had different activities and work as justifications and also reflected on their academic progress in their report card.

Subject	Semester 1 2013	Semester 2 2013
ENGLISH	B	A
MATHEMATICS	A	A
SCIENCE	N	B
SOSE	B	C
HISTORY	B	B
Cedar Creek State School Strings	A	A
Achievement	A	
Performance	A	
HPE	C	C
Health	N	
PHYSICAL ACTIVITY	C	C
HEALTH		N
THE ARTS	A	A
MUSIC	A	A
TECHNOLOGY	B	A

Supporting Evidence 1: A to E achievement data of Claire from semester 1 and 2 of 2013. In between these results was the second round of HOTS for feedback interview formats.

Student 2: Naomi

Naomi is a student with a diagnosed disability. Although she learns the same curriculum content as the other students, she has been diagnosed with ASD and is very particular about the way in which she takes in information and is often reluctant to participate in class discussions and verbalise her thoughts. This type of interview was a great challenge to Naomi and she found it very confronting. However once she got use to the idea she was able to voice her progress through structured questions posed by her teacher.

> "My teacher helped me get through the chat and gave me things to say to Mum and Dad."

Naomi benefitted from the HOTS for feedback model in its first round of implementation. Supporting evidence 2 shows Naomi's results from 2012 before the feedback model had been implemented in the first semester of 2013. She had been a "D" student in both semesters of work. However in the first semester of 2013 after the implementation of the feedback model, it can be seen in supporting evidence 3 that her marks had improved to "C" in both English and Mathematics. Both of these areas are reported on with the HOTS for feedback format.

Subject	CCSS Sem 1 2012	Semester 2, 2012
ENGLISH	D	D
MATHEMATICS	D	D
SCIENCE	C	C
SOSE	B	C
TONE: THE ABILITY TO PRODUCE A CLEAR, SMOOTH SOUND.	B	C
TECHNIQUE: THE DEGREE OF SKILL IN RELATION TO CORRECT METHODS OF PLAYING AN INSTRUMENT.	C	C
RHYTHM: THE AWARENESS OF PLAYING IN TIME.	B	B
HPE	C	C
PHYSICAL ACTIVITY	C	C
THE ARTS	C	B
MUSIC	B	B
TECHNOLOGY	B	C

Supporting Evidence 2: Naomi's results before the implementation of the HOTS for feedback model.

Subject	Semester 1 2013	Semester 2 2013
ENGLISH	C	C
MATHEMATICS	C	C
SCIENCE	C	C
SOSE	C	C
HISTORY	C	C
Cedar Creek State School Strings	C	
Achievement	C	
Performance	B	
HPE	C	C
Health	C	
PHYSICAL ACTIVITY	C	C
HEALTH		C
THE ARTS	A	A
MUSIC	B	B
TECHNOLOGY	A	C
LOTE	D	D

Supporting Evidence 3: Naomi's results after the implementation of the feedback model showing an improvement in her A to E data in both English and Mathematics.

When chatting to Naomi about the process she admitted that she had been nervous at first during the interview process, as she wasn't sure what she was saying "was correct." However after being prompted by her teacher she "felt comfortable" explaining to her parents what she had done throughout the term.

Student 3: Alex

Alex is a student from the middle school who is very focussed on sport and not academics. He tends to finish things as fast as possible without taking note of whether it is correct or not. At times he can have a casual attitude towards his learning and tends to underestimate his ability especially in English. When chatting to him after the process he admitted that he first thought it was "stupid as I couldn't see how it would help me to learn. But once I got to the end and I had to put that into my goals I saw how it could help me…it was good to know what I had to look at when I get back next term."

From Alex's A to E data it is obvious that this concentration on his goals had an effect on his results in semester 2. From looking at supporting evidence 4, it can be seen that Alex was able to improve his results in both English and Mathematics after the second round of the HOTS for feedback implementation.

Subject	Semester 1 2013	Semester 2 2013
ENGLISH	D	C
MATHEMATICS	C	B
SCIENCE	B	C
SOSE	C	D
HISTORY	C	C
HPE	B	C
Health	C	
PHYSICAL ACTIVITY	B	C
HEALTH		B
THE ARTS	B	C
MUSIC	B	B
TECHNOLOGY	B	C

Supporting Evidence 4: Alex's A to E data in the second round of HOTS for feedback implementation.

From this evidence it is evident that the setting of goals at the end of the cycle (step 5 Appendix One) was a valuable and pertinent part of the process. The verbalisation of their upcoming learning goals enabled the student have a foci of learning once they returned after the holidays.

Student 4: Tom

Tom is from our younger grades and proved that even the youngest members of our school benefitted from the HOTS for feedback model. Although it was a lot more structured in the junior grades, Tom was able to voice his opinions about his learning.

   "I like telling Mum and Dad what I can and can't do!"

Over the course of year 1 Tom improved on his results in English going from a "Sound" to "High" (see supporting evidence 5). Like Alex, Tom found the setting of goals at the end of the process helped him to concentrate on particular aspects of his work in the following semester. "I know when I write I have to make sure I put a capital letter at the start of my sentence. My goal chart tells me that," he said as he pointed to the chart on the wall where everyone's goals were written. Tom's mother was the P&C President during this time and found the whole process beneficial to both students and parents alike (see significant evidence 2).

