3rd Graders Dive Deeper into Understanding Their Data: Analyzing Models & Developing Criteria for Our Learning Targets

Action Research By Mona Iehl

School Context

Polaris Charter Academy is an Expeditionary Learning School located on Chicago's west side in the Humboldt Park Neighborhood. Polaris, although a charter school, is a Chicago Public School serving Kindergarten through 8th grade. The majority of students at Polaris are neighborhood students; in which 90.5% of students are African American, 8.6% Hispanic, and less than 1% multi racial and 94% low income. 15.5% of our students have disabilities. There are two grades per grade level with no more than 25 students per classroom. Polaris started with a multi-age classroom structure, however after 3 years we switched to a looping structure. Grades 5 through 8th are departmentalized. Students have one hour for lunch and recess and one hour of a special class (drama, art, music, technology, physical education) each day.

Three teachers, Tracey Kwock, Michelle Navarre, and Roel Vivit, founded Polaris Charter Academy after an idea, conceived on their Golden Apple sabbatical, grew into reality in 2007. Michelle and Roel continue to lead the school as the Head of School and Director of Curriculum, respectively. In the planning stages of Polaris the founders found ELeducation (formerly Expeditionary Learning) professional network's philosophy for teaching and learning aligned neatly to their vision for Polaris and a natural partnership was formed. ELeducation provides teachers a nationwide network of resources, mentor schools and a National Conference as support. Polaris sends their teachers to the National Conference and many teachers, including myself, have presented at the National Conference. Polaris Charter

Academy serves as a mentor school, a distinction noting the school as a mentor of the ELeducation core practices. As a mentor school, we host a site seminar (a two day, school based professional development for 40 to 70 people) and visitors through out the year.

ELeducation's motto is 'learning by doing'. Our approach balances the demands of standards based curriculum equally along side character education through hands on learning expeditions. Learning expeditions are long-term integrated units of study centered on key science and social studies content, driven by guiding questions and aligned to standards. Every expedition strives to teach students the value of service through final products that live outside of the classroom and school community. Students are immersed in the field of study through engaging with experts and through repeated fieldwork.

In addition to learning by doing, Polaris Charter Academy's mission is to ensure we develop explorers of the world. Each year, starting in 2nd grade, we take students on an overnight camping trip. This experience builds confidence and independence through pushing kids outside of their comfort zone. As we prepare students to be ready for what the world has to offer we work to make sure they have a variety of experiences. When students venture off to college and meet their roommate who is from southern Illinois and lived on a dairy farm, we want our Polaris graduate to be able to relate by remembering their overnight trip in 2nd grade to a farm.

Standardized tests are not part of how Polaris Charter Academy defines our success. As I previously mentioned, much of our focus is on character development along with real-world learning and do very little test prep. The NWEA test data from 2013 showed a significant

dip in performance from previous years. Given the results, students are now using two computer-based programs to increase their technology literacy and as well as build basic skills.

Polaris is a place where teachers enjoy working. Although there is no union, teachers feel represented and the administration welcomes input from teachers. We are welcome to discuss issues and feel that the administration has our best interest in mind when making decisions. Polaris truly makes decisions that are right for kids, making it a positive place to work. However, every year we often tackle many new initiatives. In turn, teachers often feel that they can't be successful at their job given all the new initiatives. Again this year we are working on developing our assessment practices in the classroom in order to improve our Standards Based Grading practices. In addition, we are working to use the data from assessments to differentiate instruction. We are also working on developing strong classroom cultures that incorporate student ownership and leadership. These initiatives, although stated simply, are complex and involved.

The school day is very long, starting at 7:50am until dismissal at 4pm. As a school we have a strong drama program, with a fall and spring performance each year. Last year we started our school band with the hope of expanding it after we received a large donation of instruments. Last year a parent started an afterschool boys basketball club that plays other neighborhood schools. In the past we have also held girls and boys running clubs and a bike club. However, those programs have not been active in the last year. Parent involvement is an area of improvement for Polaris. After the long school day teachers are tired and are hesitant to lead a club or sport. In the initial vision for the school there was resistance to team sports,

instead wanting students to challenge their personal best, rather than compete against others. More effort could be put into the afterschool engagement of both students and parents.

For the past three years my role at Polaris has been a 3rd grade teacher. Prior to that I taught 1st and 2nd multiage for two years and first grade for one year. I teach 27 students ranging in academic abilities. I utilize readers' workshop and writers' workshop for literacy instruction. Math instruction is centered on increasing student's conceptual understanding of math versus memorization of algorithms. I use a morning meeting structure that we call crew meeting in which we use that time to build students' understanding of our character points that we call Points of Polaris (integrity, compassion, active citizen, explorer, critical thinking). This is also a time that I build relationships with students and among students, cornerstone to my teaching practice.

Rationale

I am recently inspired by the work of Ron Berger's book <u>Leaders of Their Own Learning</u>. My school is adopting Ron Berger, Chief Program Officer for Expeditionary Learning, practices detailed in the book. After reading, I initially connected with the chapter on engaging students with data is, given my school had recently adopted standards based grading (SBG). Standards based grading grades students based on the standards—the 2 main differences are academics and work habits are reported out separately and the grades are not averaged through the term—students are not penalized for not knowing something at the beginning of the term. Grades are determined based on learning target derived from standards. In a standards based grading classroom students are easily able to access their data and see what they know/ don't

know (since grades are raw – not averaged).

My students are very familiar with reflecting and setting goals because of the work we do in preparing for student led conference and portfolios. However, often these goals are shallow and the typical "get better at reading by learning my sight words" or "learn my math facts". I think reflection and goal setting could be more authentic and personalized if students have data/ evidence to reflect on.

Last year I researched how students use their data (test scores, grades, & feedback on assignments) to set goals. I noticed that when students analyze their own data they are more aware of their strengths and weaknesses and in turn, more able to set realistic goals. This got me thinking about the types of feedback I give to students. I wonder, what if I taught my students how to understand the feedback (grades, data, comments) and how to use it to improve their performance on learning targets. I started to wonder about the best ways to give students descriptive feedback on their math work & close reading work (their most "work" intensive parts of the day).

However before students get or use feedback, students need to know what the expectations of the work are. I work to achieve that clarity for students by planning learning targets aligned to standards that express the goal of the lesson. As a crew we unpack the learning target before each lesson. However, confusion still exists around the quality of work expected on most assignments. I wonder if students have a hard time visualizing the end product. So I wondered, what would happen if I helped students visualize the end product by showing them high quality models. Then they could develop a set of criteria for their work and then it could be used to provide feedback about what students are doing well or need to

improve. For example, if I show students high quality models (of annotated texts, solutions to math problems) and lead students through an analysis of these models would that help them envision what their work should look like in order to meet the learning target.

