Quality Enhancement Plan

Conquer Math

St. Johns River State College

St. Johns River State College

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Executive Summary

To further its mission to encourage the pursuit of academic excellence and scholarly achievement through high quality instruction, St. Johns River State College (SJR State or the College) developed a comprehensive Quality Enhancement Plan (QEP). The QEP process involved extensive conversations with a broad base of constituents and a comprehensive review and analysis of data on student learning. Through this process, the college community identified **Intermediate Algebra** as the focus of the QEP.

The College's QEP, ***Conquer Math***, will improve student learning and student success in Intermediate Algebra (MAT 1033), a gatekeeper course facing high withdrawal, low success, and low levels of achievement in student learning outcomes. Success in MAT 1033 impacts success in subsequent courses, such as College Algebra (MAC 1105). Critically, students who are not successful in MAT 1033 are much less likely to continue to the following semester or academic year.

The purpose of ***Conquer Math*** is to improve student learning in Intermediate Algebra to prepare students for continued success in subsequent courses. There are two goals associated with this purpose:

1) **Increase student learning in Intermediate Algebra**
2) **Improve student success in Intermediate Algebra and subsequent courses for which MAT 1033 is a pre-requisite**

To address these goals, the team has identified two core initiatives. First, to improve course engagement (deploy engaging teaching and learning strategies, launch early assessment/intervention, and enhance faculty development) and strengthen student support (embed academic support and tutoring). This integrated approach to teaching, learning, and student support will impact achievement in student learning outcomes, course retention in MAT 1033, course success in MAT 1033, course retention in MAC 1105, course success in MAC 1105, and persistence.

The College ensures sufficient resources to initiate, implement, sustain, and complete the QEP. The College has allocated a sufficient budget to support the human and technical resources required for the full implementation of the QEP. Key personnel are already in place to begin work.

The QEP will be integrated into the College's strong culture of assessment. The assessment of ***Conquer Math*** is both formative (process) and summative (impact) in nature and will review both quantitative and qualitative metrics. An annual report will provide stakeholders with an overview of progress by goals, outcomes, and activities.

Introduction to St. Johns River State College

Named for the historic and geographically significant river that flows through its predominantly rural 3-county district, St. Johns River State College (SJR State or the College) provides a broad range of educational opportunities to the region including college credit certificates; associate degrees; and, in response to incredible need for the place-bound students in the district, limited workforce-targeted baccalaureate degrees. The College operates three campuses: Orange Park (Clay County), Palatka (Putnam County), and St. Augustine (St. Johns County). As an open access institution, SJR State has a student population that is largely seeking their associate degree. Further, many students come to the College and are not ready for college-level work.

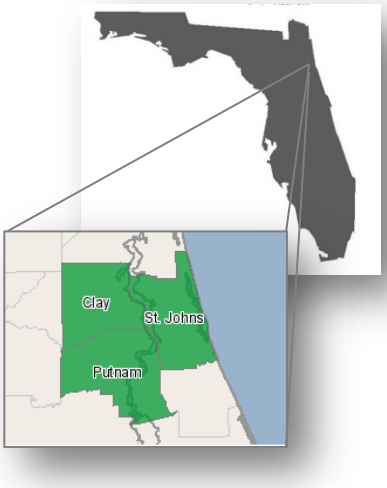


Figure 1: St. Johns River State College (Northeast Florida)

Established in 1958, St. Johns River State College started with an inaugural class of 191 students. More than 6,700 credit students now attend SJR State annually. Many students are the first in their families to go to college. They come with aspirations, seeking the knowledge and skills for careers in fields such as health care, business, law enforcement, and information technology. Some students will continue on for bachelor's degree at SJR State; others transfer to one of the public universities in Florida.

Students at St. Johns River State College mirror the service district demographics. The typical student at SJR State is an associate degree-seeking student, female, and white. She enrolls part-time (less than 12 credits per semester) and manages outside responsibilities of work and/or caring for dependents.

Table 1: Student Profile (Fall 2012 Term)

Unduplicated student headcount (Credit students)	6,733	Race and Ethnicity	
Percent seeking an associate degree	92%	*Black or African American*	9.4%
Percent seeking a baccalaureate degree	3.4%	*Hispanic or Latino*	6.0%
Average age	27 yrs	*Asian or Pacific Islander*	2.0%
Percent part-time students (12 or more credits)	57%	*Native American*	0.5%
First-time-in-college (FTIC)	22%	*White*	74.9%
Percent of students awarded need-based financial aid	49%	Care for dependents at least 11hrs/wk	23%
Percent female Percent male	60% 40%	Percent of students who work 21 or more hrs/wk	50%

Sources: SJR State Institutional Research, CCSSE 2012

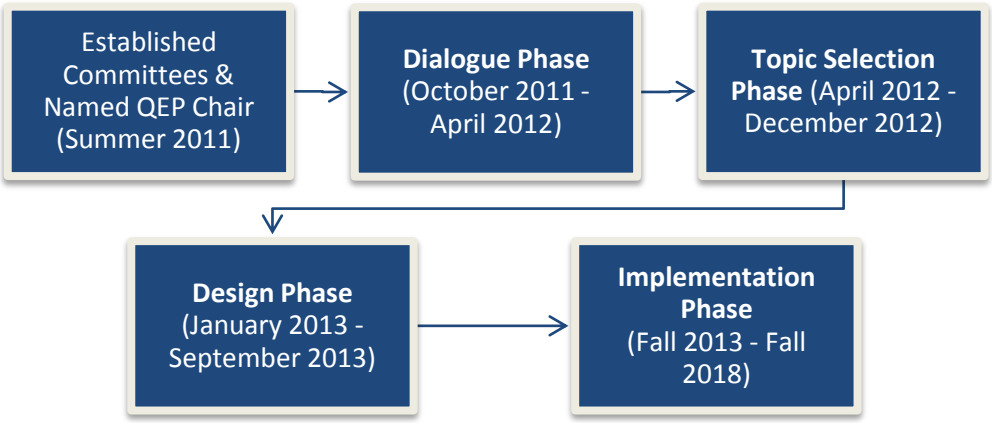
Process Used to Develop the QEP

St. Johns River State College's planning processes are comprehensive and strategic in nature, supporting the College's mission (see Appendix A) and involving all constituents across the institution. Every three years, the College community and its partners systematically analyze the College's mission with respect to internal and external factors such as policies, regulations, statutes, demographic and economic changes and considerations, technology developments, as well as student and community needs. The foundation of the comprehensive planning culture ensured that the development of the QEP was broad-based and involved many opportunities to engage constituents at multiple levels in the process.

The QEP developed over a four-phase process designed to elicit comprehensive input from stakeholders across the institution, and began in 2011. The SACS Leadership Committee was established in summer 2011 and included SJR State's President, Mr. Joe Pickens; Vice President for Academic Affairs, Dr. Melanie Brown; Vice President for Workforce Development, Dr. Anna Lebesch; and Vice President for Research and Institutional Effectiveness, Dr. Rosalind Humerick. In August 2011, the SACS Leadership Committee named Julie Kelly, Communications Faculty, as the QEP Chair and appointed her to the Leadership Committee. Ms. Kelly chaired the QEP Steering Committee, comprising 18 representatives from the academic and student support areas including faculty, deans and program directors, librarians, academic counselors, and vice presidents. The QEP Steering Committee oversaw the development of the QEP and is a formal college committee.

After naming the QEP Chair and filling the committees, the QEP moved to the **dialogue phase** to identify the major concerns of college constituents through surveys and focus groups. Upon identifying four potential topics, the QEP Steering Committee shifted to the **topic selection phase** to identify a focus for the QEP. A smaller committee was appointed to lead the **design phase,** during which the team identified the purpose, goals, outcomes, and activities of the QEP in collaboration with the Steering Committee. The fourth and final phase begins in the fall 2013 when the Implementation Team will begin piloting some of the activities.

Figure 2: Process to Develop the QEP



Broad-Based Involvement

St. Johns River State College involved a broad-base on constituencies in the development and the proposed implementation of the QEP. Students, faculty, staff, and community representatives participated through surveys, focus groups, and in the data review process, as displayed in Table 2. Altogether, the team reviewed 21 data sources, including internal and external sources that were quantitative and qualitative in nature. Existing data sources were further supplemented with QEP-focused constituent surveys and focus groups held on each campus. Data sources were rigorously analyzed by various groups to ensure that a well-rounded picture of the College's strengths and areas for improvement emerged. Altogether, 1,377 students, faculty, and staff from all three campuses were involved in dialogue and topic selection phases. Appendix B includes a roster of QEP Committee members.

This broad-based, comprehensive process provided rich analysis of the college's priorities for a Quality Enhancement Plan.

Table 2: Constituent Process Participation

Component	Student	Faculty	Staff	Other*
QEP Surveys	✓	✓	✓	✓
QEP Focus Groups	✓	✓	✓	✓
QEP Steering Committee		✓	✓	
Dialogue Team Members	✓	✓	✓	
Marketing Team Members	✓	✓	✓	
Design Team Members		✓	✓	
Professional Development Meetings		✓	✓	
District Board of Trustees Updates		✓	✓	✓
Implementation Team	✓	✓	✓	

* Other includes the District Board of Trustees members, advisory committee members

Identification of the Topic

Identifying the topic of the QEP was an extensive process involving constituents from all levels, a rich analysis of myriad data sources, and comprehensive review of the College's performance in student learning. The process had two goals: 1) Educate constituents about the QEP, and 2) Engage a large segment of College constituents in discussions about student learning and student success at SJR State as well as potential QEP topics.

The Dialogue Phase: Identifying Potential Topics

The Dialogue Phase began as a college-wide discussion of student learning and academic achievement at SJR State. Based on early analysis from the Strategic Planning process, Institutional Research and the SACS Leadership Committee prepared a QEP Initial Survey. This survey was administered to SJR State students, faculty, and staff to elicit feedback about the strengths and weaknesses of student learning as well as specific academic support services. A total of 275 students, faculty, and staff responded to the survey, providing a strong foundation for analysis. Respondents were asked to identify the College's top two strengths and weaknesses from a list of seven (7) student learning topics (see Table 3). Respondents could provide options not listed as well.

Table 3: Student Learning and Academic Achievement

- Reading Comprehension
- Writing Skills
- Math Skills
- Oral Communication
- Critical Thinking
- Information Literacy (retrieve, organize and use information)
- Fundamental Knowledge Base (humanities, social science etc.)

Source: SJR State Institutional Research – QEP Survey

Overall, respondents identified **Information Literacy** and **Fundamental Knowledge** as the College's top two strengths. Table 4 describes the strengths identified by different constituent groups. While faculty and staff were similar in the strengths they identified, opinions of students were slightly different.

Table 4: Top Four College Strengths identified by Respondent Group

Students	Faculty	Staff
1. Fundamental Knowledge	1. Information Literacy	1. Fundamental Knowledge
2. Math Skills	2. Fundamental Knowledge	2. Reading Comprehension
3. Writing Skills	3. Oral Communication	3. Information Literacy
4. Reading Comprehension	4. Reading Comprehension	4. Oral Communication

Source: SJR State Institutional Research – QEP Survey

Next, respondents were asked to identify the College's weaknesses. Table 5 breaks out the weaknesses identified by constituent group. Again, faculty and staff were more similar in what they identified as weaknesses, but two weaknesses were identified across all groups: **math skills** and **critical thinking**.

Table 5: Top Four College Weaknesses Identified by Respondent Group

Students	Faculty	Staff
1. Math Skills	1. Critical Thinking	1. Math Skills
2. Information Literacy	2. Writing Skills	2. Writing Skills
3. Oral Communication	3. Reading Comprehension	3. Critical Thinking
4. Critical Thinking	4. Math Skills	4. Oral Communications

Source: SJR State Institutional Research – QEP Survey

Student learning and academic achievement also are influenced by non-instructional factors (see Table 6). The QEP Initial Survey included a list of fifteen (15) items and asked respondents to identify the top three factors that they believe impact student learning and academic achievement at SJR State. Respondents identified 1) **Academic preparation for college-level work**, 2) **Faculty-student relationships**, and 3) **Study habits**. Importantly, a strong majority of students ranked faculty-student relationships as one of the most critical non-instructional factors impacting learning and achievement.