Subject	Semester 1 2013	Semester 2 2013
ENGLISH	Sound	High
MATHEMATICS	High	High
SCIENCE	Sound	High
SOSE	High	High
HISTORY	High	Sound
HPE	Sound	Sound
Health	High	
PHYSICAL ACTIVITY	Sound	Sound
HEALTH		High
THE ARTS	Sound	High
MUSIC	High	Sound
TECHNOLOGY	High	High

Supporting Evidence 5: Tom's A to E data after the second round implementation of the HOTS for feedback cycle.

These are four unique snippets of data that show that the implementation of the HOTS for feedback model has had a positive effect on the achievement of students. It also shows the sustainability of the project as three out of found of the results are from the second round of implementation. With results like these – HOTS for Feedback is here to stay!

Significant Evidence 2: Parents

Although this was a new process for the parents of our students, the majority of them embraced it. On the night of the interviews, it was evident that the parents enjoyed listening to their students articulate their learning and achievements. Comments such as "I didn't realise they could talk about their learning so much" were common and some parents commented that they were going home to chat with their students more about some of the topics that were not covered due to time restraints. They thought that it was ironic that some students under evaluated themselves and thought the process helped not only with their child's academic progress but also their self esteem and confidence.

As stated before, the 2013 president of the P&C was one of our parents who were thrilled with the implementation of the **Extent Barometer** and the HOTS for feedback model.

> "What a wonderful idea the **Extent Barometer** is. Our first experience with it was with our son Tom at the end of grade 1, and to be honest, I was a little dubious about how it would work. The first half of the Parent Teacher interview was normal interview topics with his teacher leading the interview. The second half was totally different, with Tom being asked to go through a sheet he had graded about himself. It included topics such as Literacy, Numeracy, Attitude and Behaviour, with a grading system from 0 – 100 (Not at all – Totally)

> Once Tom had talked to us about what he had graded himself, his teacher went through with him and told us all where she would have graded him. From watching and listening to this process, we were able to see and learn a lot more about Tom than just from a normal interview situation.

> We discovered that he rated himself between Medium and Fairly High for all is topics. He gave very concise reasons for his grading (using words we didn't know he knew!). However, his teacher rated him between Fairly High and Totally for everything. What made the whole thing more memorable was watching Tom's face when he actually heard on a one-to-one basis (from someone that weren't his parents!) how well he was doing in class.

> Hearing that, he gained a little more confidence in class, and we noticed that he seemed to really want to achieve whatever was set out for him.

> This system is something that should be in place in all schools. It gives the children a chance to hear one on one from their teacher how well they are doing, and what their achievements and assets are. Unfortunately in some families, this may be the only positive feedback they get. That positivity and encouragement means more than anything else that could be said at a Parent Teacher Interview."

Other parents the writer spoke to also echoed these thoughts. Most of the parents enjoyed seeing their child in the "learning spotlight" and if there were any negative comments that came out of the night was that "there wasn't enough time in the interview for my child to share all of their learning."

Our parental community has embraced the use of the extent barometer and the HOTS for feedback model as a way of reporting back to them the progress of their child's academic achievement.

Significant Evidence 3: Teachers

At first, the teachers were reluctant to change the "traditional" parent/teacher interview mode and embrace the extent barometer and the newer feedback model. They were concerned that there would not be enough rigorous discussion between the teacher and the parents and that some parents would then demand a traditional interview making the process double in time length.

During the initial implementation, phase some of the staff had to be coached through the presentation of the extent barometer to their classes. The HOC helped to facilitate this process by going into a year 4/5 class and going through the process of the students rating themselves on English and finding the evidence to support this rating. The teacher worked with the HOC to help the student find the evidence and then worked through the rest of the areas of achievement (mathematics, work ethic and behavior). Once the teachers became familiar with the process, they found it easier to outline to the students what was required although there were still some initial hesitations in its success. After the first interview night however, a number of our staff had different attitudes.

> *"I was one of the most vocal teachers against this **Extent Barometer** thing. I actually thought you two had really lost it however I went home last night on such a high. To hear the kids say what they had learnt, how they had learnt it and how they were going to improve was so positive. Some of what they said blew me away and even those who struggle with their day to day learning came away feeling good about themselves. Thank you and I am looking forward to the next installment." Year 4/5/6 teacher.*

A teacher of the lower school stated:

> *"Initially I was concerned that the **Extent Barometers** would prove too difficult a concept for the younger students. Also, that the younger students would either have unrealistic ideas – or no idea – about their level of performance. However, I was pleasantly surprised with how well the students understood the **Barometer** and with how accurate many of them were at judging their achievement level. I found that there were only a few students who needed guidance and often they had placed their achievement and/or effort lower than it was. The students really enjoyed explaining the **Barometers** to their parents and they were a useful starting place for discussions. In addition, many of the students wanted to take their **Barometers** home to show other family members who were not at the interview."*

Overall the implementation of the **Extent Barometers** and the HOTS for feedback model as a way of reporting back to parents and increase student achievement has been a great success and one that has been embraced by all learning stakeholders. It has proven to enhance the achievement of our students, be a sustainable process across a number of reporting junctures, is easy to transfer from grade to grade and takes into consideration the learning needs of all students. "HOTS for Feedback" is a well-rounded project that benefits all.

References:

Hattie, J. (2003), "Teachers Make a Difference. What is the research evidence?" as found at https://www.det.nsw.edu.au/proflearn/docs/pdf/qt_hattie.pdf.