

Abstract

The Common Core State Standards (CC) and College Preparatory Mathematics (CPM) are facing scrutiny because one is a new mathematics curriculum that has not been previously tested nor used and the other is a group effort approach to teaching and learning (also unproven and untested). The researchers read through 16 articles to gather background knowledge on the CC and CPM. This review of the literature showed similar sentiments to what the researchers had anticipated going into their study: that people are split on the effectiveness of CC and CPM. In addition, the researchers gave a survey to every math student and to every math teacher at a suburban high school in Ohio. The researchers drew several conclusions from these surveys. They concluded that the teacher's opinions were mostly positive and pro-CC/CPM. This means that most teachers anticipate that the CC/CPM will have a positive effect on the students and reflect well on the district. However, the surveys abundantly showed that the students were mostly negative and anti-CC/CPM in their opinions. The surveys also showed that students, in general, are confused about the difference between CC and CPM, and that their negative opinions may be more directed at the group work component of CPM and not so much CC as a whole. Lastly, a good majority of students felt that the CC/CPM is not helping them learn more effectively. This project is designed to inspire future researchers to dig deeper into the labyrinth that is CC and CPM and to more thoroughly assess the impact such changes are having on the mathematics curriculum both locally and across the country.

Exploring the Labyrinth that is the Common Core

Introduction

There is a problem at Westerville North High School (WNHS) and in Westerville City Schools (WCS) concerning the overhaul of the mathematics curriculum, specifically: *“To what degree do students and math teachers at WNHS understand and accept the new math Common Core State Standards?”* The CC is a new mathematics curriculum that is being put into most schools across the United States. The CC mathematics curriculum is aimed at getting students to focus on understanding math instead of just memorizing formulas. The rapid implementation of these changes has resulted in confusion about the difference between CC and College Preparatory Mathematics (CPM), both of which are now operational at WNHS. Still, what is consistent is the fact that the students’ dislike of CC/CPM centers on the group work component. The mixed feelings on the CC are due to whether the CC is effective in helping students learn more efficiently. This issue on the CC is important because it directly affects the learning of this generation and the future of the country. This issue is also important because without a solid math foundation, it is hard for people to contribute to their society. The researchers’ vision for a better future is an effective and helpful math curriculum that is easy for students to learn and that prepares them to one day compete on a global scale. A good curriculum is one that helps students feel like they are learning in a way that is easy to understand, is efficient, and teaches them useful information pertinent to daily life and any career options they wish to pursue in the future.

Literature Review

The following Literature Review examined the CC and CPM and was an exhausting overview of 16 different articles. Of these 16 articles, four were pro-CC/CPM, five were anti-CC/CPM, and seven were pure factual and non-opinionated articles. One example of a pro-CC/CPM article that was reviewed was “Why We Support the Common Core” by Eva Arevuo. An example of an anti-CC/CPM article was “Common Core Standards for Mathematics: The Real Issues” by Edward Frenkel and Hung-His Wu. A factual article about the CC was “ABCs of the Common Core in Ohio” by StateImpact.

For starters, clarification is needed between the CC and CPM. CPM is an instruction technique in which students work in groups with their peers. Group work can be used for discussion, help in learning new concepts, teaching each other, and in taking tests. By comparison, the CC is the actual curriculum, the textbook, the assessments, and other materials used in a CC-classroom (StateImpact). The CC can be used and implemented without the CPM approach; however, the two often go hand-in-hand (Bloom “Core Questions”).

The new CC mathematics curriculum has changed the way students learn math. In the old classroom, math used to focus primarily on skills. Now, the math curriculum focuses on understanding what (and why) a student is learning instead of just going through the motions and memorizing how to do it. Because of this, the tests are more challenging, which should, in theory, coordinate with rising grades as everyone adjusts to the CC (Riley). Prior to the implementation of the CC in districts across the U.S., less than half of students were performing at a “minimally proficient” level in math. Some scholars are cautiously optimistic that the proficiency of students should increase with the CC since the CC aims at getting students to

“understand” math rather than “memorize it”. The old curriculum centered on skills and plugging in formulas rather than thinking and getting to a deeper understanding (Felt).

The new tests that students are taking are of higher quality than the ones before. “In general, the Common Core will upgrade the quality of reasoning expected of students across all subjects” (Arevuo). Many teachers were complaining that the old assessments were not of high quality. “The Common Core is designed to raise achievement levels in public schools across the country” (Riley). This is because they are clearer and more demanding than what over 30 states had as their standards. It will also upgrade the quality of reasoning in students, especially in math. Time in math class will be spent on fewer topics so as to allow students to master what they are being taught. Clearly, the CC is resurrecting the depth versus breadth argument (Arevuo).

Before the CC standards were implemented, every state developed and adhered to its own standards. For example, second graders might learn addition and subtraction in Ohio by mid-December, but in Michigan, they might be learning multiplication. This resulted in students in the same grade learning at a different rate based solely upon where they lived. There was no consistency (Wray). With the CC, students (and teachers) can move to a different state and pick right up where they left off. This is because the CC is a *national* movement. So, whether you graduate from Ohio, Michigan, or California, you should, in theory, have followed a fairly uniform math curriculum. “Now with Common Core standards, we will all be on the same page, so teachers, parents, and students across the country can discuss and share ideas to help each other teach and learn better” (Wray).

The new curriculum also puts students in real life situations in order to better prepare them for life after school. “The developers took what was deemed necessary for success in

college and careers beyond high school and back-mapped those skills into standards all the way down through the K-12 mathematics curriculum to primary school” (Felt).

The CC is supposed to end the “math wars” that pits parents against teachers concerning which method of instruction is better (Chang). Parents especially have noticed a big difference in the amount of homework their children now have under the CC compared to in the past. Homework questions used to be more challenging and complex; CC homework problems are shorter and more straight-forward (Gallagher). In a study of parent e-mails most frequently received by administrators concerning the CC and CPM, the biggest area of concern centered on the “dumbing down” of math skills that was lowering proficiency rather than raising it (Garelick). “Some parents saw that the Common Core was actually lowering the standards in their school” (Gallagher). Garelick’s study found that “instead of simply teaching students multiplication tables, schools are adopting an inquiry method of learning in which children are supposed to discover the knowledge for themselves”. Handing over the keys to the car for self-discovery, many feel, is just asking for a natural delay in development.

