QEP IMPACT REPORT

2015-2016

Cathy Ray
Wallace Community College

Table of Contents (revised 7/07/2016)

QEP Impact Report

Title and Brief Description of the QEP as Initially Presented The Wallace Community College Quality Enhancement Plan (QEP) emerged from a collaborative effort of College stakeholders, including faculty and staff members, administrators, students and the community. After much data analysis and stakeholder discussion, it was determined that a significant number of students who enrolled in Wallace Community College were underprepared for college mathematics and that these students would greatly benefit academically from a redesigned and restructured developmental math program. "Hooked on Outrageous Technology" (HOOT) was chosen as the name for the QEP and the slogan "we give a HOOT about mathematics" was selected as a promotional strategy.

The QEP called for a redesign of developmental math courses (MTH090, MTH091 and MTH092). A mastery learning approach was implemented using an Emporium-style learning environment along with a technology platform known as "Assessment and Learning in Knowledge Spaces" (ALEKS). Pedagogical modifications also included a flexible, self-paced program where students could move through the course material at their own pace allowing them to complete up to three courses (MTH 090, MTH 091 and MTH 092) in one term. This model would facilitate more remediation for students in need of additional assistance and would allow faster progression for students who were able to master topics more quickly. Students would complete assignments presented through the ALEKS program which was available to them in a classroom computer lab or outside of the classroom through internet access. Students could acquire assistance and understanding by studying ALEKS examples, viewing related videos, and/or requesting instructor or tutorial assistance on a one-on-one basis. Key components of the QEP included a notebook to assist with organizational and study skills, an ALEKS modular completion requirement of 80% before testing, mini-lectures focusing on key topics, and student satisfaction surveys to provide student input on the redesigned courses. The QEP would involve additional staffing to include lab directors, case workers, and peer tutors for both campuses (Wallace and Sparks). In addition, the Sparks Campus would require a remodel to accommodate QEP classes, and the Wallace Campus would require construction of a new facility to house the computer labs for the program.

Initial Goals

The central goal of the QEP was to improve student performance and success rates in developmental mathematics courses by redesigning Basic Mathematics (MTH090), Developmental Algebra I (MTH091) and Developmental Algebra II (MTH092) in order to improve student performance in MTH100. To achieve this goal the QEP focused on the following objectives:

1. To ensure that knowledge and skills learned in a developmental mathematics course are adequate for success in the gateway mathematics course, Intermediate Algebra (MTH100).
2. To establish programs and services to strengthen students' developmental mathematics skills and knowledge.
3. To implement tools, policies, and methods enabling students to improve their study behavior in mathematics courses.

Intended Outcomes

- Students' success rates for each redesigned course will meet or exceed national average.

- Students' success rates for each redesigned course will increase 5% annually from baseline statistics collected prior to redesign (2010-2011 fall and spring).
- The percentage of students successfully completing MTH100 in the first attempt will meet or exceed the national average.
- Students successfully completing MTH100 in the first attempt will increase 5% annually starting from the baseline statistics collected prior to the redesign (2010-2011 fall and spring).
- 100% of students will complete 80% of each module prior to moving to a subsequent module.
- Students enrolled in the developmental mathematics program will utilize the developmental math lab on average at least 1.25 hours per week.
- 80% of students will answer Satisfied or Very Satisfied to S^3 question #2 concerning satisfaction with sufficient staffing.
- 80% of students will answer Satisfied or Very Satisfied to S^3 question #5 concerning satisfaction with the benefits of supplemental resources.
- 80% of students will answer Satisfied or Very Satisfied to S^3 question #8 concerning satisfaction with their increased math confidence levels.
- 100% of students taking a module exam will complete at least 85% of the notebook for that module. To allow for "fast tracking," students scoring 80% or better on the initial module assessment are exempt from this requirement.
- 80% of students will answer Satisfied or Very Satisfied to S^3 question #7 concerning satisfaction with the improvement of their organizational skills.
- The completion rate in developmental mathematics courses will increase 5% annually from baseline data collected prior to redesign (2010-2011 fall and spring).
- The Persistence rate for each redesigned course will increase 5% each semester.