Table 6: Non-Instructional Factors Impacting Student Learning and Academic Achievement

• Academic preparation for college-level work	• Selection of appropriate courses
• Completion of a college success course	• Student activities
• Definite career goals	• Study groups
• Faculty-Student relationships	• Study habits
• Family/peer support	• Teamwork
• Financial resources	• Technology
• Formulation of an academic plan	• Tutoring
• Mentoring from faculty or staff	

Source: SJR State Institutional Research – QEP Survey

The results of the QEP Initial Survey provided a launching point for qualitative data collection. The Steering Committee created "Dialogue Teams" on each campus to reach out to students, faculty, and staff. The Dialogue Teams hosted brown bag lunches, facilitated focus groups, and conducted email discussions. Each group was asked the same central open-ended question: **What is the most important thing the College could change that would improve student learning and academic achievement for a large percentage of the students at SJR State?** The Dialogue Teams got responses from 487 students, 123 faculty, and 115 staff. Each Dialogue Team analyzed the responses by campus to identify key themes that emerged from the Dialogue Team meetings (Table 7).

Table 7: Key Themes from QEP Dialogue Team Meetings

Orange Park Campus	Palatka Campus	St. Augustine Campus
• Strengthening writing skills • Improve counseling • Improve tutoring • Improve College Readiness • Real-world applications	• Student services • Faculty/instructional issues • Improve technology (for faculty, students) • Study and soft skills • Improve tutoring	• Improve student support • Improve tutoring • Improve basic skills (e.g. critical thinking, writing, and math) • Improve quality of programs • Improve technology (for faculty, students) • More hands-on experiences

Source: SJR State Institutional Research – QEP Dialogue Team Reports

To ensure a well-rounded analysis of the College's strengths and weaknesses, the Steering Committee members analyzed internal and external data sources (see Table 8) to further identify weaknesses in student learning. Sub-committees reviewed learning areas, summarized their findings, and then presented findings to the full Steering Committee in April 2012 for further review and discussion.

Table 8: Data Sources Reviewed and Analyzed by the QEP Steering Committee

Data Source	Type	Analysis
The 2009-2012 SJR State Strategic Plan Annual Reports	Internal/ External	Identified strengths and weaknesses according to the College's three-year goals and indicators
National Community College Benchmark Project (NCCBP) Reports (2009, 2010, 2011)	External	Identified performance compared to national peer institutions in academic performance, retention/ persistence, etc. In particular, identified declining success rates in developmental mathematics, writing, and reading
New Student Survey, Spring Student Survey, Graduate Survey	Internal	Identified student perspective on key functions of the institution related to teaching and academic support
Florida College System Articulation Report	External	Identified strengthens in student performance after transfer to a state university system institution
Florida College System Accountability Reports	External	Analyzed for performance compared to sister institutions in Florida
General Education Outcomes Competency Maps	Internal/ External	Identified the expected student performance and actual student performance for seven (7) general education competencies
Community College Survey of Student Engagement (CCSSE) (2010)	External	Identified perceived weaknesses in learning, academic success, support for student learners, and student-faculty interactions; in particular identified critical thinking as an area of concern; and provided a national benchmark on such factors
Integrated Postsecondary Education Data System (IPEDS) reports	External	Identified patterns of failure and non-completion that need to be addressed

Data Source	Type	Analysis
ETS Proficiency Profile	External	Scores on critical thinking, reading, writing, mathematics, humanities, social sciences, and natural sciences
Student Retention and Persistence Studies	Internal	Identified areas of concern for a specific cohort of students
Report on College Readiness of 2011 District High School Graduates	Internal/ External	Identified areas of concern among developmental education and gatekeeper courses as students enter SJR State from district high schools
Student Initiated Withdrawal Report	Internal	Identified patterns of course withdrawal from key gatekeeper courses
Grade Distributions (by course)	Internal	A three-year review of course success rates identified that the highest withdrawal rates have consistently occurred in math and physical science courses

As a result of the rich data analysis and discussions, the Steering Committee moved to narrow the QEP focus to four potential topics:

1. **Critical thinking skills**
2. **Developmental education**
3. **Gatekeeper courses**
4. **Writing skills**

Topic Selection Phase

The Steering Committee conducted more rigorous analysis and re-evaluated existing data on the four potential topics using two central questions as a guide**: 1) What are the problems or conditions addressed by the QEP? 2) What difference will the QEP make once implemented?** The review included analyzing patterns in course learning (student learning outcomes), success, course withdrawals, and the impact to a high number of students. In late August through early September 2012, the Steering Committee held workshops with each constituent group and on each campus to review the data and elicit more discussion from the College community. (See Appendix C for a summary of the analysis.)

Table 9: Topic Selection Feedback Meetings (2012)

Meeting	Constituent Groups
QEP Faculty Update & Brainstorm (Palatka)	Faculty
QEP Faculty Update & Brainstorm (St. Augustine)	Faculty
QEP Faculty Update & Brainstorm (Orange Park)	Faculty
QEP Faculty Updates (Faculty Orientation)	Faculty
QEP Update College Council (all campuses)	Staff
QEP Student Topic Selection Focus Group (Palatka)	Students

Meeting	Constituent Groups
QEP Student Topic Selection Focus Group (Orange Park)	Students
QEP Student Topic Selection Focus Group (St. Augustine)	Students
QEP Steering Committee Meeting	Faculty, Staff

After a presentation on the analyses of College performance by the four potential topic areas, workshop attendees provided additional feedback and anecdotal analysis before ranking the topics by priority (see Appendix D for ranking form). **Mathematics,** as a gatekeeper course, emerged as the leading topic from all of these meetings. The rationale for not selecting critical thinking, developmental studies, or writing skills is included in Table 10.

Table 10: Rationale for Not Selecting Topics

Topic	Justification for Not Selecting
Critical Thinking	• Internal and external student learning outcome data did not support critical thinking as an area requiring significant improvement • Difficult to operationalize using a common definition • A lack of a direct and effective means to measure critical thinking
Developmental Education	• Internal and external student learning data did not support developmental reading or writing as an area requiring significant improvement • Legislatively mandated changes to developmental education will have a profound impact on developmental education in Florida in 2014, and it is unknown what will ultimately happen to the current developmental education sequence of courses
Writing Skills	• Internal and external student learning outcome data did not support writing skills as an area requiring significant improvement • Florida House Bill 7135 which changed general education requirements will impact communication courses • Agreement that a shared cross-curricular guide for writing research papers would resolve some of the issues identified by constituents

In early fall 2012, the QEP Steering Committee formally recommended that the QEP focus on mathematics. This recommendation was taken to the SACS Leadership Committee and endorsed by the Mathematics faculty. On September 28, 2012, President Pickens informed the college community that the QEP topic would be mathematics, and work began to refine the topic.

Narrowing the Topic

The QEP Steering Committee began to further evaluate mathematics to identify how it specifically impacted student learning and success at SJR State. Specifically, the QEP team reviewed data related to the algebra sequence as it has the highest student impact of all mathematics courses at the College (see enrollment in Table 11).

Table 11: Algebra Course Sequence

Algebra Course Sequence		Level	Avg. Annual Enrollment
MAT 0028	Introductory Algebra	Developmental	**1,357**
MAT 1033	Intermediate Algebra	College Credit	**1,264**
MAC 1105	College Algebra	College Credit	**1,610**

Source: SJR State Institutional Research

Indeed, the following table indicates that 91% of all A.A. degree graduates complete MAC 1105 and more than half need to complete MAT 1033, which is a pre-requisite for all general education mathematics courses for A.A. and A.S. degree students. Further, approximately one-third of A.A. graduates took MAT 0028, and this percentage has been increasing since 2009.

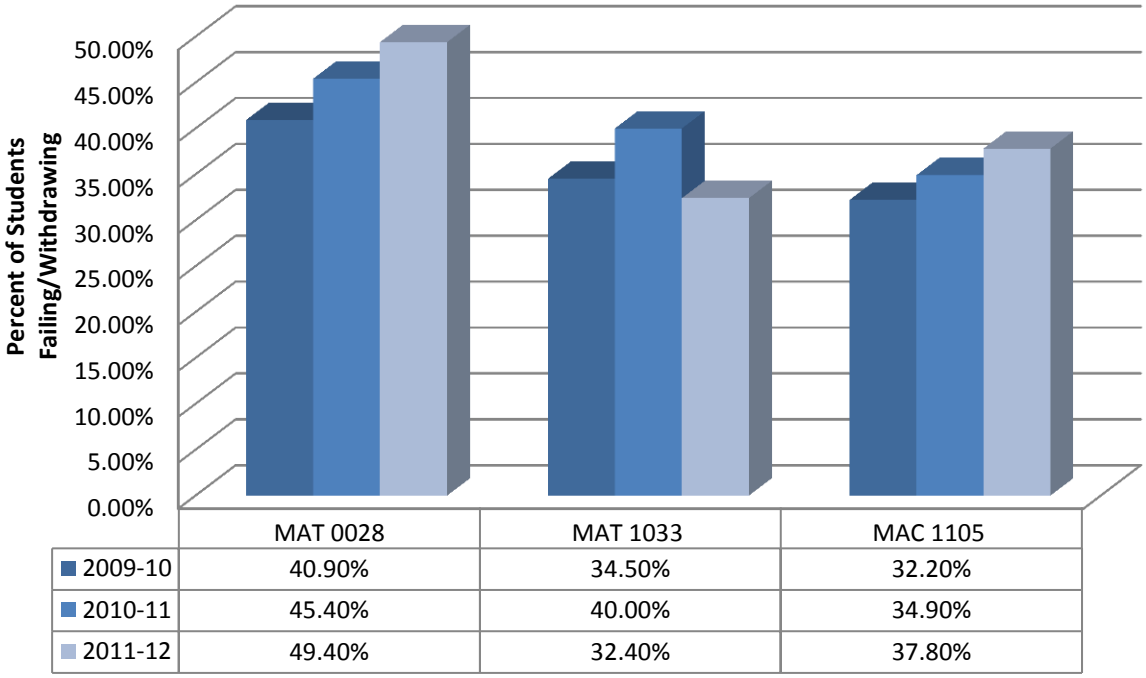
Table 12: Percent of A.A. Graduates who Take Courses in the Algebra Course Sequence

Year	A.A. Graduates	Percent who took MAT 0028	Percent who took MAT 1033	Percent who took MAC 1105
2009-10	567	33.7%	52.6%	90.8%
2010-11	541	37.9%	51.9%	91.1%
2011-12	695	39.6%	55.1%	90.9%

Source: SJR State Institutional Research

The QEP Steering Committee continued the narrowing process by reviewing the success and failure rates of the algebra course sequence. As described in Figure 3, all three courses faced high failure and withdrawal rates (also referred to as the "DFW" rate) over the past three years.

Figure 3: DFW Rate for Algebra Sequence



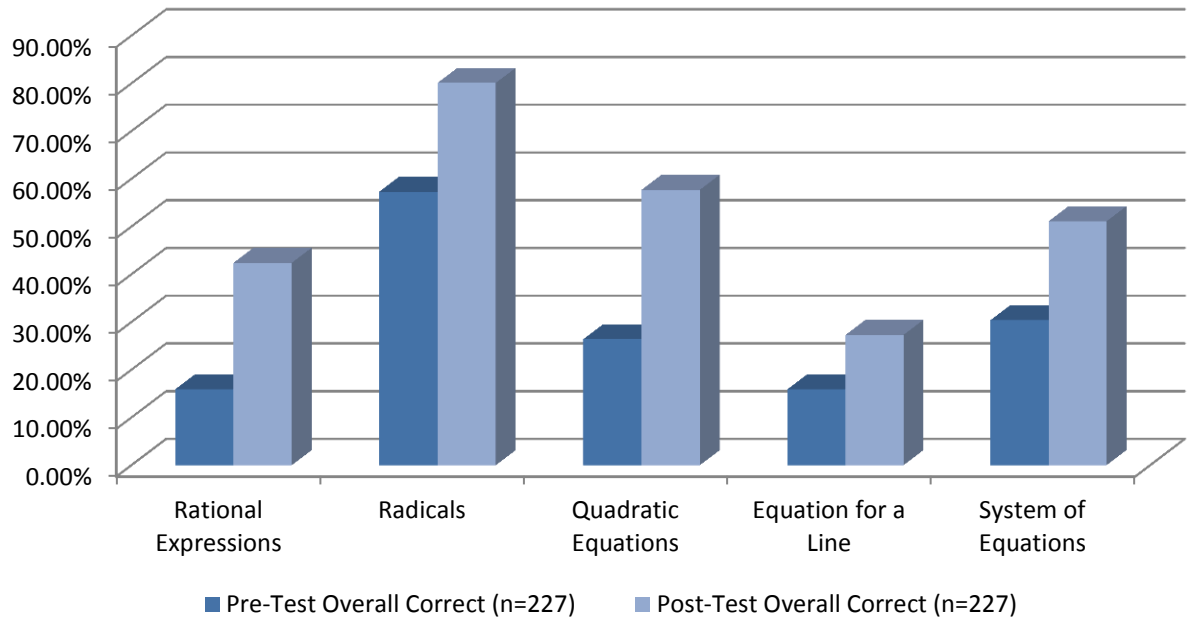
Source: SJR State Institutional Research

MAT 0028 notably experiences the highest and most substantial failure and withdrawal rate, peaking at nearly 50% in 2011-12. However, as the QEP Steering Committee began to narrow the focus, the Florida Legislature began an extensive review of Developmental Education in the Florida College System. Legislation passed in the 2013 session mandates that developmental courses be *optional* for students who entered high school in 2003-04 and subsequently earned a high school diploma, regardless of their college readiness, and made to be a co-requisite for others beginning in fall 2014. Additionally, the College will no longer be able to offer the traditional three credit hour developmental education course. This had two significant impacts on the design of the QEP. First, the ultimate outcome for developmental education student enrollment is uncertain under this legislation, making it hard to implement a strong QEP in developmental mathematics. Second, consequential of the legislation, students who would normally test into MAT 0028 will be permitted to enter MAT 1033. This makes teaching and learning in MAT 1033 a priority focus for the College.