This CC also shuffles around the grade in which a student learns certain math skills. Instead of learning long division in the third grade, a student might not be exposed to it until their sixth grade year (Garelick). Kindergarteners originally used to learn a lot of patterns and numbers, but now most of their time is spent on numbers (Chang). Recently, Indiana became the first state to retreat from the CC when Governor Mike Pence signed a bill suspending its implementation. He was driven to act because of complaints that the standards were written at too low a level and failed to show how they were going to help students more than the old state standards (Gallagher). Michigan has also pushed the pause button on its implementation of the CC (Bloom “See How Quickly”). Professor James Milgram of Stanford University refused to

endorse the CC and dubbed it “investigative math” (Gallagher). He felt that the CC’s goal is to get students all over the country to reach the same *minimum* level of learning and, in order to achieve this, the CC intentionally made the standards as non-challenging as possible. “There are now no truths, 3 plus 4 can now equal 11 so as long as the student can explain how they got that answer” (Chiaromonte). Milgram said the CC standards “do not adequately reflect our current understanding of why the math programs in the high-achieving countries give dramatically better results” (Gallagher). The CC does not do a good job of making individual thinkers out of children. If the new standards adopted by New York and 44 other states work as intended, students will learn less this year” (Chang). In short, the CC is putting American students behind the rest of the world (Garelick).

Dayton Public Schools in Ohio released a statement that the CC is an attempt to link mathematical ways of thinking to real world issues by emphasizing in the early grades the development of number concepts (“Common Core Standard”). An expectation of fluency with operations, a progression of learning of algebraic thinking, number operations and systems, geometry and statistics, and an emphasis at higher grades on mathematical modeling will seek to address the question of “When will I use this in life?” that is uttered by disgruntled and frustrated students (Bloom “The Common Core Will Change”). Dayton Public is optimistic that the CC’s focus on specific goals will show students how math applies to real world issues. Still, students and parents will probably not come to the realization they are part of a new system of learning until they experience the CC’s positive effects. Bloom interviewed Ohio Federation Teachers President Melissa Cropper, who expressed that her kids “probably do not know or care about the Common Core” but they really like the new changes (Bloom “Core Questions”). Superintendent

Steve Barret said, “I think kids only realize what Common Core is because their teachers are using words like Common Core Problem” (Bloom “Core Questions”).

The CC is trying to set country-wide goals for the subject areas of math and English (Bloom “Eight Must-Read Posts”). This includes new tests to replace Ohio’s previous standardized tests like the Ohio Achievement Assessment (OAA) and the Ohio Graduation Test (OGT). These tests will also be given on computers instead of “paper and pencil”. The CC was developed by teachers and math and language experts and included district superintendents and state governors (“ABCs of the Common Core”). The overall goal of CC is to have consistency across the U.S. that also includes common testing (Felt).

Without a doubt, the CC brings a lot of changes to the math curriculum. *Ohio.gov* says that CC standards began implementation during the 2013-2014 school year with the hope of full immersion to the CC by 2015-2016. The idea behind slowly introducing the new curriculum is to acclimate students to the CC standards (ODE “Mathematics”). However, the CC does mean that Ohio students will now take a lot more standardized tests (Bloom “Eight Must-Read Posts”). In addition, math courses will be completely renamed. Gone are the days of Algebra, Geometry, and Algebra 2. Instead, students will take such courses as CCSS Integrated Math 1, 2, and 3 (Bloom “The Common Core Will Change”).

Others argue that the CC is being implemented in somewhat of a rush. Researchers Edward Frenkel and Hung-His Wu said there are three main issues with the implementation of the CC, which include the allocation of math textbooks, the assessments associated with the CC, and, more importantly, teacher preparation. Frenkel and Wu fear that the rapid changing curriculum does not leave teachers enough time to master the concepts and change their instruction in time to teach it appropriately to the students. Throw in a lack of essential supplies –

like textbooks – and it can plainly be asked, “How does a teacher teach a class without the class having enough books?” (Frenkel and Wu). The CC-aligned assessments given to students are inheritably unfair since they are being administered to students with limited exposure to the CC. Bad scores are often quickly pinned on the teachers, who are also learning along with their students (Frenkel and Wu).

Overall, the CC is facing a lot of scrutiny. Because it brings with it a wave of changes to the basic idea (and purpose) of math – some for the better and some for the worse – it faces an uncertain future. There is a lack of a lot of research on this topic because it is still being implemented in most states.

Research Process

For this project on the CC and CPM, research was completed in the form of two surveys. One was a survey for the staff and another was for the students at WNHS. Both surveys were created by the researchers by referencing several on-line surveys about the CC and CPM. Portions of some of these surveys were amended to better fit the population of WNHS. In both surveys, participants were asked to provide their opinions on the CC and CPM. The surveys remained anonymous so as to allow the participants the comfort of being able to provide their honest reflections. One such concern was having students voice a negative opinion about the CC or CPM and face the consequences doled out by their math teacher should s/he be a CC/CPM advocate. Anonymity, it was felt, best served the students and the research into the CC/CPM.

Setting and Sample

This survey was distributed at WNHS, a high school in Westerville, Ohio. Westerville is a suburb of Columbus and is a member of the Ohio Capital Conference (OCC). There are four grades (ninth, tenth, eleventh, and twelfth) and 1,379 students in this school. (These numbers were given to the researchers by the Assistant Principal and are believed to be an accurate and up-to-date reflection of WNHS as of February 2014.) Seven hundred and forty of these students are boys (53.7%), and 639 are girls (46.3%). In the ninth grade, there are 381 students (213 boys and 168 girls). Precisely, there are six Asians, 91 blacks (non-Hispanic), 13 Hispanics, 13 American Indians, 28 students identified as multiracial, and 240 whites (non-Hispanic). In the tenth grade, there are 337 students (175 boys and 162 girls). Specifically, there are five Asians, 71 blacks (non-Hispanic), 14 Hispanics, 28 identified as multiracial, and 219 whites (non-Hispanic). In the eleventh grade, there are 374 students (187 boys and 187 girls). In particular, there are nine Asians, 83 blacks (non-Hispanic), 10 Hispanics, two American Indian, 19

identified as multiracial, and 251 whites (non-Hispanic). Lastly, in the twelfth grade, there are 287 students (166 boys and 121 girls). The breakdown shows there are six Asians, 70 blacks (non-Hispanic), 14 Hispanics, one American Indian, 18 identified as multiracial, and 178 whites (non-Hispanic). *(Because of the students that identified as “multiracial”, some of the specific ethnicity breakdowns for each grade level may not add up to match the total number of students listed. As ethnicity did not play a role in this C.A.R. project, such discrepancies did not have any impact on the findings and were not, therefore, of any significant concern to the researchers.)*

In order to graduate from WNHS, students must have four math credits spaced out so they are taking at least one class each year. (Obviously, students must pass these classes with a 60% or higher in order to earn the credit.) The classes available are: Pre-College Mathematics, Algebra 1, Algebra 2, Algebra 3, Financial Algebra, Honors’ Algebra 2, Honors’ Algebra 3, Geometry, Honors’ Geometry, AP Calculus AB, AP Calculus BC, IB Math Studies SL, IB Mathematics SL, and IB Mathematics HL. A Math Lab is also offered to assist struggling students.

There were no restrictions on gender, age, and language on either of the surveys. Nobody was forced to do the survey, and it was not for points. Twelve of the 13 math teachers that received the survey completed it over the course of one week. A total of 851 students (or 61.7% of the student body) elected to participate in the student survey.