From my research last year and my current class, I am still grappling with how to help students accurately self assess their work based on our grading system (4- exceeding 3- meeting, 2- developing, 1- not meeting). Although students are getting very good at knowing what each grade means, do they know why they are getting each grade? Most responses I get from students reflections about a 2 or 1 are around habits of work, "I wasn't focused" or "I didn't do my best work". I rarely get a response of, "In my solution I didn't include my reasoning. I didn't write down what I was thinking when I solved, so the reader doesn't really understand how or why I solved." or "I didn't get the main idea correctly because I am missing key details from the text." I wonder how analyzing models can help students understand what high quality work looks like? I also wonder if my students develop criteria based on the features of the high quality models then, how can students then use these rubrics/criteria lists to get feedback, self reflect and set actionable goals to improve the content of their work, moving beyond work habits.

Literature Review

In the recent years teachers have been encouraged to spend hours crafting lessons, units, and projects based on rigors standards. I'm also wondering if my rationale is just stronger than this lit review... should I try to incorporate them more? I spent a lot of time researching and thinking about how to get students to honestly reflect on their grade when given a clear

learning target. However, I began to realize even though a student may know what an A or a 3 means, they might not know how to get that A. I rarely show students examples of what it looks like to meet the learning target. As a teacher I have endlessly learned and discussed the importance of making rubrics and the sharing them with students at the onset of an assignment or project. However, I've been wondering what happens when students create the criteria for a given learning target by analyzing at a piece of high quality work. So imagine this, I choose a piece of work that I find to meet all or most of the learning targets I have set out to teach in the unit (this could be a past student's work, something from the real world, or something I crafted). Then, students analyze what makes this piece of work good and develop a list of criteria for what makes the work high quality. Then with help students see how that criteria connects to our learning target. Students then know the criteria because it is in their own words and derived from their observations of high quality work. They can now truly see what it looks like to achieve a 3 (or A) on this assignment.

Clear Learning Targets Based on Standards

I know that when students clearly understand what they will learn they are able to make decisions about their learning process to help them improve, identify areas of need and preserve through challenges all because they know the end goal, or the learning target. A learning target is a standard written in student friendly language that guides both short-term and long-term learning goals. Leahy, Lyon, Thompson, & Wiliam (2005) describe a misconception of teachers that often post the standard or objective at the start of the lesson but they are rarely written in student friendly language, in turn making it impossible for

students to know where their learning is going (p. 21). I craft the standards into student friendly language to create learning goals students can understand and use through out the learning process. We also spend time at the beginning of each lesson discussing the lesson's learning target and how it connects to the long term learning targets for the unit. This allows students to break down the meaning of the target and understand what they will learn that day.

Using Models- Strong & Weak Exemplars

Although we spend time discussing vocabulary of the learning targets and breaking them down, I've found that much more is needed to ensure students understand how to achieve its' rigor. As Berger and Woodfin (2014) put it, due to the use of the rigorous Common Core Standards, it is now vital that students understand how to meet the standards. This can be done through providing students with models of work that meet the standards, allowing students opportunities to analyze the model in order to understand how to meet the standard. (p. 134). Models of work that meet the target let students know where they are headed and bring the learning target to life (p. 173) *It is once students understand where their learning is headed and how to get there that there is a clear purpose for learning and feedback can center around that clear purpose.*

Through critique of work samples students develop their own understanding of what it looks like to meet the learning target. Berger & Woodfin (2014) explain the power behind students finding this meaning, "rather than a teacher telling students about the dimensions of good work in that genre, the students discover and name those features themselves" (p. 141).

As teachers we know when students have a hand in creation it is more engaging and memorable than a lecture (p. 141). These critique lessons can be of both high quality work meeting the learning target and with work that misses the mark. The discussions students have about the quality leads to analysis of what's good about the model and what's lacking (Leahy et al, p. 21). Through this process of critique students can create a list of criteria for what it means to meet the given learning target. This criterion then becomes the cornerstone to the work of achieving standards.

Criteria Lists

Conversations of clear criteria are student created and owned further putting students in the driver seat of their own learning. Berger & Woodfin (2014) emphasize that students should engaged openly in critique of model and result in student friendly terms describing the qualities of the work. These qualities can then become a resource in the classroom or part of creating a rubric (p. 154).

It is important that student understand what qualities and features will be assessed and by analyzing models students can picture what those qualities and describe them in their own language in order to create a criteria list (p. 135). Fisher and Frey refer to Stichter, Stormont, & Lewis, 2009 "Using student talk in the classroom as a mechanism for learning is compelling; in classrooms with higher rates and levels of student talk, more students excel academically". These discussions of analysis give students the opportunity to create their own meaning and many learners prefer to do that through talking. When students have the opportunity to talk, negotiate, and discover through talking to their peers, they learn.

In my past research I worked exclusively on ensuring students understood the learning

target and in turn the grade they got on the assignment. I found success around spending time

helping students understand what their grade meant. However, I found that the grade meant

much less when not in context of the learning target. Leahy (2005) "to be effective, feedback

needs to cause thinking. Grades don't do that. Scores don't do that" (p. 22). This is precisely

what I found in my research last school year, students focused more on what they understood

when the criteria was clear. However, since the majority of the criteria were unclear students

often focused on their habits of work when reflecting on their grades. For example, my

students would get a 2 (developing) and would not talk about how they missed the mark on

answering the question, finding evidence, or explaining their thinking. Instead, they would

discuss how they weren't focused or didn't try their best (what we refer to as habits of work).

Although a powerful reflection and a huge part of increasing performance and learning, my

goal was for students to reflect on the learning target they still did not understand. I know

realize I wasn't making the criteria for achieving that learning target clear enough so it was

difficult for students to understand what components they did not understand.

Feedback

Once students understand the learning target, have analyzed models in order to create a

common criteria list, then students are ready to get feedback on the work they have done. It is

essential to my students that they understand how feedback directly relates to achieving the

learning target. Sachse-Brown and Aldridge (_____) "students who were typically low achievers

produced higher gains when they had a clear understanding of what was achievable and what

they could do to improve their work" (p. 3?). They go on to quote Black & William (1998),

"feedback to any pupil should be about the particular qualities of his or her work". Feedback

needs to relate directly back to the criteria list, in order to be manageable and useable for

every student. As Wiggins (2012) states, "effective feedback is concrete, specific, and useful; it

provides actionable information" (p. 12). In other words, Berger & Woodfin (2014) use the

guidelines, be kind, be specific, and be helpful for the feedback given in their classrooms (p.

138). In our third grade classroom I will work to refer specifically back to the criteria when

providing students with feedback.

