

## Culminating Learning Project

### 1. Engage the workgroup

Briefly describe the composition of your program improvement workgroup.

Checklist	Response
<ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> I identified the number of staff on the workgroup.</li> <li>2. <input type="checkbox"/> I described the positions of the staff on the workgroup</li> </ol>	<p>The work group is comprised of 5 staff members from Cincinnati Public Schools ABLE Program. Debbie Mullins, Senior Support Specialist whose primary responsibility is to manage the ABLELink process. Debbie's role as a member of the work group is to assist with data collection and interpretation. Kathleen Foster, Intermediate Math and Reading Language Arts Instructor. Ms. Foster's primary role is to identify students in the intermediate math class who have not mastered the essential math computation skills needed to successfully master intermediate level math. Alexa Noel is the staff member chosen to facilitate the piloted Math Essentials 6 week managed enrolled basic math class. Rachel Baker-Lawson, Computer Lab Coordinator who assists students as they work independently in the computer lab.</p> <p>I am the 5<sup>th</sup> member of the workgroup as the Transitions, Recruitment and Retention Coordinator, my role is to identify students during the orientation process who are good candidates for the Math Essentials Class.</p>

**2. Identify the program component to target for program improvement**

List the program components that need attention that you identified from self-assessments, research review, and data analysis. Indicate the ONE program component that the workgroup selected to target in your pilot project.

Checklist	Response
1. <input checked="" type="checkbox"/> I listed the needs identified by the self assessments.	<p>Needs identified in self-assessment: Teachers identified the need for professional development around classroom technology options and training to increase knowledge of assessment design that reflect a balance of rigor and comprehensive information about students in multilevel classroom. Teachers identified the barrier that ELF 2-4 students encounter in math instruction is insufficient mastery of basic math skills, i.e. addition, subtraction, multiplication, division. The TABE may often indicate mastery of these skills; however, they are unable to perform basic computation and application within the classroom.</p> <p><b>Needs identified in research review:</b> According to research many adults lack fundamental math skills. A specific skill called number system knowledge which refers to the ability to conceptualize a numeral as a symbol for a quantity and understand systematic relationship between numbers. The research also shows that one in five adults in the U.S. lack the math competencies expected of an eighth grader, according to the U.S center for Educational Statistics. Schools report that 54% of high school graduates were not prepared to enter college level math classes and would instead be scheduled to use grants, scholarships and student loans to pay for non-credit bearing classes. (Business Insider April 5, 2013)</p> <p>This research is supported by an article from 2013 which states that in 1999 about half 13 and 17 year olds could accurately compute fractions. These students enter high schools as remedial math students. Many of these students leave high school without having gained the necessary skills to succeed in college level math classes. The research also shows that the transcendence part (why do it, its meaning and relevance) of teaching basic math skills has been the weakest link in teaching math competencies. Yet, for adult learners this part is most important. Lastly, and perhaps most importantly to the students in our service area is the research that show that the</p>
2. <input checked="" type="checkbox"/> I listed the needs identified by the research review.	
3. <input type="checkbox"/> I listed the needs identified by the data analysis.	
4. <input type="checkbox"/> I listed ONE of those needs for us to use in the pilot.	

lack of progress in computation skills has disproportionately affected African-American students.

**Needs identified through data analysis:** The data showed that more than 60% of students who are enrolled in the program enter with EFL levels 2-4 in math. According to the attendance rosters from managed enrolled intermediate and advanced math classes, students repeat their current level curriculum 2 to 3 times before progressing to a higher EFL. Another critical piece of data is that 70% of our students are African American which according to research is the population that has been disproportionately affected by lack of basic math skills.

**Prioritized need or program component:** The program need that seems most critical at this time is a math class that allows students to focus on the basic math computation skills needed for success in college, career, and everyday life. Students will not be equipped to advance academically without first mastering basic math. We understand the importance of basic mathematics to improve readiness for college and career; therefore, Our mission is to prepare students to be successful at home, at work, and in everyday life. As stated in the research review transcendence (why do it, its meaning and relevance) of teaching basic math skills has been the weakest link in teaching math competencies. Yet, for adult learners this part is most important.

The workgroup believes that students will experience higher levels of confidence as their ability to master basic math skills increases. Increased confidence will lead to an overall more positive classroom experience, increased hours of participation and ultimately more advanced math competencies.