Instrumentation and Materials

The researchers came up with two separate surveys, one for teachers and one for students. The teacher survey was seven pages in length and contained 24 questions, while the student’s survey was two pages in length and contained 11 questions. The researchers anticipated low student participation if the survey was longer than the front and back of one sheet, which is why

this survey went through numerous revisions before reaching its final format. (*The student survey can be found in its entirety following the Annotated Bibliography.*) More specifically, the researchers wanted to see if students were confusing their understanding (and like/dislike) of CC with their approval or disdain for CPM. Prior to conducting the survey, when students were overheard expressing their opinion of the “new” math, it was unclear whether or not they were referencing the CC or CPM. As such, the researchers included several questions that would help determine whether or not students knew the difference. The staff survey was designed to ask tougher questions – and ones that the students would not be able to understand nor answer because they are not educators.

To assist the researchers, numerous on-line CC and CPM surveys were tracked down and parts of some were used in the teacher survey distributed at WNHS. (*The teacher survey can be found in its entirety following the student survey after the Annotated Bibliography.*) To keep the survey tailored to Westerville City Schools (WCS), the students asked many questions about the amount of training the teachers had concerning the CC. The researchers understood that, like with the students, not everyone was in nor taught a CC/CPM math class (as the curriculum is being phased in across all levels). As such, one of the first questions out of the gate asked if the class they were in (or taught) was a newer CC class that used CPM.

The information produced from these surveys and the data calculated by the researchers will be discussed in the next section.

Data Analysis

For this study, the researchers created two surveys, one for teachers and one for students. This survey took place at WNHS. Twelve of the 13 math teachers that received the survey completed it over the course of a week. A total of 851 students (or 61.7%) participated in the student survey. There were no restrictions on this survey such as gender, age, and language. There were also no rewards or incentives offered to complete this survey as it was completely optional. In this section, the researchers will analyze the data from both of their surveys. When applicable, connections between the data and their Literature Review will be drawn. (*Both surveys can be found in their entirety following the Annotated Bibliography.*)

With the student survey, which was two pages in length and contained 11 questions, the researchers used Questions #1 through #6 to gather background information on the individual answering the survey. These questions were also designed to make sure the students knew the difference between CC and CPM. Questions #7 through #11 were the most important and the ones the researchers tracked the closest. It became very apparent that students do not know the difference between the two. Over half of respondents claimed they were not in a class that used CPM, but their answers indicated that they actually were. The same percentages held true for those that said their class did not follow the CC when, in fact, it did. This gave the researchers pause, but, because it was in line with what they had anticipated before they began their study, they continued their data collection and analysis for Questions #7 through #11.

Question #7 reads: “*How much do you know about Ohio’s transition to the Common Core State Standards?*” This question sought to see if students were aware of the incoming CC curriculum – be it because they read about it or because they were told about it by their teachers. Only 3.4% of students said they had a lot of knowledge about the district and school’s transition

to the CC. Overwhelmingly, 80.4% of students said they had little to no knowledge, clearly indicating that they were blindsided by the sudden CC transition. While this may help explain their confusion between the CC and CPM, it points to the fact that most students are not informed about decisions made concerning material that they will have to learn.

Question #8, which reads: *“I believe that the Common Core State Standards have improved my learning in my math class”*, really got into the heart of the CC debate: the enjoyment of the new curriculum. Only 39.9% of students said that they “strongly agreed” or “agreed” with the statement made in Question #8, while 60.1% of students said they “disagreed” or “strongly disagreed”. Upon closer examination, only 8% of students answered “strongly agree” in reference to liking the new CC, while 32% of their counterparts were adamantly against it (and answered “strongly disagree”). Because this survey had 851 participants, there is a lot of stock that needs to be taken in these answers. This data means that most students believe that the CC has not improved learning in their math class. (Of course, whether the students are blaming the CC or CPM remains unclear since there was rampant confusion between the two.) “Some parents saw that the Common Core was actually lowering the standards in their school” (Gallagher). “Instead of simply teaching students multiplication tables, schools are adopting an inquiry method of learning in which children are supposed to discover the knowledge for themselves” (Garellick). The students at WNHS do not appear to like this “hands-off” approach to instruction.

Question #9 was intended only for those students who answered “Strongly Agree” or “Agree” on Question #8. Question #9 reads: *“Please identify the reasons you believe the Common Core State Standards will benefit students.”* Students were able to select all of the answers that they felt applied. Of the 39.9% that met the criteria in Question #8, 20.6% believe

that the CC will help math teachers better prepare their students for college, 22.2% believed the CC will help math teachers better prepare their students for the work force, 22.6% of students believe that the CC will help teachers focus on what is most important, 12% believe that the CC will ensure that a high school diploma has meaning, and 22.6% of students believe that the CC will provide students a clear understanding of what they must know to succeed. This data means that most students who believe that the CC has improved their learning in math believe that the CC will benefit other students because it will help math teachers focus on what is most important and will give students a clear understanding of what they must know to succeed. “The Common Core is designed to raise achievement levels in public schools across the country” (Arevuo). The new curriculum puts kids in real life situations to better prepare them for life after school. “The developers took what was deemed necessary for success in college and careers beyond high school and back-mapped those skills into standards all the way down through the K-12 mathematics curriculum to primary school” (Felt).

Question #10 was for those students who answered “Disagree” or “Strongly Disagree” on Question #8. Question #10 reads: *“Please identify the reasons you believe that the Common Core State Standards will not benefit the majority of students.”* Again, multiple answers were permitted. Of the 60.1% that met this criteria, 12.8% believe that the old state standards are better than the new CC, 14.7% of students believe that the CC is too tough for many students, 14.7% feel the CC excludes important concepts that students should learn, 32.4% believe that the CC embraces a “one size fits all” approach that does not help, and 25.5% of students believe that the CC does not provide teachers the flexibility to help students that are behind. This data means that most students who disagree that the CC has improved their learning in math believe that the CC will not benefit the majority of students because it embraces a “one size fits all” approach

that does not help. Stanford Professor Milgram said that the standards were “written at a very low level” and “do not adequately reflect our current understanding of why the math programs in the high-achieving countries give dramatically better results” (Gallagher). The CC does not do a good job of making individual thinkers of children (Chiaramonte). “If the new standards adopted by New York and 44 other states work as intended, students will learn less this year” (Chang). The hope is that children understand better. You need the kids to think more (Chang).

Question #11 reads: “*The Common Core State Standards are good for Westerville City Schools.*” The students were supposed to select an answer that they thought best represented their opinion. In the end, 37.2% of students “strongly agreed” or “agreed” with Question #11’s statement, while 62.7% said that they “disagreed” or “strongly disagreed”. The data collected means that the majority of math students at WNHS strongly disagree that the CC is good for Westerville City Schools (WCS).