Mindsets: Fixed and Growth

      After recently reading the book Mindset by Carol Dweck I started to see some natural

connections between the practice of standards based grading and my students' mindset.

      Dweck (2008) "research indicates that some students have a fixed mindset because

they believe that their intelligence is simply a fixed trait. Students believe they have a

certain amount, and there's nothing they can do to change it. Students with a growth

mindset believe that their intelligence is a quality that can be developed… they do

believe that everyone can increase their intelligence through effort and education"

(p.56).

This research rings very true for my students. There are some students who work hard

regardless of their ability level and are able to learn more. On the contrary, I have students

who are discouraged and frustrated when they meet a set back or challenge. These students

shut down and refuse to try, suggesting they feel they can't accomplish the challenge.   My

ultimate goal as an educator is to develop the skills in students that will make them problem solvers and resilient in the face of setbacks.

Classroom Culture

Part of effective feedback is being kind and helpful. It is essential that students feel safe as a part of a classroom community working together to improve through our inevitable mistakes. Berger and Woodfin (2014) "develop a classroom culture where it is safe to make mistakes and where guiding belief is that effort leads to learning" (p. 101). Students in my classroom engage in conversations, games, and reflections that remind them daily of the value of making mistakes as a part of learning and that increased effort will increase learning. I believe as teachers it is first and foremost my responsibility to create a classroom in which each student feels safe cognitively, socially, and emotionally. The work of critique and feedback requires students to be vulnerable and honest, which can only be achieved in a safe space.

Conclusion

So it is clear that research supports involving students in the learning process through engaging with critique of models in the creation of criteria. Experts champion using models that exemplify the learning targets and allowing students opportunities to analyze these models in order to criteria. By embedding these practices into my classroom I hope that students will use feedback to improve their understanding and achievement on the learning target.

Research Question:

What happens when students understand the criteria for each learning target they are working on?

Sub Questions:

What happens to their revised work?

What happens to their performance on future tasks?

What happens to their ability to accept & use feedback?

What happens to their engagement in the learning process?

Implementation

I started by administering a survey finding out about what students knew about their feedback, criteria and mindset. I then started to implement practices that allowed students to develop and use criteria for the learning targets. These practices infiltrated my classroom in all subject areas.

I first worked with my colleagues to clearly lay out what standards we would teach in each subject area. We then prioritized the standards and decided which were long term and which were supporting the long term. After that, we wrote learning targets that reflected these standards. These learning targets (or commonly known as lesson objectives) are what we present to students before the lesson. We "unpack" the learning target that means we discuss what the students will be working to learn in the lesson. After the lesson there is an exit ticket or formative assessment given. This assessment is graded based on the criteria for the learning
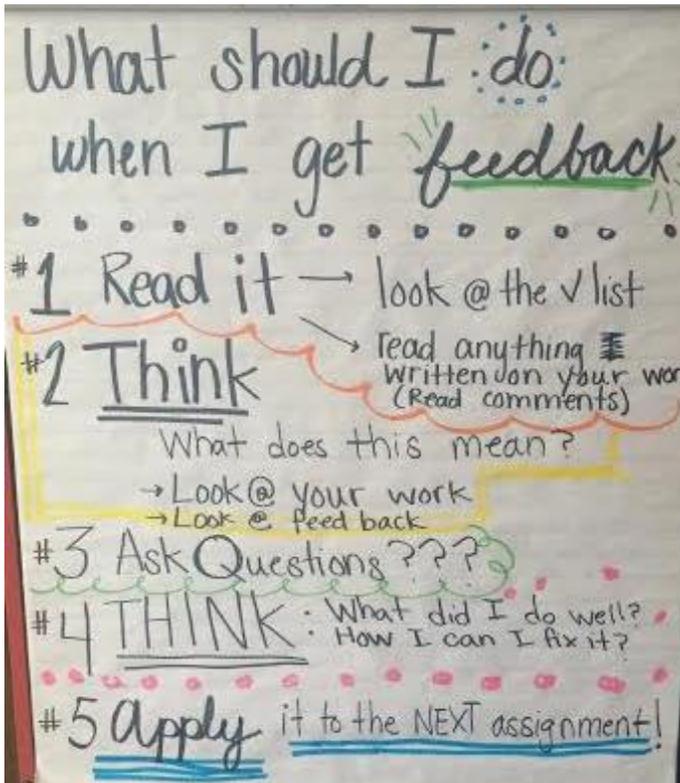
target that we planned together as a 3rd grade team. This pre-work allowed me to fully grasp the depth and rigor of the standard in order to fully understand how to best help students achieve the standard.

Before I jumped into having students develop criteria through critique and giving feedback I knew we needed a strong classroom community. The classroom community was created through our predictable morning meetings, creating group norms, and the relationships between students and teachers. The morning meeting started by greeting each other and was followed by students sharing, both allowed students to acknowledge each other and learn more about one another. Also in our morning meetings we play games that allow us to work together as a team and struggle through problems together, reinforcing our work habits and helping us learn to work together. In addition, in morning meeting we discuss our class-learning target related to a weekly habit of work. This allowed us to focus our attention on one trait and really dive deep into developing an understanding of what that trait looks like, sounds like and feels like in the real world. Our group norms also play a huge part of developing our strong classroom community. Students decided on what they wanted from each other when sharing and taking risks. As we worked we always revisited our norms and revised them as needed. The norms became a way for students to hold themselves and their friends accountable for their actions. The norms provided a sense of structure and security allowing students to take risks in their thinking and work. The last way we created a strong classroom community was through relationships between students and adults. These relationships were developed through our daily interactions. I strive to create a relationship with students that even if I am redirecting them or giving a consequence their self-concept are kept intact and

they don't feel isolated or hurt. This allows students to own their actions while also still trusting me. Students discussed and agreed upon feedback norms. Then, as a class we discussed how student would accept and use feedback they received on their assignments using the follow 5 steps as pictured below. This became a routine we used each time students were given back graded work.

Another large part of the implementation of this research was the actual protocol used to create the criteria. I chose work that was good and poor models of work for the given learning target. Students then analyzed the work against the learning target. I used prompts such as, "What makes this work good?" or "How does this work meet the learning target?" and "What could make this work better?" to encourage students to name the qualities of the work. Finally, I recorded students thoughts and developed an agreed upon criteria list. Then, students used the criteria list for their future work. This was also this list used to provide students feedback.

Data Collection Methods

1. Student Survey

   This survey allowed me to gather preliminary information on what my students knew about criteria, feedback and their mindset toward learning.

2. Mindset Assessment Profile

   I administered a mindset survey, which allowed me to identify the level to which each student had a growth or fixed mindset. Mindset Works, Inc developed this survey. The survey consists of 8 questions and students rate their response 1) disagree a lot) to 6 (agree a lot). The results are tabulated and each score is given a mindset rating. See Appendix 1 for the explanation of each mindset grouping.