Changes made to the QEP and reasons for making those changes

A. The original QEP required comparison of success rates of developmental math students to national averages and to Wallace Community College averages for baseline data. The QEP team searched for national averages for developmental math success rates, but it became apparent that definable and comparable success rates were not available. A decision was made to use College success rate data as the baseline for comparison for the redesigned developmental courses and to analyze success rate improvements from the baseline success rates for developmental math students in MTH090, MTH091 and MTH092.

B. The original QEP called for the optional inclusion of MTH100 in the Emporium model during the fourth year of implementation. The first objective of the QEP was to ensure that knowledge and skills learned in developmental mathematics courses are adequate for success in the subsequent mathematics course. Since the implementation of the QEP, the success rates of students enrolled for the first time in MTH100 (the first subsequent math course) had increased from the baseline rate of 56% during the 2010-2011 academic year to 75% during the 2014-2015 academic year when MTH100 was scheduled for inclusion in the QEP model. The decision was made to delay the inclusion of MTH100, as success rates for that course were showing substantial improvement. Instead of fully converting MTH100 into the QEP model, the decision was made to treat MTH100 as a bridge course between developmental and college-level math courses. MTH100 students would use ALEKS for all homework and testing and would have instructor lectures with scheduled due dates for assignments and tests. Additional efforts were made to focus on improving the success rates of the MTH090, MTH091 and MTH092 courses as these rates were not consistently showing the level of improvement as evidenced in the MTH100 course.

C. Changes to specific components of the QEP were made based on student concerns, QEP survey results, and course success rates.

1. A course notebook was initially required in an effort to improve organizational and study behaviors in mathematics courses as well as across the curriculum. Students were required to complete sample math problems, access their textbook to answer questions, and keep notes in the notebook. In addition to the notebook, students were required to complete coursework in the ALEKS software program before testing to move to the next module in the course. It became apparent that time constraints would not allow students to complete the required notebook work and the ALEKS work during a given term. The notebook requirement was modified to require less time consumption while maintaining the intent of improving study behaviors. Students are now asked to maintain a notebook with tabbed dividers for the purpose of organizing instructor handouts, pacing guides, benchmark calendars, instructor goal sheets, ALEKS examples, notes, and student work.

2. Mini-lectures were initially implemented to assist students voicing a need for a traditional lecture-based environment and to ease the transition into an Emporium model. Attendance for these lectures was very poor. It became evident, that students did not see value in the mini-lectures as they began to realize that they could get individualized instruction during a class meeting or at any time the lab facility was open (Mon.-Thurs. 8:00 a.m.-9:00 p.m., Fri. 8:00 a.m.-2:00 p.m.). This component was terminated at the beginning of the Fall 2012 semester.

3. Instructor-created videos were added to the supplementary materials as a result of an initiative promoted by the Dean of Instructional Affairs in the Spring 2013 term. A short video was created for each topic covered in the ALEKS coursework. A web-page was created to store the videos so that students could access them from any internet-capable computer. During the Fall 2014 term, an option became available to directly link videos to individual topics within the ALEKS program. Instructors are currently working to embed newly created videos into the ALEKS program for more convenient access by students. Publisher-created videos remain available for student access also.

4. Case workers were scheduled to be hired and charged with the responsibilities of working with students who were deemed to be at-risk of failing based on poor attendance and slow progression through the course material. Attendance was quickly viewed as a major obstacle to success under the Emporium model. Students seemed to falsely believe that they could work as well from home as they could in a classroom setting, and that there was no apparent reason for attending class other than testing to move into a new module. Compounding this attitude was the fact that many of these courses had a hybrid component allowing students to complete a portion of the required class meeting time in the lab at their discretion. The additional lab time was being verified through a Campus Track card-swiping system for keeping attendance. On the Sparks Campus, the smaller student population allowed the lab director to carry out the duties and responsibilities of the case worker. On the Wallace Campus, an early intervention program was implemented in Spring 2013. In the place of a case worker, an academic coach was hired to work with developmental students in math, English and reading. The academic coach would be responsible for handling instructor requested referrals based on slow progression through the program or other obstacles to learning (i.e. transportation issues, childcare issues, etc.) and poor attendance. A data base was designed to send a report to the coach each morning listing all students who were missing three consecutive classes or missing more than 70% of the class meetings at any given time during the term. During the AY 2012-2013, 113 developmental math

referral students were contacted through email, telephone calls, and meetings. There was a 27% success rate of coaching these at-risk students through the completion of their course. Table 1 shows the numbers of students contacted in subsequent years for the fall and spring semesters and the success rates achieved by the academic coach in assisting those students through the completion of their course.