The data collected from the student survey show that the majority of students strongly disagree that the CC has improved learning in the classroom. They also disagree that it is good for WCS. The dissatisfaction with the CC hinges on its “one size fits all” approach that a majority of students feel does not help them learn. Those that felt the CC was good for WCS felt that the CC helped math teachers focus on what is most important and provides students with a clear understanding of what they must know to succeed.

The researchers also passed out a teacher survey to the Math Department. There were 24 questions, and 12 of the 13 teachers answered the survey. The first question of the survey reads: “*How much do you know about Ohio’s transition to the Common Core State Standards?*” This question was especially interesting since 100% of the teachers polled stated that they have “from some” to “comprehensive” knowledge of the transition. As such, it is apparent that the Math

Department was informed about WCS' intent to implement the CC. A later question asked teachers how prepared they felt to teach CC. While every teacher felt prepared to some degree, 81.8% stated that they were "somewhat" prepared. Teachers that did not feel overwhelmingly prepared said they would have been more prepared if they had access to curricular resources aligned to the CC, access to assessments aligned to the CC, and if they had been given more information about the change in standards and what is expected of students. Eighty percent of teachers said they accessed various district and state websites to track down additional information and materials for CC, but 22% found these websites to be helpful. This is intriguing because when later asked which source of CC information teachers trusted the most, the State Department website ranked as the most trustworthy source (by 23% of respondents) despite the fact that 66% said a fellow math teacher in the building is considered to be an "expert" on the CC. (Only 19% saw this peer math teacher as the most trustworthy source of CC information.)

The crux of the problem is the training teachers received for the CC and CPM. When the amount and quality of Professional Development (PD) is examined, 100% of teachers polled said they had attended some PD concerning CC at some point over the past year. However, only 10% strongly agreed that they had been proficiently prepared, while 40% strongly disagreed. This means that most teachers felt that they did not receive quality training and have had to learn a great deal of information on their own. This connects to the findings by Edward Frenkel and Hung-His Wu that said because teachers have never taught using the new CC curriculum, they will not have time to learn how to teach by the new standards. This problem is compounded by the fact that there is a huge rush to implement CC to school systems across the country (Frenkel and Wu).

Of the teachers that responded, 33.3% answered that they had fully incorporated CC and CPM into their teaching expectations and practice, 25% had incorporated the CC and CPM into some area of their teaching (but not fully in others). A third of respondents said they have not implemented it while, interestingly, 8.3% said they did not know if they had implemented the CC and CPM into their classrooms. Of the 58.3% that have implemented the CC and CPM (whether it is fully or partially), 23.7% have incorporated new curricular materials and instructional strategies into their teaching, 23.7% find themselves asking their students more questions and encouraging them to develop their answers independently, 21.2% have increased their collaboration with colleagues within the school or in other schools, and 10.5% are diversifying the ways they assess student learning and provide feedback.

Specifically, Question #3 states: *“I believe that the Common Core State Standards will lead to improved student learning for the majority of the students I serve.”* For this question, teachers were supposed to mark the answer that best reflected their opinion. Of those that answered, 66.7% agreed to some extent with that statement, while 16.7% remained undecided. This means that most teachers agree that the CC will lead to improved student learning. Those that agreed were then asked to select from a pool of answers all that they felt applied. Overwhelmingly, 90% said that the new CC will help teachers focus on what is the most important material in the curriculum. (This is particularly interesting when comparing it to the student survey. The students that believe the CC is good for WCS felt that way because they see the CC helping math teachers focus on what is most important and provide their students with a clear understanding of what they must know.) Strangely enough, only 14.3% of teachers felt the CC would help teachers better prepare students for college. The teachers that disagreed with the effectiveness of the CC answered a follow-up question and selected as many answers as they saw

fit in the same fashion as those that agreed did with their follow-up question. None of the teachers felt that the CC was “too rigorous”, yet, 40% (the highest percentage of respondents) felt the issue with the CC was that it embraces a “one size fits all” approach that will not help as many students.

In further dissecting the impact of the CC, teachers were asked to what extent they felt specific practices were important to improving student learning. The answer options were in a chart, and teachers had to select all that they felt applied. The survey results found that 62% of teachers thought structuring class time for student so they can develop procedural skill and fluency in core operations (such as multiplication tables) in order to get them to understand more complex topics was important. (Interestingly, 38% said this was not important.) This shows a great rift in the perceived importance of core operations in the eyes of the Math Department. Sixty-three percent thought exposing students to a wide range of math topics within each grade level in order to prepare them for their future learning was important. (Ironically, this contradicts the fundamental idea of CC.) Connecting student learning within and across grades so learning builds on a foundation built in previous years was deemed important by 100% of teachers polled. When it came to applying what was learned in the classroom to “real world” situations, 100% agreed that this was important. This connects to Felt’s findings that across the United States, less than half of students were registering as “minimally proficient” in math. It is Felt’s opinion that this should change because students are working towards a broader understanding of the subject. The old curriculum was about skills and plugging in formulas rather than thinking and getting a deep understanding (Felt). Lastly, maximizing student learning by teaching effective mnemonics and recall strategies as alternatives to conceptual understanding was embraced by only 21% of the staff while 79% found little to no importance in this particular skill set. The data concludes

that most teachers think the top two challenges to successfully implementing CC and CPM in their school are the prior knowledge of their students and additional time to help students become familiar with the CC and CPM approach to math.

The results of the two surveys paint an interesting image concerning the state of mathematics at WNHS and for WCS. The data shows a great divide between the students and staff. A majority of students do not like the CC and do not think it is good for WCS, whereas almost all of the math teachers like the CC and think it is good for WCS. Such polar opposites suggest that more time is needed with the CC to see how it plays out over the course of an entire graduating class and, perhaps, the manner in which the CC is delivered (via the CPM method) needs to be re-examined.

Reflection

If the researchers were to repeat the whole process, they would change many things. The first thing they would have done differently is restructure the survey and break the data down into more specific categories. Questions #1 through #6 were included as a way to gather information about those taking the survey. This information included the math course that they are currently taking, their 1st Semester Grade, and their current grade. The data was collected, but not recorded, from these questions. Future research might be able to make connections and parallels between student perception, acceptance of CC and CPM, past grades, and their current grades. This data, while not utilized for this study, could easily be used for follow-up research.

Another thing the researchers would have changed is the separation of the data. Now, the researchers would have collected different data for each math class. These math classes consist of Math Lab available for Algebra and Geometry, Pre-College Mathematics, Algebra 1, Geometry, Algebra 2, Algebra 3, Financial Algebra, Honors Geometry, Honors Algebra 2, Honors Algebra 3, AP Calculus AB, AP Calculus BC, IB Math studies SL, IB Mathematics SL, and IB Mathematics HL. It would have been interesting to see what percentage of students in “low level” math classes liked or disliked the CC/CPM compared to the opinions of those in “higher level” math classes.