3. Teacher Journal

   I used the teacher journal to reflect on the process of implementing the various aspects of the research. I took note of the observations of students and the lesson implementation. I kept track of my thinking and choices I made in planning. I also recorded the reflections I noticed students making during daily work or discussions. This also allowed me to reflect on the larger goals of the research.

4. Student Reflections

   Student reflections were used to reflect on performance, feedback, and data (grades) at various points throughout the research cycle. Students reflected on their assignments in various ways through out the trimester. Students self assessed their performance on assignments and learning targets using the criteria.

5. Jumprope Grades

Jumprope is the online grading system our school uses for standards based grading. The students grades are tracked based on each learning target. Academics and habits of work are reported out separately.

6. Videos

Videos were used to document class discussions, conferences between teacher and student and student conversations. Videos were then transcribed in order to use quotes as data.

Data Interpretation

Student Survey

Before we began discussion and creating criteria for our learning targets students took a survey that attempted to find out what they knew about feedback, criteria, and how their graders were determined.

November 2015 pre survey results:
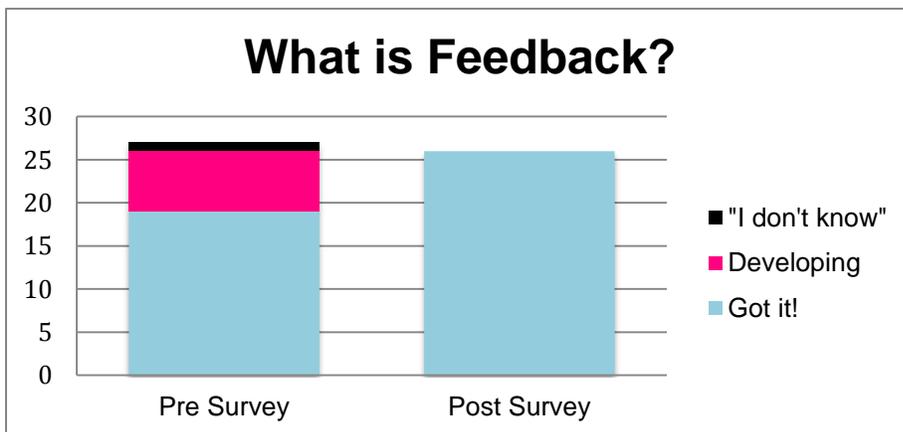
As you can see in the pre survey many students (19) described feedback correctly, seven students responded incorrectly, and one student wrote "I don't know". This tells me that the

concept of feedback is not brand new to students, instead they are familiar with the concept. Given that students had some background knowledge of feedback I knew we could build on their understanding with the new practices I would teach them.

Most students go it in some way. For example, students wrote, "a lift up and what you missed", "after you get an assignment finished and the teachers tells you how you did", "when someone gives you input on your work." It was evident in their responses that feedback had been discussed in previous years. Most students were able to identify that feedback helped you improve and noted things you could do to fix your work as well as tell you what you did well.

When you finish an assignment, do you know what your grade will be?

■ Yes
■ No
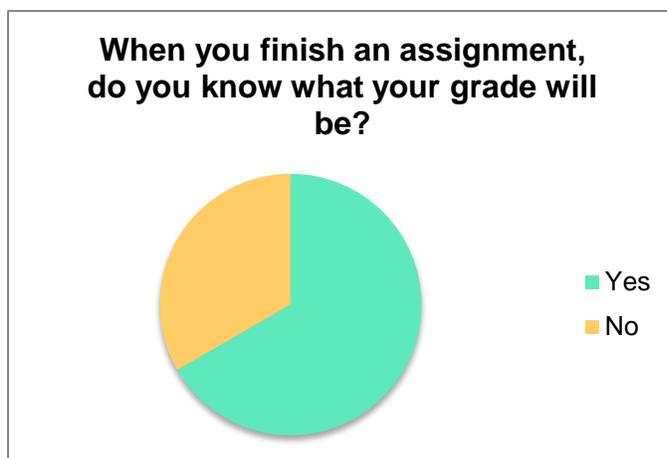
In November two thirds of my students indicated that they knew what their grade would be when they finished their assignment. This data tells me that a majority of students are drawing a connection between their performance on a task and their grade. It tells me they are thinking about their grade before they get their feedback (or grades) for an assignment. I included this question on the survey to allow me to dig deeper into their understanding of feedback. I wanted to discover if students understood that graders were feedback on their performance on a task. This question also allowed me to see if students would comment about how they knew. One student who responded yes wrote, "I know because I think about what I'm suppose to do and do It.". This tells me the student is connecting the completion of the assignment to

her grade. Another student who responded with yes wrote, "I am good at math & reading so I usually get a 3". This commented tells me that this student isn't thinking about each assignment, but instead her track history of getting 3s. Most students wrote something similar to this student by commenting on their previous performance as a reason for their grades on assignments. This data made it clear to me that most students did not understand criteria and how it is used to grade tasks.

What is a Rubric?

- I don't know
- Correct Response
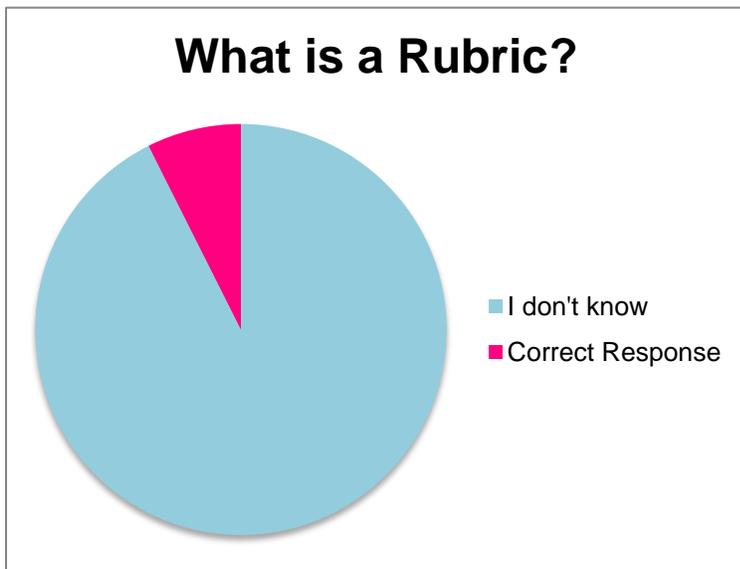
On the pre survey all but 2 students indicated "I don't know" in response to "What is a rubric?". The two students who responded correctly explained that it was a checklist. This tells me that most students have no prior knowledge of rubrics or criteria. This data told me that we would need to establish an understanding of the vocabulary and use of rubrics before trying to create our own criteria.

