Learning Continuum Based Formative Assessment

@ Conifer High School

A White Paper (Update)

This White Paper was prepared in April 2016 and concludes as follows:

"In the meantime, the Junior class of 2015-2016 completed their state assessments two weeks ago, and the teachers and administration involved in these interventions eagerly await the results."

Update: The assessment results are now in:

- Conifer's Junior class achieved the highest state assessment score level for Reading and English in the history of the school. Reading & English was the focus of this project
- Conifer's average ACT Reading score grew from 21.8 to roughly 23.9. (10% growth)
- Conifer's average ACT English score grew from 22.1 to roughly 23.8. (8% growth)
- Conifer's Math and Science scores each decreased slightly, indicating that the Reading and English results were not likely caused by a more highly intelligent student class.
- In addition to improved ACT scores, additional benefits were also observed. Conifer's AP Language and Composition official test scores improved from a 39.6% pass rate to a 60% pass rate. (54% increase in pass rate).
- The average score for AP Language went from 2.37 out of 5 in 2015 to 2.90 out of 5 in 2016 (22% increase). And, performance for every score range improved for AP Language: more scores of 3, 4, and 5 respectively, and fewer scores of both 1 and 2.

Conifer's 2015/2016 UIP priority was to improvement student performance in English and Reading. The immediate impact the methods outlined in this white paper exceeded all expectations.

Learning Continuum Based Formative Assessment @ Conifer High School

A White Paper

Conifer High School is a high achieving, rural school located in the foothills just outside of Denver, Colorado. The student body at Conifer is homogenous and socio-economically advantaged. The school's free and reduced lunch population sits at roughly 9-14%.

Conifer has enjoyed rapid improvement in its ranking in the state over the last decade, according to the various new outlets that produce such rankings, and has won the prestigious John Irwin Award for being a top-performing school in Colorado numerous times during that period. Much of that growth can be attributed to an administrative push to encourage students to take on as rigorous a course load as possible. Justin Neuenschwander, school counselor, estimates the increase in enrollment in AP courses at 300%.

Over the last three years, however, growth has stagnated at Conifer in all four core subject areas. Enrollment in honors and AP courses has reached its peak as a percentage of the school population, and the school is struggling to continue its improvement trend. This is not to say that Conifer has lost its high achieving status. It continues to be a school that others look to for inspiration, and it continues to receive its awards, but it is looking for a way forward.

Conifer High School ACT Five Year Trends	English	Mathematics	Reading	Science	Composite
2010-2011	22.2	21.5	22.3	22.4	22.2
2011-2012	22.7	21.9	22.4	22.7	22.5
2012-2013	22.2	22.0	22.6	22.2	22.4
2013-2014	23.1	22.5	23.5	22.9	23.1
2014-2015	22.1	21.8	21.8	22.7	22.3

Changing the Assessment Landscape

Because Conifer had reached its capacity in terms of the rigorous course loads students were willing to take and the content and concepts that could be packed into 182 days of instruction, Principal Wes Paxton knew that the only way forward was to begin to provide each student with a more individualized educational experience. He also knew that the only way to accomplish that was to increase students' ownership of their learning. Teachers at Conifer felt pushed to their limit, and asking them to differentiate for their students on an individual basis would have been met with significant resistance. Students would have to be able to set their own educational goals and advocate for themselves and their learning in class and through Conifer's significant MTSS Systems.

Principal Wes Paxton recalls, "In the three years prior to my arrival, we had been in the 22-23 range on the ACT as a school. There were a few years where we would have, what I would call, an anomaly, but then we would return to normal the following year. We had addressed providing students with rigorous opportunities, and students who had the aptitude had the ability to grow, but I was sill wondering, 'What can we do for the students who are not quite at that level? We have a lot of non-traditional AP students who are challenging themselves to take those classes, so what supports can we give them so they can access the learning?"

To begin to answer this question, Conifer pilot the use of an innovative assessment methodology developed by *Precision School Improvement, LLC* and designed to put schools in control of when they produced data and how much data they produced. In addition, the methodology would help teachers determine if their own assessments are in alignment with the rigors of the college entrance exams that would now determine whether the school met its accreditation goals.

Conifer decided to use the ACT framework to diagnose how students were growing in their classes for a number of reasons. First of all, during this time of transition and uncertainty as Colorado moved from TCAP (the old Colorado state assessment to PARCC), Conifer chose to use ACT data to inform its Unified Improvement Plan (UIP). Secondly, ACT uses a

learning-progression to help students and teachers make meaning from the results. This is something no other assessment organization provides, and without something like it, teachers struggle to translate their students' scores into classroom interventions in a meaningful way. This is because the numbers students receive on other accountability tests are useful for ranking purposes only - actionable for administrators perhaps, but not teachers. The ACT Career and College Readiness Standards can be found on the ACT website.