The next thing the researchers would change would be to separate the answers into responses given by those students in honors’ classes and those in non-honors. They would do this to see whether the CC/CPM affected the grades of non-honors’ students more than honors’ students or vice versa. Breaking the respondents down into grade level would also have painted an interesting picture. Would students who were at the end of their high school math careers be more resistant to and less accepting of change to the way in which math class operated? Or

would they like it? The same could be asked of 9th grade students. What about how boys and girls answered? Looking at the results from a gender angle could have also shed some light into why the CC and CPM are not (currently) well-received at WNHS. In the end, this would give the researchers more specific data.

The thing that worked best for the researchers was the teacher survey. This survey was long and gave teachers a lot to respond to, which, in turn, gave the researchers lots of useful information. The student survey certainly needed to be restructured. There was some confusion at the wording of the questions. In addition, some students even left answers blank.

Another thing that worked well was the environment and the setting and sample. This worked because WNHS is large, has many students, and offers many different math classes. In getting 851 student responses (or 61.7% of the population), the researchers are very confident that their findings accurately reflect the views of the entire student body. Had they had a smaller sample size (of only 30 or 40 students), or if they had surveyed only 9th graders, or surveyed only honors' students, then their findings would be incomplete and run the risk of being labeled "biased". The teachers teach a lot of different math classes, which allowed the researchers to collect data from people that are experienced with educating a diverse population.

The high completion rate of the teachers (only one teacher chose not to participate) was also very important to the validity of this C.A.R. project. All of the teachers that completed the survey put in a lot time and effort, as evidenced by their thoughtful and very thorough answers. Despite the controversial nature of the survey, the teachers were willing to take class time to have their students fill it out. This was crucial since the researchers could not have possibly surveyed every math student on their own time.

The topic was another thing that worked well for the researchers. The CC/CPM is a hot-button issue. The switch to CC in many states happened within the past few years. Some states (like Indiana and Michigan) that once embraced the CC have since backed off their glowing endorsement. The state of Ohio just began implementing the CC last year and this year, which allowed for the researchers to get fresh and current opinions about the CC.

What surprised the researchers in this process was that most teachers said that they liked the CC/CPM, but most students said that they did not. The dissimilarity between these two answerers shows the perception of how students learn is different between students and teachers. Teachers believe that students should learn one way, while students are more comfortable learning a different way. While this may be the way it has always been – with teachers and students (and administration and parents) disagreeing over the best approach to delivering instruction, the CC/CPM has really brought this debate to the forefront.

This project was very important to the researchers – especially since they are current WNHS students enrolled in math classes using CC/CPM. Their Literature Review and survey results showed them that there are many sides to the CC/CPM. From their own experiences, the researchers have seen how opinionated, how defensive, and how angry students, teachers, and parents get when discussing the CC/CPM. It is a very real issue – and one that is not privy only to math. There is CC for English classes that is in the implementation phase, and there are writing components of the CC embedded in the new Social Studies curriculum. The biggest take away from this research is that students, in general, are confused about the difference between CC and CPM. However, what is consistent is the fact that their dislike of CC/CPM centers on the group work component. As battle lines continue to be drawn across the U.S., it is clear that the

CC is here to stay... for now. Or is it? After all, how did that whole "New Math" approach in the 1980s pan out?

Action Plan

The researchers think that future researchers should address the difference in opinions between teachers and students. The data collected showed that teachers were more pro-CC, while students leaned more toward disliking the CC. Future researchers should find out why this is and how the opinions of teacher and students could become more similar.

The researchers would like to see this project be used to amend the CC. Future research needs to delve deeper into the nitty-gritty specifics that have teachers and students on opposite sides of the CC spectrum. How can the CC be tweaked so it can be more likeable for both parties? This way the students and teachers could end up having the same or similar perspectives. Doing so would help improve how both groups perform. This means that teachers could teach more effectively and students could learn more effectively. If teachers and students could learn and teach more effectively and efficiently, then this would help both groups function better together. As it stands, the more and more teachers advocate the CC or use the CPM method, they run the risk of students digging in their heels and refusing to embrace the changes.

In reviewing the research question, which stated: *“To what degree do students and math teachers at Westerville North High School understand and accept the new math Common Core State Standards?”*, the researchers feel they were extremely successful in drawing the conclusion that the Math Department knows a lot about the CC and likes it. Students, on the other hand, are confused by the CC and, in the end, dislike it. Future research that broke down student opinions by age, race, gender, grade level, and math class would be fascinating and could really pinpoint what subgroups of people like or dislike the CC.

Additional research needs to be conducted concerning the CPM method. There was a lot of confusion displayed by the students on their surveys about the difference between CC and

CPM. Over half of respondents claimed they were not in a class that used CPM, but their answers indicated that they actually were. The same percentages held true for those that said their class did not follow the CC when, in fact, it did. As such, the researchers could not confirm whether or not the students' negative view toward the CC was at the actual new math curriculum (in terms of what was being taught) or if it was toward the way in which it was being taught (via the CPM).

The researchers would also like to see their project replicated on a much larger scale. While their C.A.R. project examined one high school in Westerville, there are still two other high schools in the city. And this is just one suburb of Columbus. What if you were to survey students in every high school in Ohio? What if you did this for every high school in the U.S.? States that have fully implemented the CC could be compared to states that have gotten rid of the CC or who have not adopted it. Future research should compare test results from two different states, one with CC and one with the "old" curriculum. They should also compare this on a global scale to see if the U.S. is still falling behind mathematically compared to other countries.

Overall, the researchers would like to see whether the CC is really effective. They would also like to see if the opinions between teachers and students could change to become more similar. If the CC was proven ineffective, then the researchers would like to see if the CC could be improved in any way to make up for its shortcomings. The researchers would also like to see what impact the CC/CPM has on college readiness. Are students that go through a CC curriculum more or less prepared for college math? How many have to take remedial courses after arriving on campus? How do college professors view CC-prepped students compared to ones they have had in the past? What about students that become accustomed to "group work" math classes thanks to the CPM? How do they function when they get to college? In continuing

the examination of scores, what impact does the CC have on standardized test scores compared to the “old” curriculum? What impact does it have on individual classroom scores? They would like to compare the results between a class using CC/CPM with a class learning through traditional standards.

With future researchers finding the answers and the data to these proposed extensions of this C.A.R. project, then action should be taken to create a better math curriculum if the CC/CPM proves to be ineffective. If it proves effective then the states that dropped the CC should change their curriculum back to the CC, and all other states should adopt it. Of course, the gathering of such a magnitude of data is time consuming, tedious, and exhausting. Getting classified test grades from other states and countries could be problematic. Also, getting accurate (and fair) scores between states might prove difficult if the CC/CPM was not implemented on or around the same time.