Mindset Assessment Profile

- F5 + F4
- F3 + F2
- F1 + G1
- G2+G3
- G4 + G5
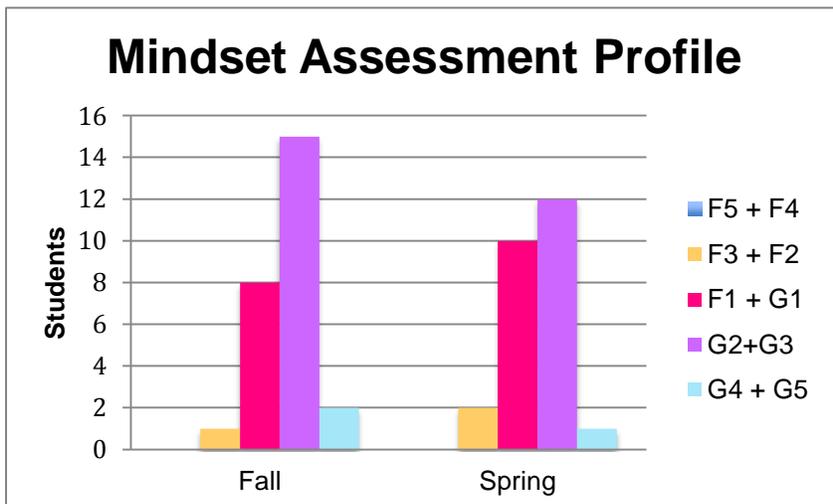
Mindset Survey, November 2015:

On the fall (November) mindset assessment profile one student fell into the F3

(fixed mindset 3) category, 8 in F1 (fixed mindset 1) and/or G1 (Growth mindset 1), 15 students rated as G2 (growth mindset 2) and/or G4 (growth mindset 4) and 2 feel in the G4 (growth mindset 4) category. This told me that a bit less than half of my students fell in the F1+ G1 or F3 + F2 range. According to the scoring descriptions the F1 + G1 students are unsure if they can change their intelligence. They can?? about doing well and want to learn, but don't really want to work hard. The F2 + F3 students are described as learning?? toward thinking intelligence doesn't change much. They prefer to not make mistakes and really don't like to put in a lot of work. These students think learning should be easy. This informed my decisions that we would need to develop strong understanding of mistakes are part of learning as well as the value of hard work.

Seventeen students scored in the G2 + G3 category or G4 + G5. The scoring description said G2 + G3 students believe their intelligence is something that can be increased. They can about learning and are willing to work hard. These students want to do well but think it's more important to learn than do well. Additionally, it described G4 + G5 students as really sure that intelligence can be increased by learning and they like a challenge. These students believe the best way to learn is work hard and they don't mind making mistakes. With 17 students in these categories my class had a growth mindset majority. However, I want to be careful in discussing this data because the difference between a G1 and G2 is just 1 point. I had concerns about students understanding of the questions wording and perceptions of the answer responses. This data was paired with my observations and interactions with students daily to get a full understanding of their mindset and approach to learning.

Post Survey Results, May 2016:

In the post survey when given the same question all students identified the definition of
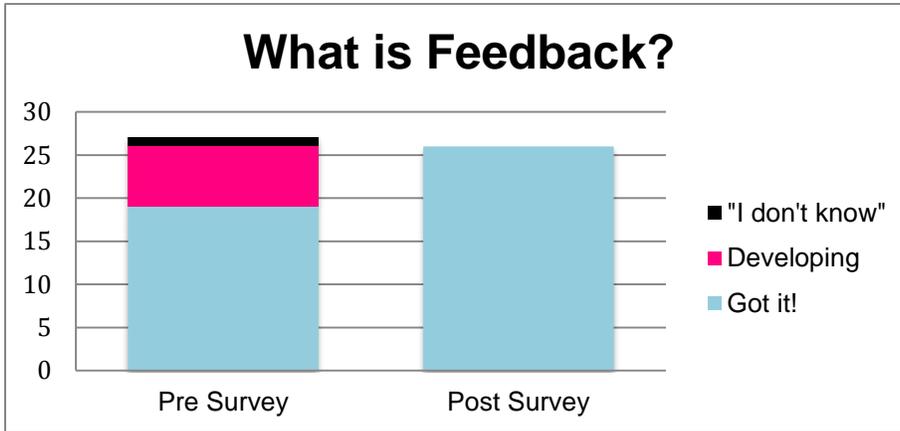
feedback. They explained that feedback both identifies strength and growth areas. Students also used much of the vocabulary used in

What is Feedback?

the classroom to describe feedback. For example, 23 students used the word "advice" in their response. We discussed at length that feedback was someone giving you advice and it was up to you to decide if you accepted the advice. I wanted students to see feedback as another tool they could use to improve their work, but not dependent on it as their only method to improve.

In addition to the post survey I also administered the Mindset Assessment Profile again. As you can see in the chart below?? the number of students in each category changed. 17 students feel into the G2+G3, G4+G5 categories in the fall. However, in the spring 13 students scored in those same categories. This made me wonder if students learning about how to create criteria, and use it to give and get feedback actually made their mindset change.CHECK FOR SENSE However, after further reflection I continue to go back to wondering if this assessment can fully represent a person's ???

Case Studies

Bertha is a 9-year-old African American girl new to Polaris this year. She is very articulate and a great storyteller. Bertha preforms below grade level in both reading and math. Her standardized test scores on the Fall 2015 NWEA MAP test are a low _____ percentile in reading and _____ percentile in math. Bertha often doesn't finish her work and gets frustrated easily. She rarely asks for help. I have expressed concerns to her parents about attention and focus challenges in school. Her parents both agree that it is difficult for her to sustain attention for long periods of time. The Jumpro.pe reports in Trimester 1 indicate that Bertha had a _____ for academics in reading and a _____ in her habits of work. This data confirms that Bertha is working below grade level. Habits of work include learning targets in 3 areas performance, participation, and preparation. Bertha's habits of work are low demonstrating a struggle in non-academic areas of schoolwork as well.