Table 1: Academic Coach Success Rates

Academic year	Student contacts	Percent successful after contact	Number of students successful after contact
2013-2014	482	31.7%	153
2014-2015	785	38.3%	301
2015-2016	587	35.4%	208

D. After the first year of QEP implementation it became clear that the multiple-course-completion option was not being fully utilized by many capable students. The Administrative Council agreed to offer a tuition waiver for MTH100 to students completing multiple developmental courses in one semester. Research indicates that students who complete developmental math obligations in an accelerated manner, increase their likelihood of obtaining a credential. The waiver has incentivized substantial increases in the number of students completing multiple courses and moving more quickly through the developmental math coursework. During the year prior to implementation of the tuition waiver, 64 students completed multiple courses in a single semester. After the waiver was implemented, the number of students completing multiple courses in one term increased to 222 (178% increase) for the subsequent year.

E. One of the intended outcomes for the QEP stated that students would utilize the developmental math lab on average 1.25 hours per week. When the QEP was implemented, the developmental math classes were scheduled in a computer lab. Students met in the lab setting for 2.50 hours per week every week as a requirement for attendance during the scheduled class. This requirement exceeded the intended outcome of 1.25 hours per week.

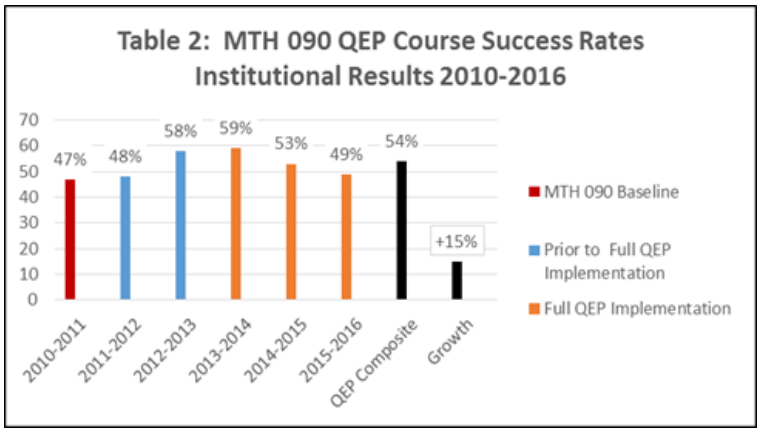
The impact of the QEP on student learning/and environment supporting student learning (including achievement of identified goals and outcomes, and unanticipated outcomes)

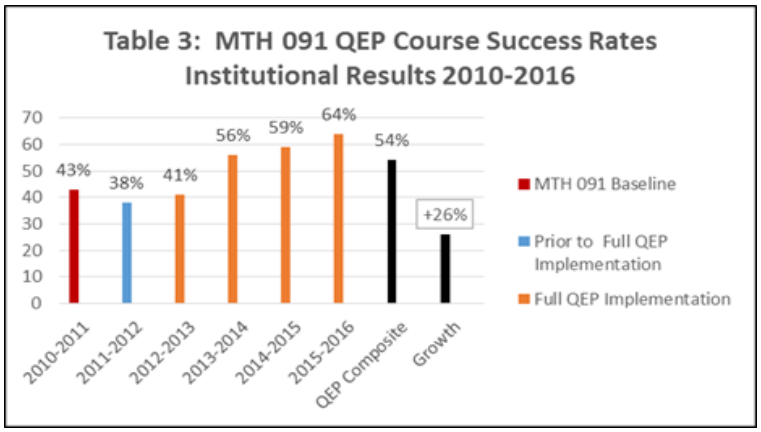
The central goal of the QEP was to strengthen student performance and success rates in developmental mathematics courses (MTH090, MTH091, MTH092) in order to improve student performance in MTH 100. In an attempt to reach this goal, the QEP established three primary objectives, each with measurable outcomes.