In the end, this was just one project conducted in one high school in one state. While the results were very conclusive – and a lot of stock can (and should) be taken from the Data Analysis – there is certainly room for expansion. Additional research into the opinions of the CC and CPM by students should be broken down by age, race, gender, grade level, and math class. The impact of the CC/CPM on standardized tests, on college math readiness/performance, and on the growing rift between students and teachers needs to be examined further. Only then can there be a definitive endorsement – or damnation – of the CC. In the meantime, let us hope our nation does not get lost in the labyrinth that is the Common Core.

Annotated Bibliography

“ABCs of the Common Core in Ohio” *StateImpact*. NPR Member Stations, n.d. Web. 12 Mar.

2014.

This reading was a factual presentation of the Common Core, and, as such, did not present an opinion. The Common Core is a set of expectations that students will have to meet in math and English for each grade level. New tests will replace Ohio’s previous standardized tests and will be given on computers. The Common Core was developed by teachers and math and language experts and included district superintendents and state governors.

Arevuo, Eva. “Why We Support The Common Core.” *Engine* . n.p. 25 Sep. 2013. Web.

5 Dec. 2013.

This reading was pro-Common Core. It put forth the idea that despite all of the criticism that Common Core is taking, it is a great step that many of the states have taken. The Common Core is preparing children for life after school by upgrading the quality of reasoning that is expected of students. Especially in math, there are new and better methods for figuring out how to do things. Even though this curriculum may be two years behind where students would have been on the “old” curriculum, it is still better than what we are doing right now. The old education system was failing. The article concluded that it is good that the new curriculum puts students in real life situations.

Bloom, Molly. “The Common Core Will Change High School Math Classes” *StateImpact*. NPR

Member Stations, 15 Feb. 2013. Web. 12 Mar. 2014.

This reading was more factual than opinionated and came across as relatively “neutral” in its tone. It discussed how the “old” math courses are going to be renamed. For instance, instead of a kid taking Algebra, Geometry, and Algebra 2 courses, that particular student might take CCSS Integrated Math 1, 2, and 3. The author ended by explaining that the Common Core attempts to address the question “When will I use this in life?” through its usage of “real” world problems and questions.

Bloom, Molly. "Core Questions: Do Kids Know or Care What the Common Core Is?"

StateImpact. Ideastream, 23 Oct. 2013. Web. 12 Mar. 2014.

This reading was "neutral" in its tone. The author examines whether students realize that they are getting a new curriculum - and if they even care. Melissa Cropper, the President of the Ohio Federation Teachers, says that her kids probably do not know nor care about Common Core, but that after they get used to it will like the changes. Steve Barret, a superintendent, said that kids only know what Common Core is because their teachers started incorporating Common Core-styled wording and questions into their routines (with words like "Common Core Problem").

Bloom, Molly. "Eight Must-Read Posts on the Common Core in Ohio." *StateImpact*. NPR

Member Stations, 14 Oct. 2013. Web. 12 Mar. 2014.

This reading was more factual than opinionated and came across as relatively "neutral" in its tone. This article basically goes through eight facts about the Common Core. These are: 1. *Common Core is the next big thing*; 2. *Ohio students will spend more time taking tests because of it*; 3. *Many people don't like the Common Core and they said they never had a say in the adoption process*; 4. *There are three types of people who oppose Common Core*; 5. *Anti-Common Core people do not like the fact that the Common Core is not tailored to the individual states*; 6. *Common Core math is supposed to answer questions like: "When am I ever going to use this?"*; 7. *Common Core does not ban learning from classics*; and 8. Almost two out of three Americans have never heard of – or do not understand - the Common Core State standards.

Bloom, Molly. "See How Quickly the Common Core Debate Has Shifted in Ohio." *StateImpact*.

NPR Member Stations, 25 July 2013. Web. 12 Mar. 2014.

This reading was "neutral" in its tone. The author merely presented facts that some states that had implemented the Common Core are having "buyer's remorse" and are questioning their rush to implement this new curriculum. The states of Indiana and Michigan have put the new Common Core curriculum "on hold" in their borders. Because Ohio is "up next" in terms of implementation, the Common Core's effectiveness – and how it was shut down in neighboring states – will continued to be debated for the foreseeable future.

Chang, Kenneth. "With Common Core, Fewer Topics but Covered More Rigorously". *NY Times*.

NY Times. 2 Sep. 2013. Web. 15 Dec. 2013.

This reading was anti-Common Core. It started right off by declaring that if the Common Core State Standards are adopted this year, then students will learn less. Kindergarteners originally learned patterns and numbers but now spend the majority of their time on numbers. Before the Common Core, each state had different standards. And while this resulted in some discrepancies from state-to-state and "math wars" between parents and teachers over which methods are better, the Common Core is not the answer.

Chiaromonte, Perry. "Common Core Critics Warn of Fuzzy Math and Less Fiction". *Fox News*. Fox News Network. 4 Sept. 2013. Web. 5 Dec. 2013.

This reading was anti-Common Core. It discussed concerns that the goal of the new Common Core curriculum is to get all students from across the country to hit the same *minimum* level of learning. There are now no truths: $3+4$ can now equal 11 as long as the student can explain how they got that answer. Stanford Professor James Milgram refused to sign off to the Common Core because he felt the Common Core intentionally made the new standards as non-challenging as possible. He feels that the Common Core does not do a good job of making individual thinkers out of children.

"Common Core Standard." *Dayton Public Schools*. n.p., n.d. Web. 12 Mar. 2014.

This was a webpage for the Common Core that was intended to be factual and not opinionated. The site states that the new focuses of math will be: application of mathematical ways of thinking to real world issues, major emphasis in early grades on the development of number concepts, an expectation of fluency with operations, a progression of learning of algebraic thinking (beginning in kindergarten), number operations and systems, geometry and statistics, and an emphasis at higher grades on mathematical modeling.

Felt, Kathy. "Why We Need CCSS Math". *MiddleWeb*. n.p. 6 Oct. 2013. Web. 15 Dec. 2013.

This reading was pro-Common Core. The developers that created the Common Core State Standards did so by looking at what students need for success in college and careers and then making such skills into standards. The "No Child Left Behind" law was not working very well. It was realized throughout the country that most students were doing "minimally proficient" in mathematics. This was because math used to only focus on skills and no focus as much on the understanding or application of math in the "real" world. The new Common Core testing will aim for more understanding rather than plugging in formulas.

Frenkel, Edward and Hung-His Wu. "Common Core Standards for Mathematics: The Real Issues" *Huff Post Science.*, 10 Oct. 2013. Web. 12 Mar. 2014.

This reading was anti-Common Core. It focused on three big issues facing the Common Core: math textbooks, assessments, and teacher preparation. Quite simply – there is a shortage of Common Core-aligned math textbooks. Next, when assessments are given to students who have not been immersed in a Common Core environment, how can they be tested on something that they have never learned and expect to get good results? Because this is new to teachers – and because of how rapidly it has been implemented – teachers are falling behind and become more and more stressed. These three – and very basic – issues need to be addressed before the Common Core can be successful.