Prior to the legislative change to developmental education, MAT 1033 was of particular concern as a "gatekeeper" course at SJR State. MAT 1033 is a pre-requisite for all subsequent math courses, and is often required by degree programs. Further, in both 2009-2010 and 2010-2011, MAT 1033 experienced a higher DFW rate than MAC 1105 (see Figure 3 above). College faculty and administration anticipate significant impacts to learning and success in MAT 1033 as a result of the changes to the developmental education structure.

Indeed, the impact of student learning in MAT 1033 (2012-2013) as measured by student learning outcomes data is already an issue worth addressing, as described in Figure 4. The College has many years of student learning outcome (SLO) assessment data for MAT 0028 and MAC 1105. However, MAT 1033 has not been an area of focus for detailed SLO assessment prior to 2012-2013. During the spring term 2013, the math faculty instituted a pre- and post-test for MAT 1033 centered on the student learning outcomes. This assessment was administered in all face-to-face sections of MAT 1033. Students were not given prior notice that they would be taking the assessment. The results, shown below in Figure 4 and Table 13 for students who successfully completed MAT 1033, indicate that there are many areas for improvement in student learning in this course. Indeed, the existing SLOs became a focus of the QEP Design Team. In all but one SLO category, less than 70% of students answered the question correctly. Data displayed in the chart and table below are for students who passed MAT 1033 (i.e. completed the course with a "C" grade or higher).

Figure 4: Pre- to Post-Test Performance on SLO Data for MAT 1033



Source: SJR State Institutional Research

Table 13: MAT 1033 Student Performance on SLO Assessment Instrument

	Pre-Test Overall Correct (n=227)	Post-Test Overall Correct (n=227)
Rational Expressions	15.90%	42.40%
Radicals	57.30%	80.10%
Quadratic Equations	26.40%	57.70%
Equation for a Line	15.90%	27.30%
System of Equations	30.40%	51.10%

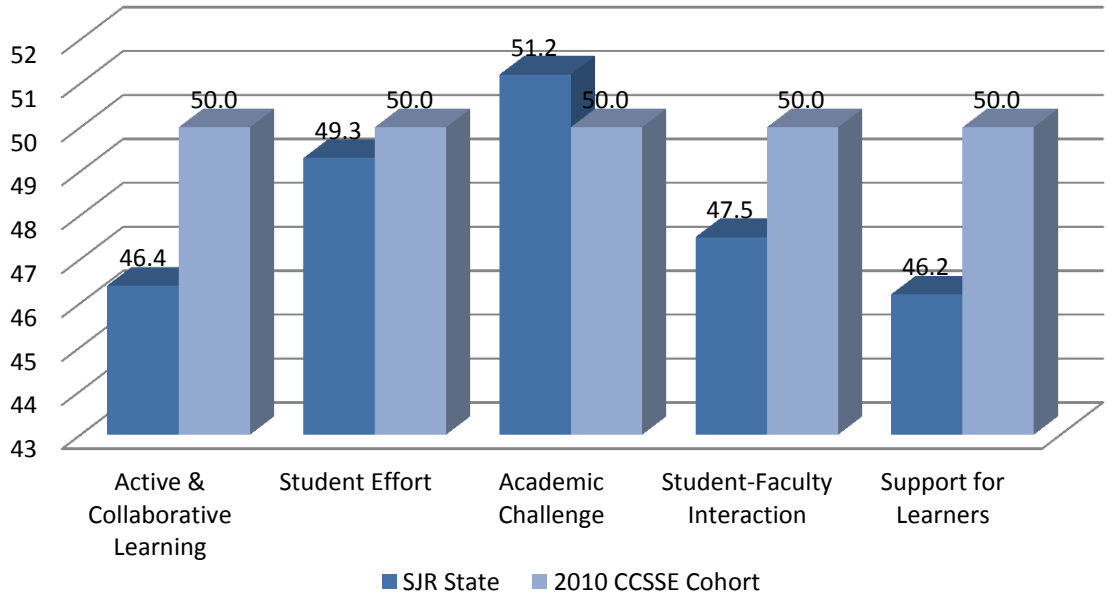
Source: SJR State Institutional Research

The quantitative data were supplemented by qualitative data from student focus groups. Over the fall 2012 and spring 2013 semesters, nearly 100 students provided feedback on student success in MAT 1033. Students were asked to identify what helped them be successful in mathematics and what challenges they encountered. The following themes reoccurred across focus group sessions:

- Students valued repetitious and visual instructions for learning mathematics.
- Students identified an open and enthusiastic instructional environment as important to their success.
- Students felt pressured when courses were heavily weighted toward exams, but did not provide early feedback on performance.

In the focus groups, students emphasized their interactions with the instructor both in the classroom (classroom environment) and outside of the classroom as important to their success. In reviewing the College's performance among factors of student engagement, of which student-faculty interaction is one piece, SJR State College can improve. Indeed, SJR State's Community College Survey of Student Engagement (CCSSE) benchmark scores for 2010 indicate room for improvement in all but one category (Academic Challenge) and substantiate the students' comments in the focus groups. CCSSE utilizes a set of five benchmarks of effective educational practice in community colleges. (A description of the CCSSE benchmarks is provided in Appendix E).

Figure 5: 2010 CCSSE Benchmark Scores



Source: CCSSE, 2010

While these scores are representative of the whole college, the CCSSE scores helped the QEP Steering Committee to understand the greater learning environment at SJR State. In particular, scores on Active and Collaborative Learning, Student-Faculty Interaction, and Support for Learners indicate some need to improve the learning environment for students, especially in gatekeeper courses that experience low success rates, such as MAT 1033. The College administered the CCSSE again in 2012, with results indicating room for improvement in all five benchmarks (see Appendix E).

Evaluating the long-term impact of the importance of successful performance in college credit mathematics courses looked at two components of student progression: *persistence* (fall-to-spring and fall-to-fall) and *completion*. First, data revealed that success and failure in the MAT 1033 and MAC 1105 differentially impact student persistence[1]. While the persistence of students who ***pass*** MAT 1033 vis-à-vis MAC 1105 is similar, students who ***fail*** MAT 1033 are much less likely to persist than their counterparts in MAC 1105. Most troubling, as Table 14 displays, **fewer than one-third of students who fail MAT 1033 will remain at SJR State the following fall**.

Table 14: Student Persistence by Course Success and Failure (2011-2012)

Course	Persistence among Students who Pass Course		Persistence among Students who Fail Course	
	Fall-to-Spring	*Fall-to-Fall*	*Fall-to-Spring*	*Fall-to-Fall*
MAT 1033: Intermediate Algebra	86.67%	67.27%	54.10%	32.60%
MAC 1105: College Algebra	88.64%	66.56%	62.96%	45.08%

Source: SJR State Institutional Research – Persistence Studies, Fall 2011 Cohort

Further, MAT 1033 has a declining and extremely low three-year degree completion rate[2] among full-time first-time in college (FTIC) students[3]. Among the FTIC cohort, about one in five (21%) of students who enrolled in MAT 1033 in the first fall semester completed in three years (i.e. 150% of time to degree). Among the FTIC cohort, about two in five (39%) of students who enrolled in MAC 1105 in the first fall semester completed in three years (150% of time to degree). Those students who are able to enroll directly into MAC 1105 are overall more likely to complete than those in MAT 1033. Simply, the faculty and staff agree that this needs to improve for students entering at the MAT 1033 level. Considering the growing importance of MAT 1033 in light of changes to developmental education, such low completion rates among students are unacceptable.

[1] Of all students who complete a course, the percentage that continue to the next term or next academic year.
[2] Time taken for students in a particular cohort to complete their degree within a specified time (typically three years for A.A. degrees)
[3] "First-time in college" is defined as students who enter college for the first time at the undergraduate level. The fall cohort also includes students enrolled in the fall term who attended college for the first time in the prior summer term and students who earned dual enrollment credits prior to graduating from high school.

Table 15: Summary Justification for MAT 1033 as QEP Focus

Summary Points
• MAT 1033 is a "gatekeeper" course as a pre-requisite for other courses and programs and impacts a significant number of students • Legislative-mandated changes to MAT 0028 (Developmental Mathematics) will have significant and unavoidable repercussions for student learning and student success in MAT 1033 and would have impacted the implementation of a QEP focused on Developmental Mathematics • Student failure and withdrawal in MAT 1033 is concerning • Student learning is compromised in MAT 1033 • The learning environment for engagement shows room for improvement • Student failure in MAT 1033 has a strong and substantial long-term impact on student persistence and completion

As a result of this extensive analysis, the QEP Team moved to focus on MAT 1033: Intermediate Algebra due to the broad-based and long-term impact on student learning and student success.

Design Phase

A QEP Design Team of 11 college representatives, including faculty and staff, was identified and appointed in fall 2012 to develop a logic model that would guide the development of the QEP for Intermediate Algebra. Several members of the team were members of the Steering Committee as well. The Design Team provided regular updates to the Steering Committee and took feedback from the Steering Committee to Design Team meetings. Representatives from the team attended the SACS annual meeting in December 2012 to learn more about the QEP process.

The Design Team met between January 2013 and May 2013 to develop the logic model, an instrument that serves a systematic and visual tool that presents and describes the relationship between 1) the resources a project requires, 2) the activities that the resources will enable, and 3) the change or results that will be achieved through the activities. (See Appendix F for a sample logic model.) The logic model served as a framework for development of the implementation and assessment components of the QEP.

The QEP logic model was reviewed and approved by the Steering Committee, and is provided on the following page. The logic model serves to summarize the ***Conquer Math*** QEP implementation and impact. Extensive detail on each column of the logic model is provided in subsequent sections.

Table 16: Conquer Math QEP Logic Model

PROCESS		OUTCOMES		
Resources *What do we need to make this program succeed?*	**Activities** *What do we need to accomplish?*	**Outputs** *What will these activities produce that we can measure/count?*	**Outcomes** *What changes will result from these activities?*	**Goals** *What are the desired long-term impacts of this program?*

Personnel
QEP Co-Directors
Faculty
Math Specialists
Student tutors
 	
Travel
Professional Development
QEP Meetings and Trainings
 	
Other Resources
Clicker technology
Pencast materials
Starfish Retention Software
Academic Support Centers (furniture, instructional equipment)
 	
Assessment Resources
CCSSE, SCEQ
SJR State survey instruments, SJR State course data sources, Baseline
	Improve Course Engagement in Mathematics
	• Deploy engaging teaching and learning strategies
	• Develop and launch early assessment/early intervention
	• Enhance faculty development
	
	Strengthen Student Support in Mathematics
	• Target student centric academic support resources
	  ○ On-campus services
	  ○ Virtual services
	
	QEP Assessment
	• Deploy a department-wide final examination in MAT 1033
	• Create assessment tools for activities
	• Create questions and rubric for SLOs
	• Integrate QEP Assessment into Institutional Effectiveness Annual Plan through Planning and Assessment System
		Course Engagement Outputs
		• Increase faculty implementing engaging teaching/learning strategies (#/%)
		• Increase the number of engaging teaching/ learning strategies used by faculty
		• Number of students given early assessment/ intervention plan
		• Of students who receive intervention plan, number of who act on plan/receive support services
		• MAT 1033 Department-wide final examination
		
		Student Support Outputs
		• Academic Support Centers renovated
		• Tutor training curriculum
		• Number of trained tutors
		• Number of students using tutoring
		• Number of hours tutoring in math
		• Number of services/activities provided by Math Specailists
		• Satisfaction score for tutoring
		• Number of hours SmartThinking used for MAT 1033 topics
		• Virtual skills lab (VSL) site live
		• Satisfaction with VSL
		• Number of page views for VSL
		• Number of learning objects for VSL
		• Number of sections using Starfish
			Student Learning Outcomes for MAT 1033
			Students will be able to:
			1. Simplify rational expressions and solve rational equations.
			2. Simplify radical expressions and solve radical equations.
			3. Solve quadratic equations.
			4. Calculate the equation of a line.
			5. Solve and graph systems of linear equations and inequalities.
			