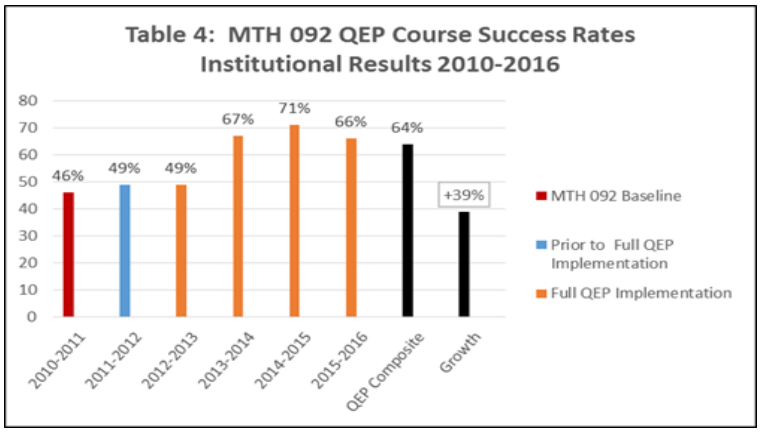
Objective 1: To ensure that knowledge and skills obtained in developmental math courses are adequate for success in subsequent mathematics courses (MTH100)

To measure the obtainment of this objective the following outcomes were established:

a. Students' success rate for each redesigned course will show a percent of increase of 5% annually from Wallace Community College baseline statistics collected prior to redesign (AY 2010-2011).



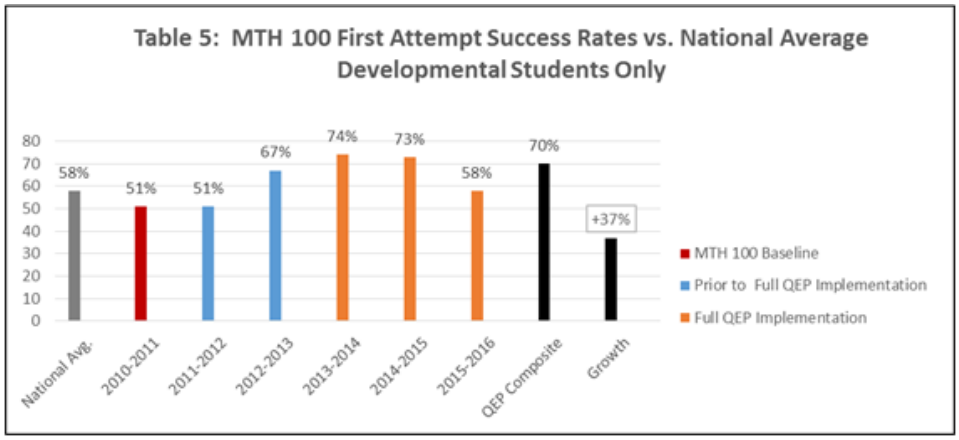




The implementation of this QEP followed a "roll out" strategy with respect to both campus locations and the courses taught in the developmental sequence. The first year of implementation was accomplished on the smaller Sparks Campus. During the Fall 2011

term, MTH091 was initiated and MTH092 followed during the Spring 2012 term. Meanwhile, on the Wallace Campus, developmental math courses were still being conducted in the traditional lecture model. The Wallace Campus was awaiting the construction of a new Center for Academic Success which would house these classes. MTH091 and MTH092 were first offered in the Emporium model on the Wallace Campus during the Fall 2012 term. MTH090 was included in the implementation for both campus locations in the Fall 2013 term. As noted in Tables 3 and 4, when MTH091 and MTH092 were fully implemented for both campuses, there was a drop in success rates. Research prior to implementation of the QEP suggested that this would be the case. Efforts were made to address this drop in success rates which included adjustments to course requirements and content organization of each developmental course in the QEP. With the implementation of these modifications and the improvement of student attitudes toward this new pedagogy, course success rates began to rise. The original QEP outcome for this objective dictated that a 5% increase would be expected each year from the baseline year. There was a large increase in success rates during the AY 2013-2014. Increases have been less substantial in successive years and have fluctuated as enrollment trends have varied. A composite of success rates for the years after full QEP implementation was calculated to summarize the QEP impact. The overall success rates show that MTH090 (Table 2) has increased 15%, MTH091 (Table 3) has increased 26%, and MTH092 (Table 4) has increased 39%. MTH091 and MTH092 graphs include students registered for a prior course who completed both the prior course and MTH091 and/or MTH092 in the same semester. MTH090 success rates began to decline during AY 2014-2015 as an unprecedented increase in MTH090 enrollment numbers occurred. Data and statistics are currently being analyzed in an effort to determine the impact of placement trends, adjunct success rates, and content revisions on the decline of MTH 090 success rates.