Gallagher, Maggie. "Two Moms vs. The Common Core". *National Review.* n.p. 12 May 2013. Web. 15 Dec. 2013.

This reading was anti-Common Core. It discussed how the state of Indiana began the first state to retreat from the Common Core standards when Governor Mike Pence signed a bill suspending its implementation. Some parents saw that Common Core was actually lowering the standards in their child's school. One mom, Heather Crossin, noticed that her daughter was bringing home fewer and fewer math homework assignments than usual. The homework questions were very short and easy. Professor James Milgram of Stanford University said that the Common Core standards were "written at a very low level" and that they do not adequately reflect our current understanding of why the math programs." In short, the Common Core is dumbing down math education, and colleges are noticing.

Garellick, Barry. "A New Kind of Problem: The Common Core Math Standards". *The Atlantic.* n.p. 20 Nov. 2012. Web. 15 Dec. 2013.

This reading was anti-Common Core. It gave several examples of frustrated parents and their concerns over the "mental math" element of the Common Core. In their eyes, proficiency is at stake and runs the risk of being lowered. Instead of teaching multiplication tables, the Common Core standards want children to discover the knowledge for themselves. Parents of children that had always excelled in math, were now struggling. Students are now required to understand and explain their understanding of why $(2/3)$ divided by $(3-4)$ equals $(8/9)$ because $3/4$ of $8/9$ is $2/3$. This method delays when a child is learning this knowledge.

"Mathematics." Ohio Department of Education. *Ohio.gov*, 12 Mar. 2014. Web. 12 Mar. 2014.

This was a webpage for the Common Core that was intended to be factual and not opinionated. This site basically talks about how the new math Common Core standards began implementation during the 2013-2014 school year with the goal of full immersion by 2015-2016. Schools are strongly urged to start implementing these standards as soon as possible in order to acclimate their students to the standards.

Riley, Benjamin. "Innovation and Entrepreneurship in Education". *NewSchools*. n.p. 7 Aug. 2013. Web. 15 Dec. 2013.

This reading was pro-Common Core. Many teachers complained that the old assessments were not of high quality. The hope for the new Common Core State Standards is to put more rigor into the assessments that students take. On these revamped tests, students will now have to demonstrate their understanding of the subject. These new tests are more challenging, so it is not a surprise to hear that students are struggling. The new test scores should rise as everyone adjusts to the Common Core. If students test grades are not rising, the solution is not to abandon the Common Core. Rather, it is to revisit the tests themselves.

Wray, Jon. "My View: Why We Need the Common Core Standards." *Schools of Thought*. n.p. 20 Aug. 2012. Web. 12 Dec. 2013.

This reading was pro-Common Core. Each state in the country has developed their own standards for students. The Common Core is national so that if you are a teacher who has to move to a different state, your style of teaching will be accepted. If you graduate from Ohio, you do not have to worry about whether you have the skills or knowledge to get a job in a different state. But, some of these standards are unknown even to teachers. With the Common Core, everyone will be on the same page. This allows teachers to learn better – and be better.

The Appendix

Common Core Survey for Math Students

Collaborative Action Research Project for Dr. Hartnell's Honors' American History Class

Your answers will remain anonymous!
PLEASE BE HONEST WITH YOUR ANSWERS!

Math course(s) that you are currently taking: _____

1st Semester Grade: _____ Current Grade: _____

1. Did you do better 1st semester than you expected? Yes No Did the same

2. Are you doing better this semester than you expected? Yes No Doing the same

3. To your knowledge, does your current math class use the Common Core State Standards?

Yes No I don't know

4. To your knowledge, does your current math class use the College Preparatory Mathematics (CPM) approach to teaching?

Yes No I don't know

5. Briefly describe the manner in which you are "taught" the material:

6. Briefly describe the manner in which you are "tested" over the material:

7. How much do you know about Ohio's transition to the Common Core State Standards?

- I have a lot of knowledge about the transition to the Common Core.
- I have some knowledge about the transition to the Common Core.
- I have little knowledge about the transition to the Common Core.
- I have no knowledge about the transition to the Common Core.

LOOK HERE! If your math class utilizes the Common Core State Standards, please answer the questions below.

LOOK HERE! If your math class does NOT use the Common Core, then you are done with the survey and may turn it in.

LOOK HERE! If you do not know if your class uses the Common Core, quickly ask your teacher and then answer the questions below.

8. I believe that the Common Core State Standards have improved my learning in my math class.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

9. [For those who answer "agree" or "strongly agree" for Question #8] Please identify the reasons you believe the Common Core State Standards will benefit students. (check all that apply)

- The Common Core will help math teachers better prepare their students for college.
- The Common Core will help math teachers better prepare their students for the work force.
- The Common Core will help math teachers focus on what's most important.
- The Common Core will ensure that a high school diploma has meaning.
- The Common Core will provide students a clear understanding of what they must know to succeed.

10. [For those who answer "disagree" or "strongly disagree" to Question #8] Please identify the reasons you believe that the Common Core State Standards will not benefit the majority of students. (check all that apply)

- Our current state standards are better than the Common Core.
- The Common Core is too tough for many students.
- The Common Core excludes important concepts that students should learn.
- The Common Core embraces a "one size fits all" approach that does not help.
- The Common Core does not provide teachers the flexibility to help students who are behind.

11. The Common Core State Standards are good for Westerville City Schools.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

Common Core Survey for Math Teachers

Collaborative Action Research Project for Dr. Hartnell's Honors' American History Class

Name (optional): _____

If you provide your name, may I contact you for an interview? Yes No

Courses that you teach: _____

Introductory paragraph:

Thank you for taking the time to complete this survey. I am administering this survey to better understand how educators are receiving the Common Core State Standards ("Common Core").

Your feedback is greatly appreciated!

Objective 1: Awareness of the Common Core

1. How much do you know about Ohio's transition to the Common Core State Standards?

- I have comprehensive knowledge about the transition to the Common Core.
- I have some knowledge about the transition to the Common Core.
- I have little knowledge about the transition to the Common Core.
- I have no knowledge about the transition to the Common Core.

2. Have you read the Common Core State Standards that relate to your grade and subject area?

Yes No

For Question #3, please choose the answer that most closely reflects your opinion.

3. I believe that the Common Core State Standards will lead to improved student learning for the majority of students I serve.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

4. [For those who answer "agree" or "strongly agree"] Please identify the reasons you believe that the Common Core State Standards will benefit the majority of the students you serve. (check all that apply)

- They will help educators better prepare students for college.
- They will help educators focus on what's most important.
- They will help educators better prepare students to compete in the workforce.
- They will ensure that a high school diploma has meaning.
- They will provide educators a manageable amount of curriculum to teach in a school year.
- They will give students the opportunity to master key competencies, rather than just being superficially exposed to them.
- They will help my school system ensure that our standards are vertically-aligned from kindergarten through grade 12.
- They will provide students a clearer understanding of what they must know in order to succeed.
- Other: _____

5. [For those who answer "disagree" or "strongly disagree" to #3] Please identify the reasons you believe that the Common Core State Standards will not benefit the majority of students you serve. (check all that apply)

- Our current state standards are better than the Common Core.
- The Common Core are too rigorous for many students I teach.
- The Common Core excludes important concepts that students should learn.
- The Common Core embraces a "one size fits all" approach that will not help many students I teach.
- The standards do not provide educators the flexibility needed to help students who are not on grade level.
- Other: _____

6. How would you describe the difference between the state's current academic standards and the Common Core State Standards?