			Student Success Outcomes
			Over the period of the QEP:
			1. Increase student course engagement in MAT 1033.
			2. Increase course retention for MAT 1033.
			3. Increase course success rates for MAT 1033.
			4. Increase course retention rates for MAC 1105*.
			5. Increase course success rates for MAC 1105*.
			6. Increase fall-to-spring and fall-to-fall persistence rates for all MAT 1033 students.
			7. Increase fall-to-spring and fall-to-fall persistence rates for all credit students.
			
			*MAT 1033 is a pre-requisite for MAC 1105
				PURPOSE STATEMENT
				The purpose of the QEP is to improve student learning in Intermediate Algebra (MAT 1033) to prepare students for continued success in subsequent courses.
				
				GOALS
				Student Learning:
				Increase student learning in Intermediate Algebra (MAT 1033).
				
				Student Success:
				Improve student success in Intermediate Algebra (MAT 1033) and subsequent courses for which MAT 1033 is a prerequisite.

Activities included in the logic model were well researched by the Design Team and Steering Committee and informed by best practices from a comprehensive literature review.

In addition, during the Design Phase, the Design Team mathematics faculty representatives reviewed, evaluated, and ultimately rewrote the SLOs for MAT 1033. The new SLOs are included in Table 17 and provide a refined definition of learning outcomes in MAT 1033. With the new SLOs, the Design Team met with the mathematics faculty to develop a new department-wide final examination to assess the new SLOs by section. The department-wide final examination will allow for consistent assessment across MAT 1033 sections to evaluate the levels of learning. This is a particularly important step as new interventions are piloted and evaluated.

Table 17: MAT 1033 Revised SLOs

SLO A: Simplify rational expressions and solve rational equations.
Divide two rational expressions
Add two rational expressions with different denominators
Simplify a complex rational expression
Solve a rational equation with different denominators
SLO B: Simplify radical expressions and solve radical equations.
Square or multiply radical expressions
Rationalize the denominator of an expression with two terms in the denominator
Simplify a quotient expression that contains a radical
Solve a radical equation
SLO C: Solve quadratic equations.
Use factoring to solve a quadratic equation
Use the square root property to solve a quadratic equation
Use completing the square to solve a quadratic equation
Use the quadratic formula for solve a quadratic equation
SLO D: Calculate the equation of a line.
Write an equation for a line given two points
Write an equation for a line given a point and a parallel line
Write an equation for a line given a point and a perpendicular line
Write and use an equation for a line given a slope and y-intercept in the context of an application problem
SLO E: Solve and graph systems of linear equations and inequalities.
Graph a system of linear inequalities
Solve a system of linear equations from a graph in the context of an application problem
Use the substitution method to solve a system of linear equations
Use the elimination method to solve a system of linear equations

QEP Goals and Outcomes

With this rich analysis around Intermediate Algebra, the QEP Steering Committee recommended the following purpose for the QEP, ***Conquer Math***, to guide the development of the QEP:

> **The purpose of the QEP is to improve student learning in Intermediate Algebra (MAT 1033) to prepare students for continued success in subsequent courses.**

Stemming from this specific purpose, the QEP has two goals, with a total of twelve (12) measurable outcomes. Assessment criteria along with baseline data and five year targets are described in full in the Assessment Section. The first goal, **to increase student learning in Intermediate Algebra**, will be measured by five (5) outcomes related to student learning in MAT 1033.

Goal 1: Increase Student Learning in Intermediate Algebra (Student Learning Outcomes).	
Outcome 1.1	Students will be able to simplify rational expressions and solve rational equations: • Divide two rational expressions • Add two rational expressions with different denominators • Simplify a complex rational expression • Solve a rational equation with different denominators
Outcome 1.2	Students will be able to simplify radical expressions and solve radical equations: • Square or multiply radical expressions • Rationalize the denominator of an expression with two terms in the denominator • Simplify a quotient expression that contains a radical • Solve a radical equation
Outcome 1.3	Students will be able to solve quadratic equations: • Use factoring to solve a quadratic equation • Use the square root property to solve a quadratic equation • Use completing the square to solve a quadratic equation • Use the quadratic formula to solve a quadratic equation
Outcome 1.4	Students will be able to calculate the equation of a line: • Write an equation for a line given two points • Write an equation for a line given a point and a parallel line • Write an equation for a line given a point and a perpendicular line • Write and use an equation for a line given a slope and y-intercept in the context of an application problem
Outcome 1.5	Students will be able to solve and graph systems of linear equations and inequalities: • Graph a system of linear inequalities • Solve a system of linear equations from a graph in the context of an application problem • Use the substitution method to solve a system of linear equations • Use the elimination method to solve a system of linear equations

The second goal is **to improve student success in Intermediate Algebra and subsequent courses for which MAT 1033 is a pre-requisite,** and will be measured by seven (7) outcomes related to student success both in mathematics and beyond. In evaluating student success, the QEP will aim to improve student course engagement, course retention, course success, and persistence among SJR State students.

Goal 2: Improve student success in Intermediate Algebra and subsequent courses and programs for which MAT 1033 is a pre-requisite.	
Outcome 2.1	Increase student course engagement in MAT 1033
Outcome 2.2	Increase course retention rates for MAT 1033
Outcome 2.3	Increase course success rates for MAT 1033
Outcome 2.4	Increase course retention rates for MAC 1105 (for which MAT 1033 is a pre-requisite)
Outcome 2.5	Increase course success rates for MAC 1105 (for which MAT 1033 is a pre-requisite)
Outcome 2.6	Increase persistence rates for all MAT 1033 students
Outcome 2.7	Increase persistence rates for all credit students

Implementation

St. Johns River State College's QEP, ***Conquer Math,*** is a comprehensive five-year plan to strengthen student learning and student success in MAT 1033. Intermediate Algebra represents a foundational course in a student's ability to progress through his or her studies. Beyond computation, mathematics prepares students for problem solving and "characterizing and understanding structure and patterns" (Bransford, Brown, and Cocking, p. 164, 2000). All programs require mathematics greater than Intermediate Algebra, and with so many students testing at the MAT 1033 level or lower, Intermediate Algebra is a critical juncture for student success, persistence, and degree completion.

Conquer Math comprises two initiatives, as described in the table below, to accomplish the goals and outcomes.

Table 18: Conquer Math Initiatives and Activities

Initiative	Key Activities	Targeted Impact
Improve Course Engagement in Mathematics	• Deploy engaging teaching and learning strategies • Launch early assessment/early intervention • Enhance faculty development	Student Engagement Student Learning Course Retention Course Success

Strengthen Student Support in Mathematics	• Target student centric academic support resources
	  ○ On-campus services
	  ○ Virtual services
		Course Success
		Course Retention
		Persistence
		Completion

Improve Course Engagement

Through ***Conquer Math,*** the mathematics faculty will initiate several key activities to address student learning in MAT 1033 through improved course engagement. Introductory courses are gateways to academic success and retention (Twigg, 2005). Yet, introductory courses tend to be taught in ways that homogenize students and their needs and standardize the learning environment, creating a less optimal teaching and learning process (Twigg, 2005). Indeed, St. Johns River State College's 2010 Community College Survey of Student Engagement (CCSSE) benchmark scores indicate that engagement could be improved across the institution. Students also highlighted the importance of student-faculty relationships in course success in QEP surveys and focus groups. However, creating an environment that elicits deep, meaningful learning is critical to ensuring content mastery and student success. Research documents that student learning increases and student success improves when students are engaged in the learning process (Chickering and Gameson, 1987; Astin, 1984; Bandura, 1977).

While most discussions on the concept "engagement" focus on institutional factors (e.g. student orientation, mandatory/intrusive advising, learning communities, etc.), engagement at the course level critically impacts student learning. Some researchers have argued that strengthening student engagement at the course level can have the most immediate impact on student outcomes (Handelsman et. al, 2005). Handelsman and colleagues provide a dynamic understanding of course engagement using four dimensions: 1) skills engagement, 2) participation engagement, 3) emotional engagement, and 4) performance engagement (Handelsman et. al, 2005). This multi-dimension understanding of course engagement is useful for developing and implementing strategies that will target and improve learning in mathematics.

Table 19: Handelsman Dimensions of Course Engagement[4]

Dimension	Definition	Example
Skills Engagement	The degree to which students practice skills that promote learning	Taking notes, studying, doing class homework, reading
Participation Engagement	The degree to which students have relationship to others, such as the instructor or other students	Asking questions in class, asking questions of a faculty member outside of class, participating in study group or small group discussions
Emotional Engagement	The degree to which students experience emotional involvement with class material through internalization and experiences	Making course content relevant to students' lives, thinking about material between class sessions, desiring to learn the material
Performance Engagement	The degree of importance students place on performance in class (i.e. on graded material)	A student who emphasizes getting an "A" on an exam or assignment, a student who merely wants to "pass"

Conquer Math is an opportunity to change how mathematics faculty teach students by improving course engagement. The Design Team developed three key activities to increase course engagement in MAT 1033:

1) Deploy engaging teaching and learning strategies
2) Provide an early assessment and responsive early intervention to support struggling or at-risk students early in the course
3) Enhance faculty development

These activities address learning as well as strengthening student-faculty relationships, a key element to success identified by all constituent groups, but especially students.

[4] Adapted from Handelsman et. al (2005). "A measure of college student course engagement." *The Journal of Educational Research*, Vol 98: 5, January/February 2005

Engaging Teaching and Learning Strategies

Research shows that student learning and success improve when students are *engaged* in the learning process (Chickering and Gameson 1987; Astin, 1984; Bandura, 1997). Students are likely to be successful, that is to persist and graduate, in settings that foster learning (Tinto, 2003). Indeed, as the seminal scholar Vincent Tinto states, "Nowhere is involvement more important than in the classrooms of the university, the one place - perhaps the only place - [where] students met each other and the faculty to engage in learning" (Tinto, 2003, p.4). Thus, classroom practices, in particular experiences that emphasize learning with others and contact between students and faculty, are important to attaining positive educational outcomes (Handelsman et al, 2005; Miller, Demoret, and Wadkins, n.d.; Tinto, 2012). The Center for Community College Student Engagement (CCCSE) lists "strengthen classroom engagement" as a key strategy for improving student success, recommending that instructors "raise expectations; promote active, engaged learning; emphasize deep learning; build and encourage relationships; and ensure that students know where they stand" (2010, p. 8).

The Mathematics faculty will develop, pilot, and implement a comprehensive "menu" of best practices to promote engaged learning. Faculty, individually and in cohorts, will be encouraged to rethink their approaches to teaching mathematics and to identify active learning strategies that will best work with their teaching philosophies and preferences, but also address multiple dimensions of course engagement (e.g. skill, emotional, participation, and performance).

There are a host of appropriate techniques and strategies that may be incorporated in mathematics instruction including the flipped classroom (Berrett, 2012; Strayer, 2007) or inquiry-based learning (Hmelo-Silver, Duncan, and Chinn, 2007); however, below is an in-depth discussion of some of the strategies that have been given significant consideration by the Design Team. These were chosen as most likely to succeed at SJR State given the culture of the college and its students.