*b. The percentage of students successfully completing MTH100 in the first attempt will meet or exceed the **national average**.*



The *National Study of Developmental Education II: Baseline Data for Community Colleges* written by: Katherine Gerlaugh, Lizette Thompson, Hunter Boylan, and Hildreth Davis as published in **Research in Developmental Education** Volume 20, Issue 4, 2007 was used for national average comparison data and was based on students successfully completing MTH100 in the first attempt after completing developmental math courses prior to registration for MTH100. These numbers did not include students enrolling in MTH100 from placement. Using this criteria, the average of MTH100 success rates before implementation of the QEP were calculated to be 51% as compared to the national average in 2007 of 58%. Table 5 compares the composite of MTH100 success rates after full implementation of the QEP with the national average from the year 2007, evidencing a 37% overall improvement.

The success rates for AY 2015-2016 indicated a decline caused by a change in assessment methods. Student evaluation in MTH100 had been based on ALEKS comprehensive assessments which gave credit for knowledge of past and future topics in the course. Evaluation was changed to randomize testing over previously mastered topics and this caused a lower rate of success while students struggled to remember all past content as they progressed through the course. Further modifications to chunk the information into smaller units for testing is showing promise in reestablishing the improvements in these success rates while maintaining the comprehensive mastery-learning component of the program.

c. Students successfully completing MTH100 in the first attempt will increase 5% annually starting from the baseline statistics collected prior to the redesign (AY 2010-2011).

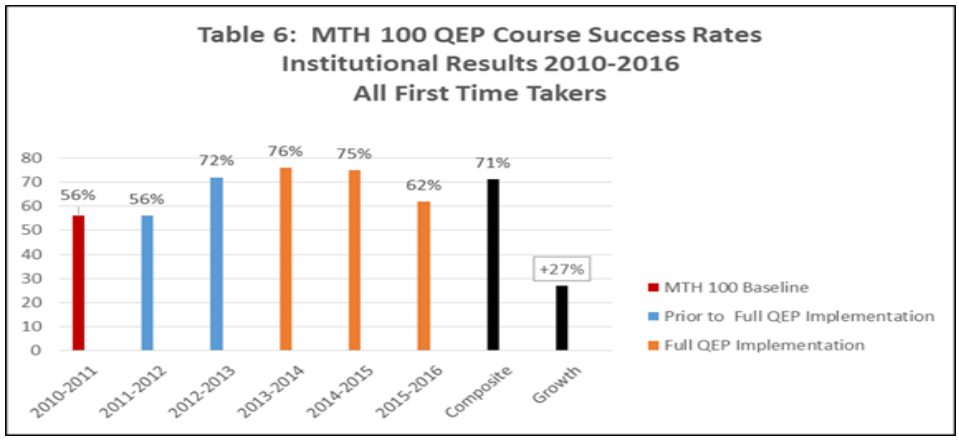


Table 6 indicates that the goal of increasing MTH100 success rates by 5% annually has been partially achieved. The composite of the success rates for all students (students from placement and from developmental math) enrolled in MTH100 for the first time, increased by 27% from the baseline year. Again, the AY 2015-2016 shows a drop in success rates, but corrective measures have been taken to reestablish higher levels of success through revision of testing protocols.

Objective 2: To establish programs and services to strengthen students' developmental mathematics skills and knowledge

In the process of developing the QEP, conversations within the mathematics department often centered upon "how" to convince and encourage students to practice more mathematics for better understanding and retention. The selection of ALEKS as a software platform provided the basis of a mastery component which would ensure that students actually performed more mathematics. Students are currently required to demonstrate 100% mastery of each module before testing. After mastery of a module, students take an exam which requires a 70% score and enough bonus points to obtain an 80% score in order to progress to the next module. Students are required to retake exams until they pass. The bonus component is included as a way of incentivizing students to complete coursework in a timely manner and encouraging students to complete additional assignments as requested (i.e. notebooks, surveys, attendance goals, etc.). Each subsequent exam includes topics learned in previous modules, making each developmental course comprehensive. A student survey has been implemented to seek information about how this program may be assisting

students based on their perspectives and a goal was set to show that 80% of students would answer "Satisfied" or "Very Satisfied" to the questions listed in Table 7 below. Student responses indicate that the QEP is currently meeting or exceeding the 80% goal.