Briefly describe the process used to select the targeted component, as well as the process used to identify the parts of the targeted program component that you want to keep and the parts that need new strategies.

Checklist	Response
<p>1. ___ I described the process the workgroup used to narrow the needs down to the one program component to be used in the pilot.</p> <p>I described how we examined the current program component to identify:</p> <p>2. ___ what we are doing now that we want to keep, and</p> <p>3. ___ what parts of the program component that need new strategies.</p>	<p>The work group collected FY 2014 attendance rosters and TABE scores from managed enrollment intermediate and advanced math classes examined and discussed the attendance policy, the pace and rigor of the course curriculum.</p> <p>The workgroup met to discuss the Students' need for more opportunities to see the value of mathematics and to experience success in applied mathematics to improve their beliefs about its value and their ability to master the basic computations. The group also brainstormed strategies for creating classroom experiences that would meet this need.</p> <p>The workgroup examined the current class schedule, the attendance rosters, and the curriculum currently being used in the intermediate math class. We decided the intermediate and advanced math classes currently offered are going well. The curriculum in both intermediate and advanced level classes are working well for students who have mastered their basic math skills.</p> <p>One strategy is to utilize technology to personalize instruction for students. One affordance of the use of technology applications is that students are able to understand and visualize mathematical ideas more easily. Students can take ownership of their learning as they are able to monitor their progress and check their own work without the assistance of a teacher.</p>

**3. Set a vision and goals**

Vision: Math Essentials Class will be working well when...

(Fill in the program component you are working on)

Checklist	Response
<p>1. ___ I described how I engaged the staff in completing the vision statement.</p> <p>2. ___ I included the final vision statement.</p>	<p>The New Student Orientation staff will examine each student's TABE diagnostic profile to determine the students who have not mastered the basic math skills of addition, subtraction, multiplication and division. The orientation staff will create an individualized learning plan which places students in the Math Essentials Class, if needed.</p> <p>The Math Essentials class will be working well when the Math Essentials teacher has created lesson plans that include the use of technology and manipulatives to encourage innovative strategies to master basic math skills, when students are able to accurately and confidently compute addition, subtraction, multiplication, and division. When students are able to work cooperatively and independently to build the essential math skills needed to progress to intermediate and advanced level of math computation.</p> <p>The Math Essentials Class will maintain an environment that supports slowly conquering fear of math and technology allowing lower EFL math student to confidently master the basic math technology skills needed to advance in the program and in life.</p>

## LEADERSHIP EXCELLENCE ACADEMIES

Goals: When we are finished, we will have achieved the following...

Checklist	Response
1. ___ I described how I engaged the staff in anticipating achievements  2. ___ I included that list	The Queen City Vocational staff will be engaged in the following ways: <ul style="list-style-type: none"> <li>• Math Essentials Teacher engages in quarterly conferences on class and student goals, benchmarks, curriculum, and innovative teaching strategies.</li> <li>• Technology/Computer Lab Coordinator will present strategies and resource for instruction.</li> <li>• ABLELink Support Specialist will conference to answer questions and provide entry, progress, exit, and attendance data.</li> </ul>

Evaluation criteria: What evidence will you collect to determine if you meet your goals? Identify each of the end user groups and the evidence each end user group identified as evidence they would need to convince them to use the new strategy.

End User	Evidence to Collect
Teachers	Daily sign-in sheets, pre and posttest, and TABE scores, student portfolio, ITTS diagnostic reports.
ABLELink Support Specialist	Monthly report, entry, progress, exit, and attendance data
Checklist	
1. ___ I identified each of the end users (e.g., teachers, tutors, aides, managers) who will be using the new strategies.	
2. ___ I solicited from each group the evidence they would need to convince them the new strategy worked, and I included each piece of evidence identified.	

#### 4. Gather and select promising practices

Briefly describe where you looked for models or strategies that would address your targeted component.