Figure 1

NWEA Math Scores 2015-2016			
	Bertha	LaTerra	Allen
Spring 2nd Grade		182	211
Fall	186	185	206
Winter	199	192	209
Spring	204	201	230
Total Growth	+18	+19	+19

Figure 2

NWEA Reading Scores 2015-2016			
	Bertha	LaTerra	Allen
Spring 2nd Grade		169	192
Fall	166	171	202
Winter	190	185	211
Spring	188	193	211
Total Growth	+22	+24	+19

In Bertha's initial survey she indicated that she does not know her grades after she turned in her work. When asked what she does with comments written on her work she wrote, "fix it". This tells me that although Bertha doesn't have past experience with using feedback or criteria to understand her grades she does understand how to use feedback. Also, Bertha wrote "I don't know" for the questions "What is a rubric?" and "How do you use a rubric?". This tells me that she has no background knowledge of rubrics or how to use them to improve her work. On the Mindset Assessment Profile Bertha scored a 21 putting her in the F1 group. This score is described as a student that is unsure about whether you can change your intelligence. The assessment indicates students at the F1 level care about their performance and want to learn but really don't want to have to work too hard. This shows me that Bertha is prone to avoiding hard work, although she cares deeply about learning and getting good grades.

As we started our work with rubrics and criteria lists Bertha was quick to understand them and how to use them. On one math problem reflection she used the criteria list to

provide a response to "What do you need to work on in cgi (math structure)?". Bertha responded with, "I need to work on my drawings are labeled." That is one of the parts from the criteria list that she missed. That showed me that Bertha was able to analyze the criteria list to determine what parts she got correct and what she still needed to work on. Bertha also showed progress in improving her habits of work through reflection on the criteria lists. In response to the question, "How will working on this habit of work help you improve your work?" she wrote, "I will stay focused and get started on my work right away because I get distracted. Then my work will get better because I will have time to check for my labels." This shows that Bertha is making the connection between the habits of work she needs to work on and how they will help her improve the parts of the criteria list she missed.

The focus for Bertha was really to become aware of how her habits of work could help her improve on the parts of the criteria she was working on. It was clear to me early on in our work of developing and using criteria that Bertha understood how to use the criteria to improve her work. Students developed criteria by looking at models for capturing key details from a chapter of a book we were reading. We used the critique protocol to analyze several models and develop criteria for what it looked like to meet the learning target, I can identify the key details from chapter ___. Students then used these criteria to check their work while completing the assignment. Then, I graded the assignment and returned it to the students with feedback using the criteria they created. I noticed that while Bertha was working she had her criteria list next to her assignment and when I asked her why she had it out she said, "To help me check my work, so I get a good grade.". This shows me that she understands how to use the criteria list to check over her work and the connection between her grade and the

criteria list. Bertha got a zero on the "where", star (full credit) on the "who", a zero on "what".

Students were given their papers back and given time to review their feedback independently

and in small groups. As I listened in I recorded notes. I heard Bertha say, "Oh yeah! I got a star

on who. BUT I didn't get any of where or what. Hm... okay I wonder what I can do now. I should

check to see if I have 2 details in my where."
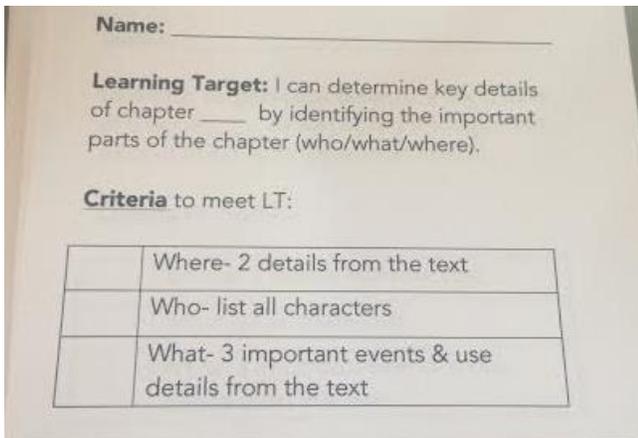
(teacher Journal, Jan. 2016) This shows me

that she is using her criteria list feedback to go

back to her work and check it for all the criteria.

Students then revised their work given the

feedback. After the revision Bertha got partial

credit on both the areas she had no credit in

previously. She added 1 detail to her where and 2 details to her what. This shows that she

identified the areas she missed and made improvements to her work.

As we ended trimester 2 and prepared for conferences students looked back at their

learning targets and criteria lists from the trimester.

LaTerra is a 9-year-old girl in my 3rd grade class. She has attended Polaris Charter Academy

since kindergarten, in which she's been exposed to a lot of reflection and goal setting through

the years. She has a very good handle on using the language of Polaris, which includes our

character points, and growth mindset language (such as "growing your brain"). I taught her

sister for several previous years and know her family well. LaTerra preforms below grade level

in both reading and math. On the NWEA MAP in the fall of 2015 she scored in the _____

percentile for reading and ____ for math. Her trimester 1 grades for reading _____ academics &

_____ habits of work. This shows that LaTerra is not meeting the 3rd grade standards in comparison to her peers. However, her habits of work demonstrate that she is meeting the expectation. Those include staying on task, completing assignments, and participating in class discussions.

In LaTerra's pre-survey she beautifully explained feedback as, "people give your work back and say what you are good at or that you need to work on". This shows that she has a good understanding of what feedback is. I assume that is due to her 3 previous years at Polaris where feedback is a part of our cultural norms in each classroom. However, LaTerra said she did not know what her grade would be when she turned in her assignment. This tells me that she doesn't have experience with grading criteria or rubric use to help her understand how her assignments will be evaluated. Additionally, she answered "I don't know" to both "what is a rubric?" and "How do you use a rubric?". This further explains that she has no background knowledge of grading criteria or its use. When asked on the pre-survey, "What do you do with comments written on your work?" she said, "I tell myself good job". This shows me that she takes pride in her work and has positive self-talk. On the Mindset Assessment Profile LaTerra scored 31 putting her in the G1 section. As described by the assessment a G1 student is unsure about whether or not they can change their intelligence. The student cares about performance and learning but doesn't really want to work too hard. This tells me that LaTerra cares about learning, but is resistant to hard work. However, on this survey a 33 (2 more points) puts LaTerra in G2, which describes the student as someone who believes you can increase your intelligence, and is willing to work hard. Through my observations of LaTerra I have noticed

she is a very hard worker and rarely gives up. I question if LaTerra had some challenges with understanding the survey.

The focus for LaTerra was really working on using the criteria to help her make progress. This focus was my intended purpose for my research, however I found that many students were at different points in their understanding of grades, goal setting, and ability in the skill. All those factors made it difficult for all students to understand how to effectively use the criteria to improve. At the beginning of the research when given the opportunity to revise using feedback on the student created criteria for gathering key details LaTerra struggled. Her grade decreased on the revision. When I interviewed her after I asked, "When you looked at your feedback what were you thinking?" She responded, "That you needed to fix the important events and use details from the text. I needed to include the really important parts." This showed me that she could use the feedback given to understand the parts she missed. So I asked, "How did you plan to do that?" and she said, "I looked back at my paper (this one) I thought I needed to get my grade up.". This shows me there is still a gap between identifying what she missed and the understanding of how to do better. This was my chance to give her more instruction on how to gather key details from a text for the given areas of characters, setting, and events. This opened my eyes to the true essence of formative assessment. Students should be able to explain how they will be evaluated, see their performance evaluated and be able to explain that using the criteria for evolution. However, when they are unable to explain how to move forward or "fix" their mistakes then is the time they need more instruction. I used this practice to differentiate the students that had needed more instruction

compared to those that needed more work on habits of work (working harder, staying focused, checking over their work using the criteria).