Table 7: Percent of Students Surveyed Answering "Satisfied" or "Very Satisfied"

Questions:	FA 11	SP 12	FA 12	SP 13	FA 13	SP 14	FA 14	SP 15	FA 15	SP 16
Are you satisfied with the level of staffing in the mathematics QEP program?	93	100	96	96	95	94	99	94	97	98
Are you satisfied with the supplementary materials provided in the QEP program?	86	81	88	90	93	89	91	97	93	95
Is your level of mathematics confidence increasing as a result of this course?	79	69	84	86	90	89	92	94	94	94

Objective 3: To implement tools, policies and procedures to encourage the development of better study behavioral habits in mathematics courses

Students in the developmental math program often need to be reminded of simple things that may increase their likelihood of success. Principles such as consistent and punctual attendance, organization of materials, and goal-setting are essential. Strategies in the QEP have focused on the development of basic tools to address these needs.

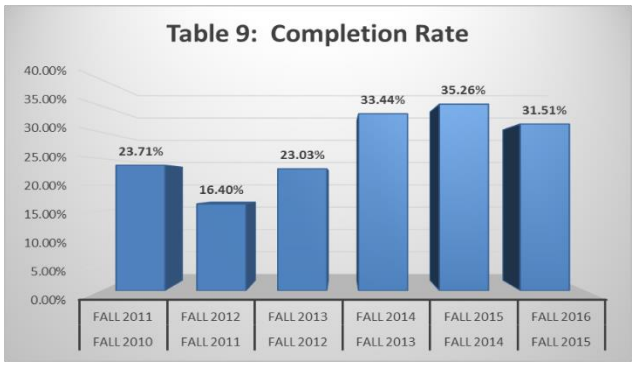
Benchmark dates are provided to assist students in pacing their work to successfully complete one or more courses in a given term. Test preparation guides are provided to assist students in practicing a structured method of studying for tests. In addition, instructors have designed modular goal/testing forms to provide individualized goals to assist in motivating students toward early course completion.

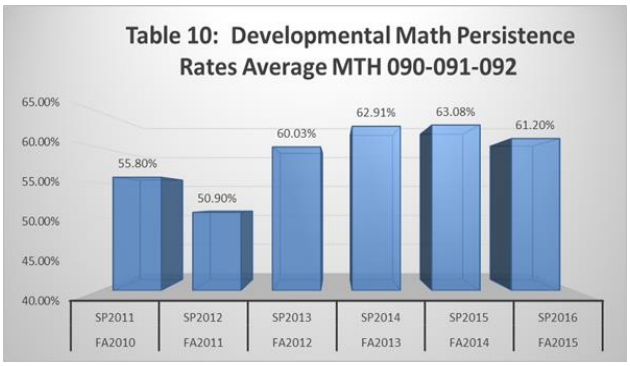
Students must keep a notebook containing benchmark calendars, current module goal sheets and test prep guides. In addition, students are asked to keep work in the notebook separated with respect to modules in the course in order to stress the importance of structure and organization in the learning process. The data in Table 8 indicates that students believe these tools are helping to improve their organizational skills.

Table 8: Percent of Students Surveyed Answering "Satisfied" or "Very Satisfied"

Question 7:	FA 11	SP 12	FA 12	SP 13	FA 13	SP 14	FA 14	SP 15	FA 15	SP 16
Do you find the use of the Instructor Goal Sheets (Modular Planner/Test Form) and your Student Notebook helpful in improving your organizational skills?	71	88	88	88	89	89	97	97	96	98

Completion and persistence rates were compared in order to measure the success of QEP implementation in assisting at-risk students to complete developmental math courses.





Completion rates shown in Table 9 were measured annually by evaluating the number of students who successfully completed their developmental math sequence and registered for an upper-level math course (MTH100 or MTH116). Completion rates initially showed a decline from the baseline year, but have improved each successive year thereafter.

Persistence rates shown in Table 10 were measured by evaluating the number of students who registered for a developmental math course in a semester and then registered the next semester in the same course or a subsequent course. The persistence rates have shown considerable increases over the implementation time of the QEP indicating that this program is encouraging more students to complete their developmental math requirements and continue on to enroll in college-level math courses.