Fig 2.1

	Score Range 13–15
Topic Development in Terms of Purpose and Focus (TOD)	**TOD 201.** Delete material because it is obviously irrelevant in terms of the topic of the essay

Conifer used released ACT tests and the item-level data produced by the students from previous years to tag the questions in an innovative way. Using the enabling tools developed by Precision School Improvement, each question was tagged with a benchmark from the Career and College Readiness Standards rubric (an example of such a benchmark is shown in figure 2.1). This rubric not only seeks to determine the standards mastered and not mastered, it also seeks to place students on a learning continuum based on the level of difficulty of the items students answered correctly. The item-level reports from previous years made ranking assessment questions in order of difficulty a relatively easy task.

Precision's tools programmatically map those questions to various levels of dashboards (student-level, classroom-level, and school level) to provide students and teachers with an easy-to-use data picture revealing what their students and classes had mastered and the next logical benchmarks on which to focus (Figure 2.2 illustrates the data picture. The columns represent knowledge strands and the benchmarks increase in sophistication and difficulty as one moves down the grid). In addition, Conifer created a pilot group of teachers that would create their own questions and assessments and engage in a post-assessment methodology that would allow them to test the alignment of those assessments to the standardized assessments.

READING, LITERATURE IFA RESULTS - Finalized

January, 2016

Finalized Assessments: 257 of 257 Taken. Finalized Answer Choices: 4760

Proficiency: 73% Efficiency: 104 Secs/Point

Current Mastery Level: 22 (Calibrated: 12)

ACT Mastery Levels	MI&AA	SD	SC&CER	MOW	G&C
13-15	77 of 99 78%	177 of 197 90%	79 of 98 81%	92 of 99 93%	289 of 355 81%
16-19	84 of 99 85%	161 of 196 82%		120 of 157 76%	168 of 196 86%
20-23	171 of 198 86%	140 of 199 70%	284 of 357 80%	75 of 101 74%	84 of 96 88%
24-27	134 of 199 67%	126 of 198 64%	188 of 299 63%		63 of 157 40%
28-32	60 of 99 61%	52 of 100 52%	187 of 258 72%	65 of 99 66%	122 of 199 61%
33-36	79 of 98 81%	225 of 293 77%	53 of 99 54%		117 of 196 60%

Fig 2.2

"We had to stop performing autopsies at the beginning of each year," Paxton explains. "We needed current data on the students we have right now that teachers could use. We needed data, especially about students' evolving reading abilities, that could be used across contents, and that data needed to be easy to interpret. We don't have time to do extensive 'data-days' throughout the school year. We have 45 minutes every other Wednesday for our Professional Learning Communities to come together, so we need to move from analysis to action quickly. And we need to start offering one another more support for each other's success."

Because Reading was the primary focus of Conifer's UIP, two practice reading tests were administered to the entire Junior class, and one practice Reading test was administered to the entire student body. Then Mr. Paxton enlisted the aid of the school's MTSS interventionist, Andrew Freza, to identify the seventy students who had the lowest composite scores on previous practice tests. These students would be assigned to a special "homeroom" class where they would complete practice tests in all four subject areas, receive test preparation instruction, and complete goal setting activities to bring back to their core teachers. Brian Stotts, English teacher and recognized data expert at Conifer, would oversee this group of students and tag the assessments for use.

Findings

Throughout the pilot, Conifer uncovered a number of key issues the school faces. We found that while students enrolled in the AP and Honors track seemed to grow significantly over the course of their four years at Conifer, student growth in the mainstream classes at Conifer were mostly stagnant. Proficiency for mainstream students even decreased slightly from Freshman to Junior year (Appendix A). We also found that it needed to rethink the way it delivered its guaranteed and viable curriculum.

"When I ask teachers if they're doing the [guaranteed] curriculum, everyone says, 'Oh, yeah, I'm doing it," Paxton explains. "But when I observe how they're addressing…reading skills, for example, in various classrooms, there's a lot inconsistency there, and I wonder if we need to help teachers incorporate depth and rigor into the guaranteed curriculum."

The data picture seems to indicate he is correct. The 9th grade honors classes tested at a mastery level much higher than the mainstream 11th graders, indicating that adjustments were needed in order to provide the level of rigor necessary for them to grow and that they are actually prepared for a much higher level of rigor than the mainstream Juniors. These results have raised an awareness about the implications of the push for honors and AP at Conifer and an understanding of the operational issues teachers must navigate as a result.