> **Guided Notes:** Note-taking is a critical skill both in and beyond the classroom (Williams and Eggert, 2002). However, many students come to college-level classes without note-taking skills, especially in a class like math. As students struggle to copy down the instructor's every word, they often lack the ability to think through the concepts to ensure that they understand the material.
>
> Guided notes are partially populated lecture notes that come in various forms (Tonkes, Isacc, and Scharschkin, 2009). Some instructors use guided notes by leaving blanks for definitions, example problems, or techniques. Guided notes are often used to create problem solving opportunities and allow students to reflect on the material. Because the information is (partially) in front of them, students are able to put information in their own words as well as have the concepts from their course. Further, within a mathematics course, instructors often use guided notes as an opportunity to work through customized problems and can provide a "I do, you do" exercise for students. Research has shown that students who use guided notes (also referred to as skeleton notes) perform better than groups who were given a full set of notes (Barnett, 2003).

A couple of faculty have piloted guided notes in their classroom and have received positive feedback from students, especially when the notes were supplemented with pencasts (see Student Support activities). Students expressed that they had less anxiety because they knew the information was easily accessible to them for reference both in the guided notes and pencasts. An example of guided notes is included in Appendix G.

Classroom Response Systems: Classroom discussions are important aspects to gauging where students are in the material/lesson, identifying problem areas, and encouraging students to think creatively about the material. Classroom response systems (CRS) (e.g. "clickers") can encourage students to engage in material as a collective. Caldwell (2007), for instance, found that clickers, "enhance students' active learning, participation, and enjoyment of classes" (p. 503) and have an important impact on student learning outcomes, attendance, and course retention. "Question driven instruction" enabled by CRS seeks "to help students explore, organize, integrate, and extend their knowledge" (Beatty et. al, 2005, p. 32) – in others words engage on a deeper level. Another key feature of clickers is that they provide prompt feedback to both students and instructors on elements of learning and content mastery (D'Inverno, Davis, and White, 2003). Other research has found that students who use clickers perform better on exams (Shaffer and Collura, 2009). An example of a potential MAT 1033 "clicker" question is included in Appendix G.

Performance on Demand: Some faculty are interested in encouraging their students to learn by teaching the material to their peers. Learning the material occurs on a deeper level when students have to prepare to teach others (McGuire, 2013). Performance on Demand is an opportunity for students to exercise that level of learning. Faculty will design activities where students will have to prepare to teach their peers some method or problem in class to encourage content mastery.

Bridging Math Content to Applied Concepts: For many students enrolled at SJR State, applying mathematics to their career pathway is a critical component of their education. Yet, the typical separation between math and other academic areas make it difficult for students to make connections between disciplines (Cerrito, 1996; Holmes, 2006). Bridging math content to applied concepts is an opportunity to achieve emotional engagement. Contextualized learning, often used in adult education, is a successful methodology in helping students learn concepts in reading or math as they apply it to their potential career field. For SJR State instructors, mathematics faculty and faculty from Workforce and Arts and Sciences programs will attend working group meetings to discuss how non-math courses use content from MAT 1033, how non-math instructors teach or review this content, and common problems that students encounter with this content. Applied problems will be shared among mathematics faculty to use in MAT 1033 to provide students with real world examples. An example applied question in included in Appendix G.

Faculty will select a series of teaching and learning strategies to implement in their courses to improve course engagement and strengthen student learning. Faculty will use rigorous assessments to identify areas for improvement in their instruction including 1) a self-assessment instrument to gauge their perceptions of the course engagement strategies they piloted (see Appendix H), 2) the Handelsman Student Course Engagement Questionnaire (SCEQ) (see Appendix I), and 3) the department-wide final examination on student learning outcomes.

Early Assessment and Intervention

Providing early and frequent feedback is critical to student success (Tinto, 2003; CCCSE, 2010). "Feedback identifies areas of strength and weakness, so students have a greater likelihood of improving and ultimately succeeding. In addition, regular and appropriate assessment and prompt feedback help students progress from surface learning to deep learning" (CCCSE, 2010, p. 14). An early assessment is a tool to help students identify early content they may need support in learning, while also providing a means for an instructor to identify students who may be at-risk for failure or who may need additional academic support throughout the course. Once administered and graded, an early assessment can be used to prescribe academic support options for students. For instance, giving an early assessment and then teaching students how to learn and study effectively can improve student learning outcomes (Hoffman and McGuire, 2010). Helping students early in the course to identify the academic support resources that will help them be successful is a proactive strategy that aims to prevent "damage control" in the late part of the course, when their learning and performance may have already suffered.

Mathematics faculty will provide an early assessment to students within the first 2-3 weeks of the course. The early assessment tool will be an in-class quiz or test covering the first few lessons of the course. Although a master early assessment tool will be available for instructors to use, each instructor may customize the master tool or create his or her own. This assessment will flag students who are struggling with content early. Students who score below 70% on the assessment will receive an early intervention referral for academic support. The instructor will identify the concepts and areas where students need support and refer them to academic support specialists to access specific academic support services and resources such as tutoring on specific content, metacognitive study strategies, and instruction in accessing online resources (the Virtual Skills Lab, discussed on p.30, or Smarthinking). With the implementation of Starfish Academic Retention Solutions, the early intervention piece will seamlessly connect students with the academic support resources they need to be successful.

Together, these strategies will help faculty to increase course engagement and improve student learning. The following table outlines how the Handelsman Dimensions of Course Engagement will be addressed by the planned strategies.

Table 20: Course Engagement Dimensions Addressed

Course Engagement Key Activities	Course Engagement Dimension Addressed			
	Skill	Participation	Emotional	Performance
Course Engagement Strategies (examples)	✓	✓	✓	
Guided Notes	✓	✓		
Classroom Response Technology	✓	✓	✓	
Performance on Demand	✓	✓		
Bridging Math Content to Applied Concepts	✓		✓	
Early Assessment & Intervention	✓			✓

Enhance Faculty Development

High quality faculty development will ensure that faculty are equipped to implement techniques that improve course engagement, develop and execute early assessment/intervention, and strengthen student support. For many mathematics faculty, engaging teaching and learning techniques, early assessment/intervention, and involvement in student support require new skills.

St. Johns River State College provides ample internal professional development opportunities through the fall faculty orientation week, fall and spring departmental meetings, and the Professional Development Days (generally held twice each year). A general conversation about student engagement has been started at the College (see Table 21), and the focus of the QEP will have broad-reaching effects in encouraging all faculty to consider how they can increase student engagement.

Table 21: Professional Development Events (2012-2013)

Professional Development Event	Keynote Speaker
Fall Professional Development Institute (December 2012): Anchoring Student Engagement	Dr. Kevin Snyder, Inspir-Active Creative Solutions
Spring Professional Development Institute (May 2013): Student Engagement: CCSSE 2012 Institutional Results	Dr. Angela Oriano, Center for Community College Student Engagement
Faculty Convocation 2013 (August 2013): Teach Students HOW to Learn – Metacognition is the Key	Dr. Saundra McGuire, Louisiana State University

Faculty development will include internal workshops, meetings, and brown bag lunches as well as external attendance to conferences and trainings. Internal professional development opportunities will facilitate peer-to-peer learning. Faculty will share best practices in working with the SJR State population in implementing active learning strategies, developing digital learning objects to support student learning outside of the classroom, and strengthening student-faculty relationships. Some presentations may be a summary of books in the field that are appropriate for student learning (see Table 22 for a list of potential books). In addition, the mathematics faculty will hold workshops with faculty from other departments and divisions to collaborate on bridging math content to applied concepts.

Table 22: Books for Professional Development Discussions

Books on Learning and Engagement
How People Learn: Brain, Mind, Experience, and School (2000) - Committee on Developments in the Science of Learning
Teaching Unprepared Students (2008) - Kathleen Gabriel
Mindset: The New Psychology of Success (2006) - Carole Dweck
The Genius in All of Us (2010) - David Shenk
150 Ways to Improve Intrinsic Motivation in the Classroom (1995) - James P. Raffini
How Learning Works: 7 Research-Based Principles for Smart Teaching (2010) - Susan A. Ambrose, Michael W. Bridges, Michele DiPietro, Marsha C. Lovett, and Marie K. Norman

Finally, the QEP budget has set aside funds for mathematics faculty to travel to external conferences, such as the American Mathematical Association of Two-Year Colleges (AMATYC), Mathematical Association of America (MAA), Florida Two-Year College Mathematics Association, and the Florida College System State Assessment Meeting, to further develop teaching strategies specifically for teaching and learning in mathematics. Faculty who attend external professional development will present what they learned to their colleagues at an internal professional development activity or event.

Strengthen Student Support

Students who most need academic support are the least likely to seek it for a host of reasons from non-school responsibilities to a lack of awareness of resources (Vischer, Butcher, and Cerna, 2010). This is especially true among the First-Time-In-College (FTIC) population (Venit, 2008). Without early and aggressive intervention and targeted support, these students are likely to fail the course and/or drop out of college altogether. For a subject like mathematics, where student anxiety tends to be high (Betz, 1978), students must have access to a wide range of support resources and must be aware of those resources. ***Conquer Math*** will strengthen student support through embedding academic support in the course as well as expanding options for receiving support.

Student Centric Academic Support Resources

The mathematics faculty are not only re-thinking their approach to instruction, but also rethinking how to connect students to academic support resources. Designing resources so that they are student centric, accessible, and support the needs of MAT 1033 students and students using MAT 1033 concepts in other courses is a key feature of strengthening student support. The Design Team planned improvements for both on-campus and virtual services that will complement changes to course engagement.

On-Campus Services

The mathematics faculty will strengthen the connection to academic support resources available to students on campus. St. Johns River State College students have access to an Academic Support Center

on each campus. Each Academic Support Center has a computer lab and some limited tutoring available, but no full-time staff assigned to the center. Current layouts of the Academic Support Centers on each campus do not actively encourage collaboration. Most centers are set up with individual computer stations and have no space for student study groups or for group tutoring services. With new teaching and learning strategies being piloted and implemented, SJR State needs to create collaborative learning spaces to support students in their coursework. In addition, staff knowledgeable in mathematics and facilitating collaborative learning will be hired.

Through ***Conquer Math***, Academic Support Centers will be redesigned and re-furnished to create spaces that are student and learning centric and encourage students to work together. As necessary, Academic Support Centers will be relocated to a more appropriate space and furnished with workstations that will be more conducive to collaborative activities.

Each Academic Support Centers will be staffed by a full-time Mathematics Academic Support Specialist ("Math Specialists," 3.0 FTE) as well as part-time tutors specifically dedicated to mathematics. Math specialists will have a strong background in mathematics instruction. Faculty will ensure that the math specialists have a copy of their syllabi (with the course schedule) to ensure that the math specialists can prepare and schedule workshops and group sessions. Faculty also will have the opportunity to meet with the math specialists to design group assignments. At the beginning of each semester, math specialists will attend MAT 1033 classes to introduce students to the Academic Support Centers and the services provided for MAT 1033. As an integral part of the early assessment and early intervention process, math specialists will collaborate with faculty to develop processes for ensuring that students are aware of and attend referred/recommended services.

In addition, both math specialists and tutors will undergo training that will ensure that 1) services are offered in a manner that is consistent with the Math Department's instructional practices, and 2) students from other courses that require support in MAT 1033 level content receive consistent support. The Mathematics faculty will develop a training curriculum to ensure that math concepts for MAT 1033 are taught consistently by Academic Support staff. Additionally, cross-curricular faculty will form teams with Mathematics faculty to develop discipline-specific tutor training packets that will be used in the Academic Support Centers to guide the Math Specialists and tutors as they support students. Packets will address how to teach the concept(s), typical problems with which students need guidance, and application problems to help work with students. Finally, to specifically address comments and concerns from students regarding the quality of tutoring, St. Johns River State College will institute a new certification process for tutors to ensure that tutors are equipped with the proper interpersonal skills to offer support to mathematics students.

The Academic Support Centers will offer workshops, group study sessions, and individual tutor preparation. Workshops will include topics such as learning strategies and how to hold a study session so students are equipped to be active in the learning process (Hoffman and McGuire, 2010), as well as specific mathematics skills.

Overall, the redesigned spaces and targeted staffing will ensure that the QEP teaching and learning activities are supported and students have the appropriate resources on campus to succeed in MAT 1033 and subsequent courses.