Unanticipated Outcomes

A. **Creation of the Developmental Studies Division** Prior to implementation of the QEP, there was a Math Division at Wallace Community College which encompassed all math courses and instructors. After the QEP was implemented, it became apparent that a separation of the upper level math instructors and the instructors facilitating the changes for the developmental math program was needed. A Developmental Studies Division was created to better focus on the needs of these students. In the process of revising and restructuring developmental math courses, a great deal of give and take was required within the two Divisions. After much deliberation and compromise, a sense of collaboration began to form to the ultimate benefit of students and the academic community as a whole.

B. **Closure of the Socio-economic Success Gap** After realizing increases in success rates for the developmental math program as a whole, it was determined that the QEP had also impacted subpopulations of the student body. A comparison was made between success rates of low-income students (identified by their eligibility for Pell Grant) and high income students (students not eligible for Pell Grant). Official statistics indicated that during the Fall 2011 term, there was a 20% difference between success rates of low and high income students. As of the Fall 2014 term, there was no gap between the success rates of low and high income students.

C. **Student Satisfaction With Instructors** The Dean of Instruction implemented accountability measures regarding instructional methods and student perceptions during the AY 2011-2012. This ICAN Initiative was intended to focus attention on instructional pedagogy and student perception of instruction at the College. The

Developmental Studies Division has repeatedly produced the highest marks across the campus regarding whether students would recommend their instructor to other students or not. For the previous three academic years this division has averaged a 98% "Strongly Agree" student response for the Fall-Spring course evaluations with regard to this question. The nature of the Emporium model lends itself to more one-on-one time between instructors and students, and seems to be creating an atmosphere of team work between students and developmental math instructors.

D. **Creation of a Writing Center** Initial research for this QEP topic yielded academic concerns in both developmental math and writing abilities, but since approximately 84% of Wallace Community College students place in developmental math, this area was chosen for the QEP. With the identification of writing as an additional deficit area for these students, a Title III grant was written to obtain funding for a writing center. This center was created to assist and support students in need of supplemental instruction in writing skills and currently exists under the umbrella of the newly created Developmental Studies Division. Students can get assistance with structure, grammar and topic-choice related to essays, research papers and general writing assignments through the instructors and tutors in this writing center.

Conclusion

This QEP was developed in support of the Wallace Community College Strategic Plan 2010-2013 in its efforts "to demonstrate the College's commitment to quality teaching and learning through increased student success and continuous improvement in instructional programs." In researching for the topic of this QEP, it was found that approximately 84% of Wallace Community College students placed in developmental mathematics. This percentage was much higher than the national average of approximately 58% (Attewell, Lavin, Domina, and Levin 2006). Many students who were not prepared to begin college-level math were required to take two or three developmental math courses before beginning credit-bearing work. Prior to this QEP, success rates were not consistently monitored, instructional decisions were not always based on analysis of student success or perceptions, instruction was not fully standardized and strategies for mastery learning had not been used by all math instructors. This QEP offered alternatives for accelerated progression through the developmental coursework and was tailored to meet the needs of both weaker students and more capable students. This QEP also incorporated mastery learning and offered a structured framework for the attainment of study skills in preparation for the next level of college coursework. Under this QEP all math instructors would be teaching and assessing the same material using the same pedagogical methods. Instructional decisions would be driven by statistics and student perception surveys. Since implementation of this QEP, institutional statistics have shown improvement in success rates, persistence rates, completion rates, and withdrawal rates (from 25% down to 13%) for students enrolled in developmental math. During AY 2012-2013, statistics evidenced a closure of the socio-economic gap for developmental students based on a comparison of pell/non-pell eligible students. Comparison of success rates for developmental students with placement students in MTH100 showed that the majority of students who worked their way through developmental math outperformed students who placed in MTH100 since the inception of the QEP and the success rates of MTH100 have increased substantially over the term of the QEP. The data indicates that more student engagement, more student-instructor interaction and more intrusive intervention for at-risk students can make a significant difference in guiding students through the successful completion of developmental course requirements. The results of this QEP will provide a basis for pedagogical decisions in attainment of the mission of the College in its efforts to provide accessible educational opportunities for students.