Honors English 9

READING, LITERATURE IFA RESULTS - Finalized
January, 2016
Finalized Assessments: 139 of 139 Taken. Finalized Answer Choices: 5684
Proficiency: 69% Efficiency: 113 Secs/Point
Current Mastery Level: 21 (Calibrated: 12)

ACT Mastery Levels	MI&AA	SD	SC&CER	MOW	G&C
13-15	113 of 142 80%	245 of 289 85%	114 of 143 80%	131 of 143 92%	235 of 289 81%
16-19	124 of 144 86%	213 of 287 74%			219 of 284 77%
20-23	217 of 283 77%	190 of 286 66%	205 of 282 73%	98 of 146 67%	110 of 142 77%
24-27	170 of 289 59%	174 of 298 58%	257 of 434 59%		
28-32	85 of 149 57%	62 of 146 42%	83 of 141 59%	84 of 141 60%	167 of 291 57%
33-36	97 of 138 70%	292 of 417 70%	95 of 145 66%		167 of 282 59%

Mainstream English 11

READING, LITERATURE IFA RESULTS - Finalized
February, 2016
Finalized Assessments: 25 of 25 Taken. Finalized Answer Choices: 963
Proficiency: 32% Efficiency: 118 Secs/Point
Current Mastery Level: 20 (Calibrated: 13)

ACT Mastery Levels	MI&AA	SD	SC&CER	MOW	G&C
13-15	10 of 24 42%	17 of 48 35%	6 of 24 25%	6 of 24 25%	19 of 48 40%
16-19	9 of 24 38%	19 of 48 40%			23 of 48 48%
20-23	24 of 47 51%	9 of 48 19%	16 of 48 33%	10 of 24 42%	7 of 24 29%
24-27	10 of 48 21%	15 of 47 32%	24 of 72 33%		
28-32	7 of 27 26%	4 of 26 15%	4 of 24 17%	14 of 24 58%	13 of 49 27%
33-36	11 of 24 46%	10 of 67 15%	0 of 24 0%		18 of 50 36%

"I've seen a lot more teachers bought into looking at where students are in terms of the learning continuum and their progress," says Paxton. "We've gained an insight into the population. I've seen a lot of 'Ahh Has' or acknowledgement of 'Yep, I wondered if that was the issue.' I've seen less resistance to the changes because the data is being displayed in a way that makes sense to teachers. Many teachers are trying something different in their classrooms because they want to change. And if we can help students navigate their learning at a more rigorous level, we'll have done something special. We'll have made them life-long learners."

Kendra Weiss, a teacher who works with a majority of the students identified for the targeted help, says, "having the students do those types of questions has really highlighted their strengths and weakness. I was then able to incorporate review into my everyday lessons and target my lessons more precisely because I was able to see the breakdown of every student. And the fact that the targeted benchmarks were a manageable number allowed me to repeat certain words or phrases in relation to those benchmarks until the kids started to get it. By the end of the intervention cycle, students were even asking me to review certain types of question, using the vocabulary I used to describe them. That was new for them and I could tell they were starting to understand."

Gabe Watson, who was part of the pilot group that created and, using Precision's tools, analyzed their own questions felt, "It made me better at asking questions, and helped me ensure that I am actually testing what I think I am. Oftentimes as a literature teacher you tend to make questions about what struck you in a piece, and it doesn't necessarily reflect the end goal. I really should be working backward, but I tend not to." (Figure 4.0 illustrates the analytics Mr. Watson used for this process. Additional analytics show up when one clicks the "Analyze" button.) "And the feedback it provided helped me orient my teaching to an appropriate level. The kids really liked the way their results were presented and the immediacy of it. In literature, so few of the skills we address are tangible and this gave them something tangible they could focus on. I could differentiate for those different things then when I made my projects for the books they were reading, rather than just having everyone do the same thing. Though I also also liked how it let me know what to do with the whole class and not just individual students."