LaTerra thrived on using the criteria to improve her work before turning it in and then when given feedback with the criteria she was easily able to revise. On her post survey she could clearly state what criteria was and how to use it. She said, "criteria is the list that helps you fix up your work. You reflect or think back on what you need to fix, then you fix it". This is so clearly in line with what I saw from LaTerra's work, she felt in control because she could look at the list of criteria and fix it. She was able to set actionable goals for herself, like in Aprili 2016 on a math problem she reflected on it by saying, "I needed to add words explaining how I solved and that would give me a 4 because I used the criteria and checked my work and I got them all!". This shows me that LaTerra understood how to use criteria as a tool to not only check her work but make improvements over time in her understanding and performance! On the post Mindset Assessment Profile LaTerra's score went up 3 points putting her in the G2 category. G2s are described as caring more about the learning and less abut performance and I think that is true for LaTerra. In the end, she worked very hard to improve her grade, but really she was understanding the learning target more and growing her brain!

Allen is a 9-year-old boy that is competitive and popular. He cares deeply about the image he portrays to students in the class and that often affects the mood of the class given he is liked by many. I have worked all year to find out what motivates Allen and how to encourage him to use his social powers for good, not evil. On the NWEA MAP in the Fall of 2015 he scored in the _____ percentile for reading and _____ for math. His trimester 1 grades for reading _____ academics & _____ habits of work.

On his initial survey Allen explained that feedback is, "things you are good at and things you need to work on". This shows that he has a good understanding that feedback is both positive praise and next steps. I know in Allen's years at Polaris he has covered this in many of his classes. However, Allen reported that he didn't know what a rubric was or how to use it. So, like most of the students Allen had little experience with grading criteria or discussing where grades come from. In contrast, Allen's response to the question, "What do you do with comments written on your work?" he said, "I see what I need to work on". This shows me that he has an understanding of how to use feedback to improve his work. However, he hasn't made the connection between the comments and grading criteria. On the Mindset Assessment Profile Allen scored a 36 putting him in the G2 section. As described by the assessment G2 is a student that believes intelligence is something you can increase. It goes on to say that he cares about his learning and is willing to work hard. Additionally G2 students think it is more important to learn than always do well. This tells me that Allen cares about his learning, and is willing to do the hard work. I found this to be the opposite of my observations of Allen. Almost daily I needed to ask him to sit up and look engaged in the work. He is often slouched over and appears grumpy. He rarely gets visibly excited about the work we are doing. However, he does like to participate by raising his hand and sharing his ideas with the group. After this survey I started to watch closely to find out more about his mindset toward learning expressed in his actions.

So that really became the focus for Allen, his engagement in learning. Because his survey said he had a pretty strong growth mindset and cared more about learning that performance. As we started to develop criteria by looking at good work he participated and

shared his good ideas. However, when I started to use the criteria to grade students and give feedback I noticed a change. Allen was very concerned about not getting a 3 or 4. He was able ot use the criteria to locate his mistake easily and then come up with a plan. I believe using the criteria helped him feel power over what he was lacking to ensure his performance. On April 14[t,] 2016 he reflected on feedback on a CGI problem. In response to the question, "what is criteria?" he said, you can look back at the criteria list to figure out what you got wrong and right". This showed me he was using the criteria list as feedback to identify his mistakes. However, later in the reflection he wrote, "My drawing and my equation didn't match (words from the criteria) and I need more labels. What I'm going to do is check over my work and take my time with my equation". This showed Allen was able to use the criteria list to accept feedback and identify his area of growth. Then, set a goal with actionable steps to help him improve his work. I noticed he took to this process easily and his grades improved. Soon, he was getting 3s because he achieved all the criteria. It was then I needed to start to consider more carefully what a 4 was and how students exceeded in each learning target. This provided me an opportunity to ensure there were opportunities for students to exceed. I went back to the work samples and found samples of exceeding the learning target. We then revised our rubrics to add in what it would like to exceed the learning target and added a 4 column to our rubrics. This was a turning point for Allen because he really had to push himself to learn more, not just do more. Many of the opportunities for a 4 included students doing something innovative or showing outside research. So, Allen took that to heart and spent the time after he finished his assignments doing extra research from the books in our classroom or solving math problems he made up himself. This extra practice and self driven learning demonstrated

to me that indeed he showed his growth mindset. Although he doesn't smile and get physically

excited, he's serious about learning and criteria as a tool to improve was something he came to

value. In Allen's post Mindset Assessment Profile his mindset didn't really change. He went up

one point, which bumped him up to a G3. However, I think the best evidence of his growth was

in my interpretation of him. I realized that he was engaged in learning and just needed more

tools to push himself and criteria and ownership over his learning was just what he needed.

Whole group

Academic grades are gathered based on each learning target. Students tracked their growth in several learning targets and

NWEA Reading Scores 2015-2016						
	Low %tile <21	Low Avg %tile 21-40	Avg %tile 41-60	Hi Avg %tile 61-80	Hi %tile >80	Median
Fall	10	6	1	7	3	182.6
Spring	3	11	3	6	4	198.6
	-7	+5	+2	-1	+1	+16

more are tracked in our online grade book, Jumpro.pe. At the end of Trimester 1 the average

grade for the learning target, "I can answer questions using evidence from the text" was a 2.4.

At the end of the second trimester in April the average for the same learning target was 2.9.

Although a slight increase, students reflections on this work was much deeper at the end of

trimester 2. For example, in his student led conference Allen wrote about and discussed his

growth. He explained that he improved using evidence to answer questions because we

developed clear criteria for what a good answer looked at. He explained to his mother, who

appeared to be in utter disbelief, how he used the criteria to check his work each time.

However, he noticed that every time I gave him feedback he was missing the same part of the

criteria, "relevant and important details in your own words". Allen asked for help and worked with several partners to learn how to paraphrase the text and include those important details in his answer. After his explanation he used his reflections and learning target tracker to show his mom how he grew, with a few set backs along the way, through the trimester. So, although the class average improved by only about .5 of a grade the students' conversations and ownership of the process was evident in their end of trimester student led conferences.