Checklist	Response
1. ___ I identified all of the sources we explored to find models and strategies that address our program improvement component.	The work group's central focus was to find strategies that support students working on lower level math concepts to build self-efficacy, confidence, and to improve numeracy skills. The work group found several websites that were especially helpful when developing activities, and developing curricula. Namely, <a href="http://www.doe.mass.edu/acls/frameworks/resources.html">www.doe.mass.edu/acls/frameworks/resources.html</a> Ohio Literacy Resource Center <a href="http://www.engageny.org/resource/mathematics-fluency-support-grade6-8">www.engageny.org/resource/mathematics-fluency-support-grade6-8</a> MAP.mathshell.org NCSALL <a href="http://www.tcall.tamu.edu">www.tcall.tamu.edu</a> <a href="http://www.gcflearnfree.org">www.gcflearnfree.org</a> The resourced listed above provided helpful research and strategies.

Briefly describe the strategy, procedure, or practice that the workgroup selected to pilot. Include a description of any adaptations that were made to make the strategy “fit” your program.

Checklist	Response
3. ___ I included a description of the new strategies selected to pilot test.	Initially the work group decided to address the need for an intervention for students who struggled to comprehend lower level mathematic concepts. The work group decided to create a Math Essentials class. The purpose of the class was to create an environment where adult students who struggle with significant numeracy deficiencies would upgrade and practice basic skills. The objective of the Math Essentials class was to develop an environment that allows students to focus on the basic math computation skills needed for success in college, career, and everyday life. The class was structured the same as the program's Pre-Bridge and Bridge class. It was presented as a managed enrolled, 6 week, large group, teacher lead, 1 hour class. The work group quickly realized the need to make adaptations to the structure of the class. Students did not respond favorably to working in a large group. Also, the varying degrees of ability presented a challenge and caused frustration among the students. The teacher noticed that students seemed gravitate to peers who possessed the same mathematical challenges; forming organized work groups differentiated by skill set. As a result, the structure of the class was adapted to accommodate the students' small groups. The class facilitator created various work station with activities created to engage different lower level mathematic concepts. A second adaptation made to the math Essentials class structure is the use of technology in the classroom. The entire class engaged in Technology Tuesday. Each Tuesday all students checked out a laptop and chose from a list of interactive math learning activities. The work group noticed that
4. ___ I included a description of the adaptations we made to the new strategy and the rationale for those adaptations.	

	<p>students, who were not interested in using the technology, chose instead to miss class or went to the bathroom for 20 minutes to avoid participating. This observation led to another adaptation in the structure of the class. The work group decided to create a technology work station which allowed students who were interested in using the laptop.</p> <p>The final adaptation made to the math Essentials class evolved out of the Decreasing number of students needing to upgrade their essential math skills. The work group noticed that there is not a need for an ongoing class. However, student who struggle did benefit from the small, cooperative learning environment provided in the Math Essentials class. Therefore, the class was changed to the Math Essentials Lab (MEL). A working lab allows students to work independently or in a small group and to choose the area and content area where they need the most remediation.</p>
--	---

### 5. Develop a pilot testing plan

Describe the process that was used to select the pilot sites - what characteristics did you consider in the selection process?

Checklist	Response
<p>I included a description of:</p> <p>4. ___ who was involved in selecting the pilots</p> <p>5. ___ the criteria and rationale we used for selecting the pilots.</p>	<p>The program manager along with the work group convened to discuss the best location for the pilot.</p> <p>The selection of the pilot was based on the following criteria:</p> <ul style="list-style-type: none"> <li>• Classroom availability</li> <li>• Access to technology</li> <li>• Staff availability</li> <li>• Student need</li> </ul> <p>The work group decided to pilot the Math Essentials Class at the main site. The main location has the most access to technology; it is also the largest site which provides the classroom space needed to create an environment where students working on lower level math skills can do so without fear of judgement.</p> <p>The main site is the location where new student intake is facilitated which gives intake staff an opportunity to identify student who would benefit from the Math Essentials class.</p>

What type of training was necessary for the pilot sites? Describe how this was provided.

Checklist	Response
<p>I included a description of:</p> <p>6. ___ the training that was necessary to get the pilot sites up to speed</p> <p>7. ___ who delivered the training</p>	<p>The teacher who facilitated the pilot needed brief training in the area of technology. The math essentials curriculum utilized Mimeo and Lenovo laptops during individual lab.</p> <p>The training was facilitated by in house staff who is proficient with the technology.</p> <p>Also, the Math Essentials teacher was chosen specifically for her experience with working with lower level student and because she has been trained in Learning to Achieve.</p>



## LEADERSHIP EXCELLENCE ACADEMIES

Complete the chart outlining your interim benchmarks, activities, timeline, and responsible parties for planning, implementing, and evaluating your pilot project.