Virtual Services

Student centric academic support resources also will come in the form of the virtual services including a Virtual Skills Lab (web page), Starfish Early Alert, and a MAT 1033 Course Orientation to provide students with asynchronous support resources. The Virtual Skills Lab (VSL) will be a centralized web page on the College portal for students to access online tools such as e-tutoring through Smarthinking (which the College currently has but far too few students are aware of), links to academic resources, the one-on-one and group tutoring sessions, and access to digital learning objects (e.g. podcasts, videos, pencasts) developed by faculty. These digital learning objects will be developed for MAT 1033 level skills and concepts. In addition to providing the digital learning objects on a general repository, faculty will be able to integrate and embed these resources in courses through the College's learning management system, Blackboard. Additionally, faculty from other courses that use applied concepts from MAT 1033 (e.g. physics or chemistry) will be able to embed these resources as appropriate into their courses.

For instance, pencasts are a significant resource for students as they learn concepts of MAT 1033. With a pencast, students are able to watch faculty explain concepts or how to approach problems with an audio explanation of each step. Students can pause, rewind, and re-watch these resources to ensure comprehension before attempting different problems. The combination of audio/visual presentation addresses the learning style preferences of both audio and visual learners. Faculty will create pencasts on a wide range of topics and concepts to allow students to review basic skills that are pre-requisite to the course as well as MAT 1033 material. (See Appendix G for an example pencast screenshot.)

As students are receiving early feedback on their performance, they also need support in connecting with resources that can help them maintain or increase success (CCCSE, 2010). To further facilitate the integration of instruction and support, the College will acquire and launch Starfish Academic Retention Solutions software in MAT 1033 to help connect students with the services they need. Starfish Academic Retention Solution provides tools to help students use online scheduling to set-up appointments with staff; locate the appropriate resources such as tutoring, individual departments, or individual employees; and develop an educational plan and alert advisors to milestones and changes along the path. In addition, an Early Alert component will notify the appropriate individual(s) (e.g., Math Specialists, advisors, and counselors), so that they can respond effectively, but also keep all responsible individuals informed as part of the process. The software provides analytics to identify patterns in alert data to help support staff create targeted solutions to emerging problems.

Even among students who are successful in other subjects, students often find that "studying and learning math is different from most other courses" (Nolting, 2002). Unfortunately, far too few students take a college success course prior to enrolling in college credit courses and therefore lack the skills to take notes or study. Despite this, Bransford, Brown and Cocking (2000) argue that metacognitive

strategies should be integrated in courses to support student learning. Exacerbated by a lack of skills, many students experience anxiety around math. Some researchers have found that math anxiety is quite pervasive – as high as 85% of students experience some level of math anxiety (Perry, 2004; Betz, 1978). Further, many students who struggled in MAT 1033 at SJR State anecdotally commented that the use of the computer-aided instructional course supplement, *MathXL*, was a valuable learning tool, but they struggled with inputting the answers correctly, which caused frustration. The value of *MathXL* can be increased by easing this barrier for students.

The ***Conquer Math*** team will develop and implement an online course orientation to address the anxiety, learning strategies for math, and instructional needs of students. The orientation will provide an overview of how to study mathematics, how to reach the instructor, and how to access academic support online or through an academic support center. Additionally, the course orientation will provide specific instructions for using *MathXL* and entering answers correctly to ensure that overcome this barrier to maximize the benefit of *MathXL*.

Implementation Plan and Timeline

Each component is systematically developed, piloted, and implemented to allow sufficient time for refinement as the QEP develops. Expansion will occur through the use of cohorts. The staggered implementation process will maximizes the impact of the initiatives by allowing the QEP to test activities small scale before launching strategies college-wide. Mathematics faculty will develop, pilot, revise, and implement in three cohorts. This process will allow faculty and staff to fully test and assess the impact of the identified key activities prior to scaling strategies broadly. The faculty cohorts are described below:

- **Faculty Cohort 1:** Math faculty who served on the Design Team
- **Faculty Cohort 2:** Full-time math faculty who did not serve on the Design Team
- **Faculty Cohort 3:** Adjunct math faculty

The table below provides the full implementation plan and timeline by QEP Year (Fall-Summer) including the tasks, participants, procedures, and tangible results as planned. Please note that an additional timeline for assessment activities is outlined in the assessment section of this document and only certain assessment activities are highlighted in the table below.

Table 23: Implementation Plan and Timeline

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
YEAR ONE (Fall 2013 – Summer 2014)					
Appoint Implementation Team members	*QEP Management*	QEP Leadership Team	Identify team members and appoint to committees and teams	Committees and teams in place	Fall 2013
Hire new personnel (math specialists, tutors)	Student Support	QEP Dirs., VP Acad. Affairs	Conduct search process for candidates; College procedures for hiring for positions	Personnel hired	*Planning-Fall 2013*
Establish baseline of engaging teaching/learning strategies	Engagement	QEP Dirs., Assessment Team, Math Faculty	Administer a survey to faculty on engaging teaching/learning strategies	Survey administered, results analyzed, baseline established	*Planning-Fall 2013*
Plan Academic Support Center renovations	Student Support	QEP Dirs., Design Team, Dir. of Acad. Prog. Sup.	Research and visit existing academic support centers and services; identify space on each campus	Visit(s) conducted. Space identified.	Summer 2013
Prepare Academic Support Centers	Student Support	QEP Dirs., Design Team, Dir. of Acad. Prog. Sup.	Determine furnishings and layout, hire additional math tutors	Academic Support Centers ready for use	Fall 2013
Establish baseline for the student course engagement	Engagement	QEP Dirs., Math Faculty, Assessment Team	Administer Student Course Engagement Questionnaire to students in MAT 1033	Survey administered, results analyzed, baseline established	Fall 2013
Develop Menu for engaging teaching and learning strategies	Engagement	QEP Dirs., Faculty Cohort 1	Research and identify potential strategies to improve course engagement	A pilot menu of strategies developed; course guides for strategies developed	Fall 2013
Develop master early assessment tool template	Engagement	QEP Dirs., Faculty Cohort 1	Develop a master early assessment tool that can be customized by individual faculty for early assessment	Early assessment tool ready to be piloted	Fall 2013
Develop master early intervention referral tool template	Engagement	QEP Dirs., Faculty Cohort 1	Develop a master early intervention referral tool that can be customized by individual faculty	Early intervention tool ready to be piloted	Fall 2013

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
(YEAR ONE)					
Fall 2013 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for fall 2013	Faculty will have attended professional development activities	Fall 2013
Pilot department-wide final with fully developed grading rubrics	Engagement	QEP Directors, Faculty Cohort 1	Pilot a department-wide final exam across MAT 1033 sections	Final piloted, graded, and ready for full implementation	Fall 2013
Develop QEP assessment instruments and tools and acquire software	*QEP Management*	QEP Dirs., Assessment Team	Identify components that require additional or new assessment instruments; meet with stakeholders to design tools; update assessment collection system through use of software	Assessment instruments and tools ready for use	Fall 2013
Purchase instructional technology for faculty	Engagement	QEP Dirs., Math Faculty	Use college procedures to procure instructional technology resources	Live scribe pens, classroom response systems etc. purchased	Fall 2013
Discuss cross-curricular bridge to math with all faculty	Engagement	QEP Dirs., Faculty	Engage faculty in conversation about applications of mathematics in their fields	Analysis of discussions	Fall 2013
Cross-Curricular Teams begin meeting	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Fall 2013
Formative Assessment	*QEP Management*	QEP Dirs., QEP Leadership Team	Review implementation processes and provide status report to stakeholders	Formative Assessment Report (Year 1)	Spring 2014
Faculty Cohort 1: Pilot teaching/learning strategies and early assessment/ intervention tools	Engagement	Faculty Cohort 1	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Spring 2014
Faculty Cohort 2: Learn about strategies	Engagement	Faculty Cohort 2, Faculty Cohort 1	Attend current pilot sections using teaching/learning strategies	Cohort 2 identify potential strategies to pilot	Spring 2014
Academic Support Centers renovated and piloted for services	Student Support	Faculty Cohort 1, Math Specialists, Dir. of Acad. Prog. Sup.	Prepare centers for service as a collaborative space. Pilot intervention services	Centers furnished and staffed for early intervention initiative	Spring 2014

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
(YEAR ONE)					
Spring 2014 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for spring 2014	Faculty will have attended professional development activities	Spring 2014
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Spring 2014
Develop in-house tutor training materials	Student Support	Math faculty, Math Specialists, Dir. of Acad. Prog. Sup.	Draft tutor training materials for tutoring in math	Tutor training manual; math tutor manual	Spring 2014
Complete Year 1 assessment activities	*QEP Management*	QEP Dirs., Assessment Team	Collect and analyze data as outlined in the assessment plan	Assessments conducted	Spring 2014
Conceptualize Virtual Skills Lab	Student Support	QEP Dirs., Math Faculty, Math Specialists	Review best practices in virtual skills labs and digital learning objects in math	Concept map developed	Summer 2014
Complete Year 1 QEP Assessment Report	*QEP Management*	QEP Dirs.	Review outcome data and compile a report on the progress of the QEP	Conquer Math QEP Report – Year 1	Summer 2014

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
YEAR TWO (Fall 2014 – Summer 2015)					
Purchase licenses for Starfish Retention Solutions software	Student Support	QEP Dirs., Dir. Of Acad. Prog. Sup., Math Specialists, Math Faculty	Use College procedures to procure license for Starfish software; begin user training	Starfish license procured; users attending training	Fall 2014
Update at Fall Convocation	*QEP Management*	QEP Dirs.	Present findings from Conquer Math QEP Report – Year 1	Faculty are updated on QEP progress	Fall 2014
Faculty Cohort 1: Revise and continue pilot teaching/learning strategies and early assessment/ intervention tools	Engagement	Faculty Cohort 1	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Fall 2014 – Spring 2015
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Fall 2014
Fall 2014 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for fall 2014	Faculty will have attended professional development activities	Fall 2014
Faculty Cohort 1: Update Early assessment/intervention tools	Engagement	Faculty Cohort 1	Review assessment, revise and refine tools	Updated tools ready to be piloted by other faculty	Fall 2014
Faculty Cohort 2: Identify and pilot teaching and learning strategies and early assessment/ intervention tools	Engagement	Faculty Cohort 2	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Fall 2014
Pilot tutor training	Student Support	QEP Dirs., Math Specialists, Tutors	Provide tutor training and assess results	Tutors trained, ready to provide services; tutor training materials	Fall 2014
Design Virtual Skills Lab	Student Support	QEP Dirs., Math Faculty, Math Specialists	Outline organization and content needs for the Virtual Skills Lab	VSL map	Fall 2014

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
(YEAR TWO)					
Outline content for Course Orientation	Student Support	QEP Dirs., Math Faculty	Survey students and faculty on content needs for course orientation; analyze for themes and feasibility	Survey administered and analyzed	Fall 2014
Formative Assessment (Year 2)	*QEP Management*	QEP Dirs., QEP Leadership Team	Review implementation processes and provide status report to stakeholders	Formative Assessment Report (Year 2)	Spring 2015
Faculty Cohort 2: Revise and continue pilot teaching/learning strategies	Engagement	Faculty Cohort 2	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Spring 2015
Develop Course Orientation Content	Student Support	QEP Dirs., Math Faculty	Team develop modules based on themes	Course orientation ready to pilot in selected sections	Spring 2015
Spring 2015 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for spring 2015	Faculty will have attended professional development activities	Spring 2015
Train Faculty Cohort 1 to pilot Starfish	Student Support	QEP Dirs., Dir. Of Acad. Prog. Sup., Math Specialists, Faculty Cohort 1	Train faculty and staff to use Starfish with the early assessment/early intervention processes	Starfish prepared to pilot	Spring 2015
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Spring 2015
Revise and pilot tutor training	Student Support	QEP Dirs., Math Specialists, Tutors	Update tutor training based on assessment; Provide tutor training	Tutors trained; update training materials	Spring 2015
Build web page for Virtual Skills Lab	Student Support	QEP Dirs., Math faculty, Math Spec., IT	Work with IT to set up infrastructure for VSL; Design web page	Virtual Skills Lab ready to piloting	Spring 2015

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
(YEAR TWO)					
Develop digital learning objects	Student Support	QEP Dirs., Math Faculty, Math Specialists	Develop digital learning objects based on topics identified in the early assessment	Digital learning objects posted on VSL	Spring 2015
Complete Year 2 assessment activities	*QEP Management*	QEP Dirs., Assessment Team	Collect and analyze data as outlined in the assessment plan	Assessments conducted	Spring 2015
Complete Year 2 QEP Assessment Report	*QEP Management*	QEP Dirs.	Review summative data and compile a report on the progress of the QEP	Conquer Math QEP Report – Year 2	Summer 2015