In addition to student led conferences and jumpro.pe grades I noticed a change in students in our class discussions. Each time before and after students reflected on their assignments and feedback we held a class discourse. This would be the time I brought up students not following the class norms or any issues I noticed in order to protect the classroom community. We also discussed strategies that students were using to reflect on their feedback. At times I needed to remind them of how to use feedback, criteria, etc. This was a powerful time because it allowed me to determine students' understanding from their explanations. For example, in one class discussion about strategies students were using to make progress on their goalPERIOD a student said, "I'm working on participating in discourse. As you guys know our discourse criteria says all students should participate by listening and speaking. I don't ever participate. One thing I decided was I would talk once every discourse. So that's what I'm doing. I don't think I have a strategy, but I am trying to work on my goal every day" (Video Jan, 2016). This comment demonstrated that students were taking ownership over their goals and attempting to make progress. I appreciated this comment because she not only identified what was hard about the criteria for her, but she indeed did have a strategy and it was simple! After she shared we were able to discuss how strategies are best when simple and do-able.

This was a ground-breaking moment for many students in figuring out how to use the criteria to actually work on a goal they set. Another student on a later day shared, "My goal is to improve in CGI. The problems are hard for me and I usually use base 10 blocks, but to get a 3 I need to use equations. My strategy is to listen to the friends that share everyday so I can see how they used equations. Also, I just try to use equations. Oh! And I look back at the charts to remind me of what he did." This comment demonstrates the thinking that became very prevalent in the classroom. Students started to use learning from one another as a strategy for improving. In our classroom we have many structures set up for learning from each other, so it was a natural connection to what we were already doing. However I also think this comment demonstrates how students took to the process of using the criteria list to set goals. I noticed that students' goals were almost all around a point on the criteria list at this point in the school year.

NWEA Reading Scores 2015-2016						
	Low %tile <21	Low Avg %tile 21-60	Avg %tile 41-60	Hi Avg %tile 61-80	Hi %tile >80	Median
Fall	10	6	1	7	3	182.6
Spring	3	11	3	6	4	198.6
	-7	+5	+2	-1	+1	+16

On the NWEA test students take in fall and spring students showed growth in reading as reflected in the median score in the chart above. The median score improved from fall to spring by 16 points in reading. This data shows strong growth in reading. The NWEA test

measures the types of skills students set goals around, however it also measures many other

skills that weren't covered in the data cycle.

In math students' median score grew 17.6 points from fall to spring. In math, students focused

mostly on CGI (problem solving) to reflect on and set goals using criteria however the test

assesses many more skills. The data in the chart above also shows a decrease in students in the

lowest percentile groupings and an increase in average and high average. This shows that

students improved on an individual level. CHECK THE THREE CHARTS OF NWEA SCORES

YOU HAVE HERE. THERE SEEMS TO BE SOME CONFUSION. MAKE SURE EACH CHART IS

DISCUSSED.

NWEA Math Scores 2015-2016						
	Low %tile <21	Low Avg %tile 21-40	Avg %tile 41-60	Hi Avg %tile 61-80	Hi %tile >80	Median
Fall	5	8	5	3	6	189.4
Spring	2	4	8	7	6	207
	-3	-4	+3	+4	+/-0	+17.6

Conclusion

So, what happen when I taught students how to create criteria for their learning targets

through analyzing models? I noticed form the pre and post student survey that more students

could define feedback & rubrics, and know how to use a rubric/criteria list. From the class

discussions about criteria I can also see evidence of this knowledge. This is a change from the

pre survey in which most students weren't aware of rubrics or criteria. In addition, from my

observations of the case study students it is evident that the practices they learned helped

them develop agency of their work and performance. Through developing criteria and using it students were better equipped to set realistic goals and make actual change to their work. Also, learning how to give and get feedback gave students a tool for improving their work and achieving their goals. Lastly, the student reflections helped students in this process by holding them accountable for using the criteria.

A person's mindset is nearly impossible to assess completely. However, as I focused on three case studies I noticed change in those students. Although I'm not sure their mindset was affected, I do know it positively affectED the way those students reported their thoughts through their reflections. Their reflections on their academics and work habits became more thoughtful and specific which allowed them to more accurately set actionable goals.

I did notice a change in students' academic achievement. The more students were able to identify their growth areas the more they were able to describe what they were missing. This allowed me to provide more academic support. Then, as noted in their test scores and grades they achieved the learning targets.

There was also a notable change in the classroom culture. Students were more open and willing to discuss their grades when the criteria were clearly set. The conversation was based in the criteria and students didn't feel personally attacked. Students observed the discussion norms and were able to learn how to give and get feedback in order to improve their work. I conclude that, for me, this is only accomplished through the strong relationships and classroom norms established early on in this work.

In conclusion what I've learned is that students'' are more engaged in the learning process when they feel more control. I created a situation where students left like partners in

the academics of our classroom. I've learned that creating a classroom community where students feel like partners in creating the criteria for a learning target gave a sense of ownership over their learning. I've also learned that students are better able to understand their feedback and grades when they understand the criteria attached to the learning target and assignment.

Action Steps/ Policy Recommendations

- Classrooms & Teachers
    - Establish and share clear learning targets that provide students with an idea of what they are to learn and how their learning will be measured.
    - Give students opportunities to analyze models in order to create criteria that will allow students to know how their learning will be measured.
    - Engage students in feedback/ critique sessions with their own work using the student created criteria.
- Schools & Districts
    - Research and study the affects of standards based grading on teaching practice and student achievement
    - Form a committee of teachers and school to develop habits for all stakeholders to understand and use data.

- o Provide or attend PD that supports the use of student engaged assessment practices.

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Appendix 1

This is the scoring table for the Mindset Assessment Profile used to gauge students' mindset

both pre & post action research.

If your profile number falls into this range:	Then your MAP (Mindset Assessment Profile) group is:	People in this MAP group usually believe the following things:
8-12	F5	You strongly believe that your intelligence is fixed—it doesn't change much. If you can't perform perfectly you would rather not do something. You think smart people don't have to work hard.
13-16	F4	
17-20	F3	You lean toward thinking that your intelligence doesn't change much. You prefer not to make mistakes if you can help it and you also don't really like to put in a lot of work. You may think that learning should be easy.
21-24	F2	
25-28	F1	You are unsure about whether you can change your intelligence. You care about your performance and you also want to learn, but you don't really want to have to work too hard for it.
29-32	G1	
33-36	G2	You believe that your intelligence is something that you can increase. You care about learning and you're willing to work hard. You do want to do well, but you think it's more important to learn than to always perform well.
37-40	G3	
41-44	G4	You really feel sure that you can increase your intelligence by learning and you like a challenge. You believe that the best way to learn is to work hard, and you don't mind making mistakes while you do it.
45-48	G5	