Interim Benchmarks	Activities	Completion Date	Lead Person Responsible for the Activity
Planning	Create Curriculum	July, 2015	Math Essentials Teacher
	Identify Staff	July, 2015	Program Director
	Develop a process for identifying and scheduling appropriate students in MEL	August, 2015	Transitions coordinator
	Restructure main site presentation of student experience model to allow time to meet with students most likely to benefit from MEL	August, 2015	Transitions Coordinator
Implementing	Identify students and create student schedule highlighting MEL	August, 2015	Transitions coordinator
	Facilitate classes, coordinate activities	November, 2015	Math Essentials Teacher Transitions coordinator
	Monitor pilot progress	November, 2015	Math Essentials Teacher Transitions Coordinator
	Administer assessments	November, 2015	Math Essentials Teacher
Evaluating	Collect, report, and analyze data points	November, 2015	Math Essentials Teacher Support Staff/ABLE Link Specialist
	Create Individualized Transition Plan	August, 2015	Transitions coordinator Math Essential Teacher
	Create and conduct student survey and exit interview	October 2015 and November, 2015	Transition coordinator

What were your primary financial expenditures for the pilot project?

Expenditure Category	Cost
20 Lenovo tablets with docking station cart	\$18,712
Please Note: The tablets are primary used in the Math Essentials Lab.	
However the tablets are also widely used in all other classes.	

## 6. Select and prepare the pilot sites

Briefly describe the process you used to prepare the pilot sites to implement the new strategy or procedure.

Checklist	Response
<p>I included a description of:</p> <ol style="list-style-type: none"> <li>1. ___ initial meetings I had with pilot sites to explain their roles and responsibilities</li> <li>2. ___ consultants or other staff used as a resource to support the pilot staff</li> <li>3. ___ any incentives you provided to pilot staff to encourage and/or reward their participation</li> <li>4. ___ how you made sure that pilot staff knew the evaluation criteria and data they would need to collect to determine impact.</li> </ol>	<p>Initially, the entire workgroup met with teaching staff and support staff during a monthly meeting held at the site participating in the pilot project (main site). The purpose of the first meeting was to inform the entire staff of the vision, purpose, and plan for the pilot project. Each staff who planned to participate introduced their part in the planning and implementation of the pilot.</p> <p>Thereafter, Communicating the needs, processes, pilot implementation date, and evaluation process to the individuals participating in the pilot project was accomplished primarily through email and at monthly site meetings.</p> <p>There were no incentives provided to staff.</p> <p>The data collection and evaluation of pilot effectiveness was explained individually to the staff responsible for collecting the data. The participating staff members were given lesson plans, sign in sheets, MEL (Math Essentials Lab) skills checklist and other data collection tools as well as a short one-on-one-tutorial to ensure that all information was properly documented and reported in a timely manner. Teachers were also encouraged take note of qualitative data collected during conversation with students or among student conversation with regard to attitudinal changes.</p>

## 7. Conduct the pilot, measure the impact, and develop/fine tune PD and resources

Briefly describe the results of your pilot project based on your evaluation criteria for each end user group.

Checklist	Response
<p>3. ___ I included an overall narrative of the results of the pilot.</p> <p>4. ___ I included results based on the end users' evaluation criteria.</p>	<p>The Math Essentials pilot began in late August 2015 as a 6 week managed enrolled class for students to focus on mastering basic numeracy skills. The curriculum was designed to engage students in fun, interactive, hands-on learning. The curriculum was research based and developed from the why and how students learn perspective rather than the how and why teachers teach perspective. The curriculum focused on numeracy skills that students need to function more successfully in everyday life and were taught in a way that allowed them to develop efficacy and confidence in their ability to learn, master, and utilize basic math skills.</p> <p>The number of students to participate in the Math Essentials class/lab was 20 students. The 20 students who participated were enrolled in the program as evidenced by having 12 or more hours of attendance. The criterion for participation in the pilot was a TABE scale score between 314-506 and deficiency in any of the following areas: addition, subtraction, multiplication, and division.</p> <p>Students were given an entry TABE to verify their fit for the polite and their ILP was updated to create a current snapshot of mastered and non-mastered math skills. The students were given an overview of class objectives and classroom policies. Followed by a pre survey and goal setting activity.</p> <p>The first six week session concluded with 48% of the students making a gain and moving up a full functioning level. Many of these students were advanced to Pre Bridge math class. During their face to face exit interview these students reported the variable having the most impact on their progress was learning in a student friendly, hands-on environment that was different than the “drill and kill model” from grade school.</p> <p>In the second six week session, attendance began to decrease. The decrease prompted the work group to consider making adaptations to the class structure. The second six week session underwent a few changes. The blended model of direct small group instruction and hands-on learning lab was utilized during the second six week session of the pilot. The student seemed to respond favorably to this change as evidenced by the retention of student participation. Approximately thirty-percent of the students who participated in the pilot repeated the cycle before moving on to the pre-bridge class.</p> <p>In conclusion, one of the most impactful observations is the link between low reading and low math skills. Several students did not realize academic gains in math until their low reading skills were addressed. Once the low reading skills were address students almost immediately</p>