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
YEAR THREE (Fall 2015 - Summer 2016)					
Update at Fall Convocation	*QEP Management*	QEP Dirs.	Present findings from Conquer Math QEP Report – Year 2	Faculty are updated on QEP progress	Fall 2015
Faculty Cohort 1: Implement promising teaching and learning strategies	Engagement	Faculty Cohort 1	Implement promising teaching and learning in all Faculty Cohort 1 sections of MAT 1033	Faculty Cohort 1 strategies fully implemented	Fall 2015
Pilot Course Orientation	Student Support	QEP Dirs., Math Faculty	Select a small sample of MAT 1033 sections to pilot use of Course Orientation	Course orientation piloted; assessment data analyzed	Fall 2015
Fall 2015 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for fall 2015	Faculty will have attended professional development activities	Fall 2015
Faculty Cohort 2: Revise and continue pilot teaching/learning strategies	Engagement	Faculty Cohort 2	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Fall 2015
Faculty Cohort 1: Pilot Starfish	Student Support	Faculty Cohort 1	Pilot Starfish as an early intervention tool	Pilot completed; surveys and faculty self-reflections completed	Fall 2015
Launch Virtual Skills Lab for Faculty Cohorts 1 and 2	Student Support	Faculty Cohorts 1, 2	Pilot VSL in Faculty Cohort 1 and 2 sections of MAT 1033	VSL piloted and ready for expansion	Fall 2015
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Fall 2015
Revise and pilot tutor training	Student Support	QEP Dirs., Math Specialists, Tutors	Update tutor training based on assessment; Provide tutor training	Tutors trained; update training materials	Fall 2015
Formative Assessment (Year 3)	*QEP Management*	QEP Dirs., QEP Leadership Team	Review implementation processes and provide status report to stakeholders	Formative Assessment Report (Year 3)	Spring 2016
Faculty Cohort 2: Implement promising teaching and learning strategies	Engagement	Faculty Cohort 2	Implement promising teaching and learning in all Faculty Cohort 1 sections of MAT 1033	Faculty Cohort 2 strategies fully implemented	Spring 2016
Faculty Cohort 3: Learn about teaching and learning strategies	Engagement	Faculty Cohort 3	Faculty Cohort 3 members meet with faculty mentors to discuss strategies; Faculty attend sections to see strategies	Cohort 3 identify potential strategies to pilot	Spring 2016

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
(YEAR THREE)					
Spring 2016 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for spring 2016	Faculty will have attended professional development activities	Spring 2016
Expand use of Virtual Skills Lab	Student Support	Math Faculty	Expand sections using VSL; add more digital learning objects; revise content as necessary	VSL a resource to all sections of MAT 1033	Spring 2016
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Spring 2016
Revise and pilot Course Orientation	Student Support	QEP Dirs., Math Faculty	Review assessment data and revise orientation, expand pilot use of Course Orientation	Course orientation piloted; assessment data analyzed	Spring 2016
Implement tutor training	Student Support	QEP Dirs., Math Specialists, Tutors	Fully implement tutoring training for all math tutors	Tutor materials finalized (updated annually); tutor training offered	Spring 2016
Complete Year 3 assessment activities	*QEP Management*	QEP Dirs., Assessment Team	Collect and analyze data as outlined in the assessment plan	Assessments conducted	Spring 2016
Complete Year 3 QEP Assessment Report	*QEP Management*	QEP Dirs.	Review summative data and compile a report on the progress of the QEP	Conquer Math QEP Report – Year 3	Summer 2016

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
YEAR FOUR (Fall 2016 - Summer 2017)					
Update at Fall Convocation	*QEP Management*	QEP Dirs.	Present findings from Conquer Math QEP Report – Year 3	Faculty are updated on QEP progress	Fall 2016
Fall 2016 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for fall 2016	Faculty will have attended professional development activities	Fall 2016
Faculty Cohort 2: Pilot Starfish	Student Support	Faculty Cohort 2; QEP Dirs.; Math Faculty; Dir. of Acad. Prog. Sup.	Pilot Starfish as an early intervention tool	Pilot completed; surveys and faculty self-reflections completed	Fall 2016
Faculty Cohort 3: Identify and pilot teaching and learning strategies and early assessment/ intervention tools	Engagement	Faculty Cohort 3	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Fall 2016
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Fall 2016
Implement Course Orientation in MAT 1033	Student Support	QEP Dirs., Math Faculty	Implement Course Orientation in all sections of MAT 1033	Course Orientation fully implemented	Fall 2016
Formative Assessment (Year 4)	*QEP Management*	QEP Dirs., QEP Leadership Team	Review implementation processes and provide status report to stakeholders	Formative Assessment Report (Year 4)	Spring 2017
Spring 2017 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for spring 2017	Faculty will have attended professional development activities	Spring 2017
Cross-Curricular Teams meet to develop packets	Student Support	QEP Dirs., Faculty	Faculty hold meetings to discuss MAT 1033 topics in non-math class, problems students encounter, and applied problems	Discipline-specific packet	Spring 2017

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
(YEAR FOUR)					
Faculty Cohort 3: Revise and continue pilot teaching/learning strategies	Engagement	Faculty Cohort 3	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Spring 2017
Complete Year 4 assessment activities	*QEP Management*	QEP Dirs., Assessment Team	Collect and analyze data as outlined in the assessment plan	Assessments conducted	Spring 2017
Complete Year 4 QEP Assessment Report	*QEP Management*	QEP Dirs.	Review summative data and compile a report on the progress of the QEP	Conquer Math QEP Report – Year 4	Summer 2017

Tasks	Initiative	Participants	Procedures	Tangible Results	Time
YEAR FIVE (Fall 2017 - Summer 2018)					
Update at Fall Convocation	*QEP Management*	QEP Dirs.	Present findings from Conquer Math QEP Report – Year 4	Faculty are updated on QEP progress	Fall 2017
Fall 2017 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for fall 2017	Faculty will have attended professional development activities	Fall 2017
Faculty Cohort 3: Revise and continue pilot teaching/ learning strategies	Engagement	Faculty Cohort 3	Use course guides to pilot teaching/learning strategies; Use customized version of early assessment/intervention tools	Pilot completed; surveys completed; assessment data reviewed	Fall 2017
Formative Assessment (Year 5)	*QEP Management*	QEP Dirs., QEP Leadership Team	Review implementation processes and provide status report to stakeholders	Formative Assessment Report (Year 5)	Spring 2018
Spring 2018 Faculty Development	Engagement	QEP Dirs., Faculty	Conduct faculty development activities for spring 2018	Faculty will have attended professional development activities	Spring 2018
Faculty Cohort 3: Implement promising teaching and learning strategies	Engagement	Faculty Cohort 3	Implement promising teaching and learning in all Faculty Cohort 1 sections of MAT 1033	Faculty Cohort 3 strategies fully implemented	Spring 2018
Faculty Cohort 3: Pilot Starfish	Student Support	Faculty Cohort 3; QEP Dir.; Math Faculty; Dir. of Acad. Prog. Sup.	Pilot Starfish as an early intervention tool	Pilot completed; surveys and faculty self-reflections completed	Spring 2018
Complete Year 5 assessment activities	*QEP Management*	QEP Dirs., Assessment Team	Collect and analyze data as outlined in the assessment plan	Assessments conducted	Spring 2018
Complete Final QEP Assessment Report	*QEP Management*	QEP Dirs.	Review summative data and compile a report on the progress of the QEP	Conquer Math QEP Final Report	Summer 2018

QEP Timeline

Table 24 provides a summary of the implementation plan organized by key milestones for the two initiatives of ***Conquer Math:*** 1) Improve course engagement in mathematics and 2) Strengthen student support. Each planned activity will be developed, piloted, and implemented to allow for sufficient time for assessment and refinements as the project leads to the enhancement of the institution. Following implementation, each activity is expanded throughout the project period as part of the institutionalization process. The timeline is reasonable and will result in significant improvements in mathematics education at the College.

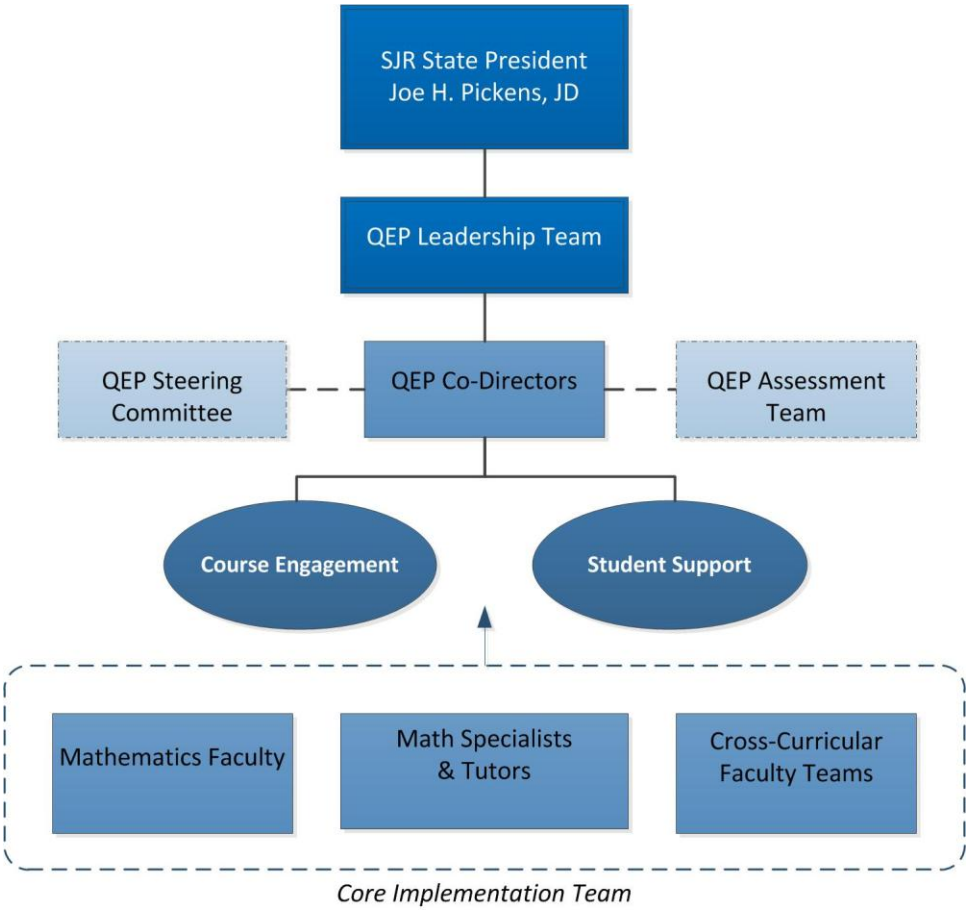
Table 24: QEP Timeline

Improve Course Engagement					
Key Milestone	**QEP YEAR**				
	1	***2***	***3***	***4***	***5***
Baselines established for assessment metrics					
Develop menu of engaging teaching and learning strategies					
Develop master early assessment and early intervention referral tools					
Faculty pilots of teaching and learning strategies and early assessment and early intervention tools					
Faculty Cohort 1 pilot/revise					
Faculty Cohort 2 pilot/revise					
Faculty Cohort 3 pilot/revise					
Faculty Implementation of teaching and learning strategies and early assessment and early intervention tools					
Faculty Cohort 1 implementation					
Faculty Cohort 2 implementation					
Faculty Cohort 3 implementation					
Enhance faculty development					
Strengthen Student Support					
Key Milestone	**QEP YEAR**				
	1	***2***	***3***	***4***	***5***
Academic Support Centers renovated, furnished, and staffed					
Pilot Academic Support Centers					
Tutor training materials developed					
Pilot tutor training					
Implement tutor training					
Design and develop Virtual Skills Lab					
Launch Virtual Skills Lab					
Purchase Starfish Retention Solutions software and train staff					
Pilot Starfish					
Design and develop MAT 1033 Course Orientation					
Pilot MAT 1033 Course Orientation					
Implement Course Orientation					

Organizational Structure

An outstanding team is involved in the QEP implementation. To ensure broad involvement in the QEP, ***Conquer Math*** will be led by QEP Co-Directors, with the continuing guidance of the Steering Committee and oversight of the QEP Leadership Team.

Figure 6: Conquer Math QEP Organizational Chart



Roles and Responsibilities

QEP Leadership Team

The QEP Leadership Team includes the President, Vice Presidents for Academic Affairs, Workforce Development, and Research and Institutional Effectiveness as well as the QEP Co-Directors. The role of the QEP Leadership Team is to provide the administrative support and oversight to ensure the successful and sustainable implementation of the QEP.