- The Common Core are more demanding and raise expectations for student learning.
- The Common Core are pretty much the same.
- The Common Core are less demanding and lower expectations for student learning.
- I don't know.

7. Do you feel prepared to teach the Common Core State Standards?

- Yes, I feel completely prepared.
- I feel somewhat prepared.
- No, I do not feel prepared at all.
- I do not know if I'm prepared.

8. [If "no" or "I don't know"] What would help you feel prepared to teach the Common Core State Standards? (check all that apply)

- Access to curricular resources aligned to the Common Core
- Access to assessments aligned to the Common Core
- More information about how the standards change what is expected of my instructional practice
- More information about how the standards change what is expected of students
- Other: _____

Objective 2: Understanding of the Common Core

1. The Common Core State Standards for math can also apply to other subject area teachers, related to their work to develop students' mathematical understanding and practice. As you reflect on your teaching in your subject area, please answer the questions below.

To what extent do you believe the following practices are important to improving student learning?

	Very important	Important	Somewhat important	Not important	I don't know
Structuring class time for students to develop procedural skill and fluency in core operations (such as multiplication tables) so they can understand more complex topics					
Exposing students to a wide range of math topics within each grade level in preparation for their future learning					
Connecting student learning within and across grades so learning builds on foundations built in previous years					
Providing opportunities for students to apply math concepts to "real world" situations					
Maximizing student learning by teaching effective mnemonics and recall strategies as alternatives to conceptual understanding					

Objective 3: Satisfaction with Common Core

1. Have you accessed any of the following resources about Common Core implementation? For those that you have accessed, please rate their quality.

Resources	Accessed?	How helpful? (1= very helpful; 4= not helpful)
Department Webinars	Y/N	1 2 3 4
Website	Y/N	1 2 3 4
Department Professional Development	Y/N	1 2 3 4
Regional Service Centers	Y/N	1 2 3 4

2. [If yes on website question above] When you accessed the Department's website, what information were you looking for? (check all that apply)
- Link to the specific standards
 - Instructional materials aligned to the standards
 - Reminders about implementation timeline
 - Links to supplemental materials (e.g., curriculum guides, exemplars from other states)
 - Fact sheets, talking points, or powerpoints to pass on to staff, parents, the public about Common Core
 - Powerpoints of specific Common Core webinars to review or adapt for redelivery
 - Other: _____
3. Please identify which, if any, of the following activities/resources have been made available to you. (check all that apply)
- Collaborative planning time dedicated to understanding and deconstructing the Common Core State Standards
 - Collaborative planning time dedicated to aligning curriculum to the Common Core
 - Content-focused trainings on the Common Core
 - Lesson plans aligned to the Common Core
 - Job-embedded training or coaching focused on Common Core implementation
 - Resources on research/best practice in Common Core implementation
 - Professional learning community focused on Common Core implementation
 - Other: _____
 - None of the above
4. Have you participated in professional development/training on the Common Core State Standards? Yes No

5. [If yes] How would you describe those professional development/training opportunities? (check all that apply)

- One-day training opportunity
- Multi-day training opportunity
- Online webinar or video
- Job-embedded training or coaching within my school
- Professional learning community (PLC)
- Other: _____

6. [If yes to #4] Who provided the training? (check all that apply)

- A staff member from my school or district
- A professional development provider brought in by my school district
- The Department of Education
- An independent professional development provider
- Other: _____
- I don't know

7. [If yes to #4] Choose the answer that most closely reflects your opinion.

In general, the Common Core training I have received has been of high quality. I have learned a great deal of information that has helped me improve my practice.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- I don't know

Objective 4: Communication

1. Is there a staff member in your school or district who has been identified as a resource on the Common Core State Standards for teachers? Yes No I don't know

2. Of the following sources that provide information on the Common Core State Standards, which do you trust? (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Online or print news media | <input type="checkbox"/> State department website |
| <input type="checkbox"/> School district newsletter, website, or emails | <input type="checkbox"/> School principal |
| <input type="checkbox"/> Fellow teachers | <input type="checkbox"/> District administrator |
| <input type="checkbox"/> Professional associations | <input type="checkbox"/> National website |
| <input type="checkbox"/> Other: _____ | |

Objective 5: Challenges to implementation

1. What do you believe are the top two challenges with implementing the Common Core State Standards in your school or district? (check up to two)

<input type="checkbox"/> Students' prior knowledge	<input type="checkbox"/> Need more aligned textbooks and materials
<input type="checkbox"/> Need more information about the standards	<input type="checkbox"/> Need more parental involvement
<input type="checkbox"/> Need more formative assessments aligned to the Common Core	<input type="checkbox"/> Need a state assessment aligned to the Common Core
<input type="checkbox"/> Need more quality professional development	<input type="checkbox"/> Need more time to help all students really learn the standards
<input type="checkbox"/> Need more time to collaborate with my colleagues	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Need more funding	

Objective 6: Changes in classroom practice that result from Common Core

1. Have you incorporated the Common Core State Standards into your teaching expectations and practice?
 - Yes, I've fully incorporated the Common Core into my teaching expectations and practice.
 - I've incorporated the Common Core in some areas of my teaching, in other areas I have not.
 - No, I have not incorporated the Common Core into my teaching expectations or practice.
 - I don't know.
2. [For those that responded to #1] What changes are you making to your teaching practice as a result of the Common Core State Standards? (check all that apply)
 - Incorporating new curricular materials and instructional strategies in my teaching
 - Asking students more questions and encouraging them to develop answers independently
 - Structuring opportunities for students to develop and solve their own problems
 - Increasing my use of national resources on teaching
 - Diversifying the ways I assess student learning and provide feedback
 - Increasing my collaboration with colleagues within my school and in other schools
 - Other: _____

3. My understanding of the effective practices to teach of the Common Core State Standards will help me differentiate instruction to meet the unique needs of my students.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

4. The Common Core State Standards will require that I change the way I incorporate instructional technology into classroom learning.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

5. The Common Core State Standards will help me know what content to teach my students and in what sequence to teach it in order for them to fully master key competencies.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

Thank you for completing this survey! Please place it in the envelope with the rest of your student's responses and place the envelope in Dr. Hartnell's mailbox.

If you provided your name, I will ask Dr. Hartnell to contact you to make arrangements for me to follow up with any of your answers.