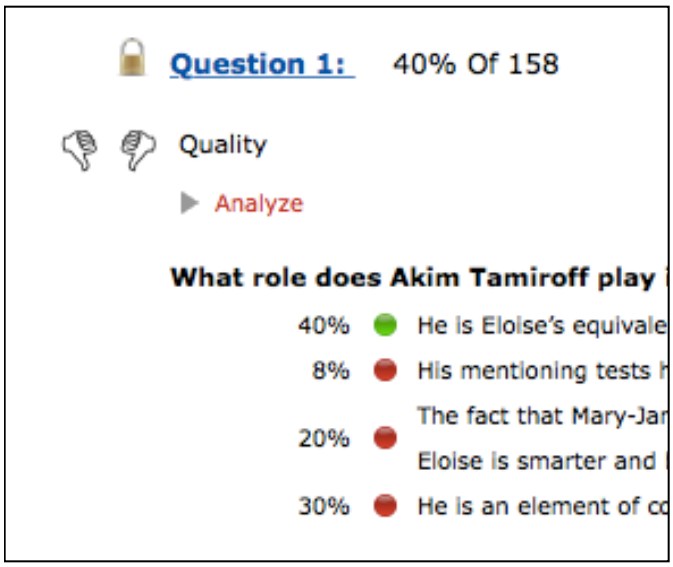

Fig. 4.0

Question Quality Analysis

Despite the work done this semester, there is still a long way to go. The assessments have revealed a complex cultural rift between the honors track and the mainstream track that will require many stakeholders to solve. Students, parents, and teachers will need to think critically about the structures they've supported to solve these equity issues. For example, The parent leadership committee, which has typically consisted of parents of honors students, will have to confront the consequences of their insistence that the best teachers at Conifer take on the upper level courses. And the veteran teachers will have to be willing to give up courses that have becomes status symbols at the school in order to ensure our neediest students are getting the best instruction.

In the meantime, the Junior class of 2015-2016 completed their state assessments two weeks ago, and the teachers and administration involved in these interventions eagerly await the results.

Appendix A: Honors Track vs. Mainstream Growth

Honors English 9

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Honors English 10

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AP Language and Composition (11)

READING, LITERATURE IFA RESULTS - Finalized
January, 2016
Finalized Assessments: 84 of 84 Taken. Finalized Answer Choices: 3369
Proficiency: 78% Efficiency: 87 Secs/Point
Current Mastery Level: 25 (Calibrated: 12)

ACT Mastery Levels	MI&AA	SD	SC&CER	MOW	G&C
13-15	81 of 83 98%	162 of 172 94%	68 of 82 83%	82 of 83 99%	154 of 168 92%
16-19	66 of 83 80%	141 of 166 85%			145 of 166 87%
20-23	146 of 167 87%	125 of 167 75%	136 of 167 81%	67 of 84 80%	71 of 82 87%
24-27	127 of 170 75%	112 of 168 67%	183 of 247 74%		
28-32	62 of 85 73%	33 of 83 40%	67 of 83 81%	63 of 83 76%	123 of 167 74%
33-36	57 of 84 68%	190 of 252 75%	42 of 84 50%		105 of 167 63%

Mainstream English 9

READING, LITERATURE IFA RESULTS - Finalized
January, 2016
Finalized Assessments: 72 of 72 Taken. Finalized Answer Choices: 2971
Proficiency: 47% Efficiency: 129 Secs/Point
Current Mastery Level: 12 (Calibrated: 12)

ACT Mastery Levels	MI&AA	SD	SC&CER	MOW	G&C
13-15	43 of 75 57%	94 of 152 62%	40 of 73 55%	50 of 74 68%	93 of 149 62%
16-19	50 of 70 71%	79 of 150 53%			74 of 140 53%
20-23	77 of 150 51%	66 of 142 46%	70 of 149 47%	33 of 71 46%	43 of 76 57%
24-27	59 of 148 40%	55 of 152 36%	97 of 233 42%		
28-32	27 of 76 36%	18 of 70 26%	34 of 73 47%	41 of 75 55%	53 of 155 34%
33-36	37 of 73 51%	86 of 219 39%	34 of 76 45%		55 of 149 37%

Mainstream English 10

READING, LITERATURE IFA RESULTS - Finalized
January, 2016
Finalized Assessments: 79 of 79 Taken. Finalized Answer Choices: 3251
Proficiency: 46% Efficiency: 113 Secs/Point
Current Mastery Level: 12 (Calibrated: 12)

ACT Mastery Levels	MI&AA	SD	SC&CER	MOW	G&C
13-15	38 of 87 44%	104 of 162 64%	49 of 86 57%	54 of 85 64%	87 of 163 53%
16-19	51 of 82 62%	88 of 161 55%			91 of 158 58%
20-23	84 of 162 52%	91 of 164 55%	71 of 164 43%	40 of 82 49%	46 of 85 54%
24-27	49 of 166 30%	65 of 168 39%	107 of 243 44%		
28-32	25 of 80 31%	20 of 80 25%	27 of 81 33%	38 of 80 48%	64 of 167 38%
33-36	29 of 81 36%	85 of 243 35%	42 of 81 52%		67 of 164 41%

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