	<p>experienced incremental gains. Overall, teachers credit the students' progress in part as a result of their shift in perspective from "how will I teach this, to how will the student learn this" and allowing students to interact with manipulatives to supplement the usual materials. Students credit their progress to instruction that is self-paced, individualized and offered through a wide range of modalities. The blended model of direct instruction offered in small groups and hands-on, interactive technology based learning have not only allowed students to overcome their fear and aversion to learning math; but to also go further in their mathematical knowledge than they thought they ever would.</p>
--	--

What changes, if any, would you make before you implement the new strategy program-wide?

<b>Checklist</b>	<b>Response</b>
<p>5. ___ I included a description of specific changes I needed to make before implementing program-wide.</p>	<p>There are two changes I would consider making before implementing the pilot program-wide. The first would be a change in scheduling the Math Essentials Lab. Originally the Math Essentials lab was offered Monday-Thursday from 9:15 am to 10:30 am. Each Tuesday, was named Technology Tuesday because the teacher used some form of technology as a teaching aid. I would combine Technology Tuesdays and Math Essential Lab and dedicate two days during the week to hands on learning. This model would allow Monday and Wednesday to be teacher lead instruction days and Tuesday and Thursday to be student lab days. This change would give students an opportunity to engage with manipulative and/or to log onto websites where they may practice beginning math skills while playing math games, handling manipulative, or solving real-life problems using numeracy skills.</p> <p>Several of our satellite locations do not have the classroom space to dedicate to hands on learning lab, in this instance Math Essentials Learning Lab would be offered as a pop-up lab, where students would be given the manipulative and a mathematical problem to solve using only the manipulatives provided.</p>

### Final Reflection

Briefly describe what you learned from this program improvement project that will help you in future work.

Checklist	Response
<p>3. ___ I included an overview of what I learned from this project.</p>	<p>This project has been instrumental in various ways. From a macro prospective the process from beginning, analyzing data to determine need thru the final steps of implementation and evaluation allowed many opportunities to grow as a professional and a leader. Planning and implementing the pilot taught me the importance commitment to the vision and mission of programming and the continuous need for program improvement. In the world of education professional are constantly working to hit various benchmarks and targets. The process of improvement or change can seem constant and often times very daunting.</p> <p>On a micro level, this process has taught me to allow the data to drive the planning and to call upon staff to get engaged in the implementation process. I learned the importance of engaging all staff in the conversation, those who are directly involved as well as those who are not. The staff members who are not directly involved need to be aware of the implementation process as they may need to relay information to students and other stakeholders.</p> <p>I was reminded that the needs of our adult students are constantly changing, therefore, continuous observation of practice is warranted and allows the program to make small adjustments. For example, there were more students who needed basic math intervention during the fall semester of programing, because daily average attendance was higher at that time. Through ongoing observation of student participation and attendance the work group was able to determine that there had been a change in the needs of the student body. The work group could analyze the TABE score to determine that 60% of the student who participated in the managed enrolled class made an academic gain. Therefore, the work group could confirm a positive outcome.</p> <p>Lastly, I learned the benefit of flexibility and importance of reassessment. The work group, students, and teaching staff invested time and energy into making the pilot a success. During a debriefing meeting the work group discussed the value of the pilot despite the adaptations made and the fall-off of student participation. At the end of the pilot, students who experienced academic gains were able to transition to an advanced math class, and who experienced a boost in self-confidence and self-efficacy benefited greatly.</p>