QEP Leadership Team Responsibilities
• Oversee the implementation and assessment of the QEP • Provide feedback, guidance, and support for the QEP initiatives • Coordinate the college-wide implementation of the QEP with appropriate financial and human resources • Coordinate the assessment of the QEP including data collection, analysis, and reporting

Vice President for Academic Affairs

Dr. Melanie Brown will provide oversight for the implementation of the Quality Enhancement Plan by working closely with the QEP Co-Directors, Vice President for Research and Institutional Effectiveness, and the Vice President for Workforce Development. Dr. Brown reports directly to the president and will provide regular reports on the progress of the QEP along the five year implementation. Dr. Brown will coordinate with the QEP Co-Directors to manage the QEP budget and personnel to ensure that the project is supported by adequate resources.

Vice President for Workforce Development

Dr. Anna Lebesch will support the implementation of the cross-curricular bridging mathematics content to applied concepts component. As this component is particular relevant to the Workforce Programs (e.g. Nursing, Allied Health, Criminal Justice, etc.), Dr. Lebesch will oversee faculty involvement and the meetings among the cross-curricular teams.

Vice President for Research and Institutional Effectiveness

Dr. Rosalind Humerick will oversee the assessment of the QEP. She will coordinate the integration of the Quality Enhancement Plan into the College's Institutional Effectiveness processes, including the annual Planning and Assessment System. Dr. Humerick will oversee and manage the data collection, analyses, and reporting functions of the assessment of the QEP.

QEP Co-Directors

Ms. Julie Kelly and Mr. William Veczko will serve as QEP Co-Directors. Ms. Kelly served as the QEP Chair during the planning stages of the QEP and is currently a Communications Instructor at the College. Mr. Veczko served on the Design Team and is a current Mathematics Instructor. They will be responsible for the full implementation of the QEP.

Based on the design of the QEP, St. Johns River State College has selected QEP Co-Directors to support the implementation of ***Conquer Math***. The two initiatives of the project require distinct skills and knowledge in mathematics instruction as well as student support. The selected co-directors complement their individual skills and knowledge in these two areas. Both co-directors offer continuity from the planning to implementation phases. This continuity is further supported by the fact that the co-directors are currently established members of SJR State's close-knit academic community and will be able to leverage these relationships for implementation. Further, given SJR State's location, mathematics faculty are difficult to replace, and SJR State's math faculty value being *in* the classroom. Finally, co-directors

strategically integrate the project into the existing College structure, which will lead to long-term, sustainable change.

QEP Co-Directors Responsibilities
• Manage and administer the QEP • Co-Chair the Steering Committee • Coordinate the implementation core • Manage the QEP budget • Oversee and coordinates the QEP implementation activities to ensure adequate progress and maintain timeline • Coordinate with the Assessment Team to ensure that the QEP is being properly assessed with appropriate data collection and analyses procedures • Provide updates to stakeholders and constituents at appropriate intervals • Prepare the annual progress reports to constituents

Mathematics Faculty

Mathematics faculty teaching MAT 1033 (full-time and adjunct) from the three campuses will be involved as members of the core implementation team.

Mathematics Faculty Responsibilities
• Research and develop engaging teaching/learning strategies menu • Coordinate with and train the Mathematics Academic Support Specialists and tutors to provide student centric academic support resources for MAT 1033 students • Pilot, revise, and implement strategies and products created through the QEP • Support data collection and assessment • Attend professional development activities

Mathematics Academic Support Specialists & Tutors

Under the direction of the Director of Academic Program Support, the Mathematics Academic Support Specialists (Math Specialists) and tutors will be responsible for the implementation of the student support components of ***Conquer Math***.

Math Specialists Responsibilities
• Coordinate with the mathematics faculty to plan, design, and implement embedded academic support strategies • Coordinate and manage resources to support instructional needs • Staff and monitor the Academic Support Centers to ensure that students have appropriate access • Provide tutoring and support instruction in mathematics • Oversee and coordinate tutors, tutoring schedule, and group study activities • Track and report on student use of the math support resources to faculty • Support the implementation of Starfish • Conduct workshops on mathematics skills and metacognitive learning strategies • Attend professional development activities

Tutors Responsibilities
• Provide individual and group tutoring services • Track data on tutoring services provided

Cross-Curricular Faculty Teams

The role of the cross-curricular faculty teams will be to lead activities to bridge math content to applied concepts across the curriculum and to develop discipline-specific academic support packets. Teams will comprise faculty representing Workforce programs or Arts and Sciences disciplines and a math representative. The teams will meet to discuss the topics specific to MAT 1033 discussed in the non-math course, how faculty teach those topics, and common problems encountered by students.

Cross-Curricular Faculty Team Responsibilities
• Attend meetings with mathematics faculty to develop materials and learning objects to bridge math content to applied concepts • Refer students to appropriate Virtual Skills Lab resources (e.g. pencasts, videos, Smarthinking, etc.) • Attend professional development activities

Assessment Team

The QEP Assessment Team will be led by the Vice President for Research and Institutional Effectiveness and will include the QEP Directors, the Director of Academic Program Support, Associate Dean for Arts and Sciences/Mathematics Chair, and Research and Institutional Effectiveness staff.

Assessment Team Responsibilities
• Coordinate with the QEP Co-Directors to implement the assessment plan with stakeholders • Support the implementation core in developing assessment tools in conjunction with mathematics faculty • Support team members in data collection • Support data analysis and provide reports in accordance with the assessment plan

Steering Committee

The QEP Steering Committee will remain an active component of the QEP implementation. The Steering Committee will provide input, guidance, and feedback as the QEP is implemented and assessed. As the Steering Committee comprises a broad range of faculty, staff, and administrators across the campuses and academic and support departments, the committee will be instrumental to ensuring broad-based support and involvement in the QEP.

Steering Committee Responsibilities
• Promote the purpose and activities of the QEP to students, faculty, staff, and administrators • Participate and encourage broad-based participation in QEP activities, as appropriate • Review and provide informed feedback on the progress of the QEP assessment

Budget

St. Johns River State College has sufficient financial and human resources to initiate, implement, sustain, and complete the Conquer Math project. As indicated in the logic model, required resources were identified as activities were planned and formed the basis for initial budget discussions with the administration. The proposed QEP budget was an integral part of College-wide 2013-2014 budget decisions, indicating the thorough planning and institutional support provided to the QEP.

The budget presented below includes the personnel, travel, materials and supplies, equipment and furniture, and contractual resources required by the QEP activities over the five year period (2013-2018). The budget has been designed by quotes and researched estimates on the costs required by each component of the activity to ensure a strong budget that directly supports the QEP. Personnel costs are calculated as a percentage of salary and fringe costs and use the SJR State Salary Schedule to ensure consistency with policies and procedures. The QEP will be supported by the QEP Leadership Team (Vice President for Academic Affairs, Vice President for Workforce Development, and Vice President for Research and Institutional Effectiveness) as well as existing personnel such as Research and Institutional Effectiveness staff and the Director of Academic Program Support. These costs are not reflected in the budget.

The total cost to implement the QEP is $1,309,950: $99,750 (8%) will support Course Engagement, $1,015,900 (78%) will fund Student Centric Support, and $194,300 (15%) will support QEP management and assessment.

The QEP was presented to the St. Johns River State College District Board of Trustees as part of the Budget Workshop in May 2013. The Board approved the College's reallocation of funds to support the QEP. The College administration has reviewed and approved the total QEP budget.

Table 25: Budget

	2012-13 Plan Yr	2013-14 *Year 1*	2014-15 *Year 2*	2015-16 *Year 3*	2016-17 *Year 4*	2017-18 *Year 5*	TOTAL *Years 1-5*
PERSONNEL							
QEP Design/Development Faculty Release Time	*$16,000*						
QEP Co-Directors Release Time	--	$10,500	$10,500	$10,500	$10,500	$10,500	$52,500
Faculty Release Time	--	$5,250	$5,250	$5,250	$5,250	$5,250	$26,250
Mathematics Academic Support Specialists Salary and Benefits (3.0 FTE)	--	$113,400	$113,400	$113,400	$113,400	$113,400	$567,000
Additional Math Student tutors (30 hours/week x 3 campuses at $8-10/hour)	--	$40,000	$40,000	$40,000	$40,000	$40,000	$200,000

	2012-13 Plan Yr	2013-14 *Year 1*	2014-15 *Year 2*	2015-16 *Year 3*	2016-17 *Year 4*	2017-18 *Year 5*	TOTAL *Years 1-5*
TRAVEL							
National and statewide travel for professional development ($1,500/person for national conferences, $400 /person for statewide meetings)	*$8,500*	$9,400	$8,500	$8,500	$8,500	$8,500	$43,400
In-district travel between campuses for training, meetings	*$2,400*	$1,000	$1,000	$1,000	$1,000	$1,000	$5,000
SUPPLIES							
Tutor training materials	--	$1,000	$750	$750	$750	$750	$4,000
Promotional/marketing materials	--	$5,000	$2,000	$1,000	$0	$0	$8,000
Office supplies	--	$2,000	$200	$200	$200	$200	$2,800
CONTRACTUAL							
Software packages: Baseline Software ($22,000/year), Starfish Connect and Early Alert Retention Solution ($64,000 in Year 2, $40,000/year in Years 3-5)	--	$22,000	$86,000	$62,000	$62,000	$62,000	$294,000
On-site workshops and speakers	*$5,000*	$3,000	$3,000	$3,000	$3,000	$3,000	$15,000
CCSSE Survey Administration	--		$8,000			$8,000	$16,000
Tutor Certification	--			$300	$300	$300	$900
EQUIPMENT & FURNITURE							
Instructional equipment: Livescribe pens ($800 in Year 1, $600 in Year 2, and $200/year in Years 3-5), Classroom Polling Response Technology ($5,000 in Year 1; $2,500 in Year 2); iPads ($4,500 in Year 1, $1,100 in Year 2); Instructor Computer Workstation/ Project System (1 per Academic Support Center, $15,000)	--	$25,300	$4,200	$200	$200	$200	$30,100
Furnishings for Academic Support Centers ($15,000 per campus for tables, white boards, seating)	*$0*	$45,000	$0	$0	$0	$0	$45,000
TOTAL	*$31,900*	$282,850	$282,100	$246,800	$245,100	$253,100	$1,309,950

Assessment

St. Johns River State College (SJR State or the College) is a data-driven institution and has a strong institutional effectiveness foundation that informed the development of the QEP Assessment.

The ***Conquer Math*** assessment is comprehensive and will include both implementation/process and impact components to ensure that the QEP achieves the intended goals and outcomes and leads to sustainable, long-term change. The assessment will be led by the Assessment Team (Vice President for Research and Institutional Effectiveness, QEP Co-Directors, Director of Academic Program Support, Associate Dean of Arts and Science/Mathematics Chair, and Research and Institutional Effectiveness staff), with data collection and interpretation tasks assigned to Implementation Team members.

Guided by the logic model, ***Conquer Math*** has been designed to be highly measureable, with assessment as a core component for each activity. The purpose of ***Conquer Math*** is to improve student learning in Intermediate Algebra (MAT 1033) to prepare students for continued success in subsequent courses. There are two goals:

1. Increase student learning in Intermediate Algebra
2. Improve student success in Intermediate Algebra and subsequent courses for which MAT 1033 is a pre-requisite

To measure changes in knowledge, skills, attitudes, and behaviors, twelve (12) outcomes have been established that will measure changes in learning, course engagement in MAT 1033, course retention in MAT 1033, course success in MAT 1033, student performance in a subsequent course (MAC 1105), and fall-to-spring and fall-to-fall student persistence rates.

General Assessment Design

The design of assessment uses a systematic approach to review the implementation and impact of the QEP including continuous data collection, interpretation, and responsive adjustment (Westat, 2002). The assessment of the QEP includes both direct and indirect measures of student learning and success and will use both internal and external sources of data to further validate the patterns of the assessment. Further, the design of the projected outcomes uses three-tiers of data elements (product, process, and impact) that strengthen the formative and summative assessment of the QEP.

Table 26: Examples of Data Elements

Data Elements		Focus
Process	Documents of progress including minutes of meetings, approval of documents, financial records, and other materials related to implementation procedures	Implementation
Product	Outputs and other deliverables such as active learning guides, tutor training materials, syllabi, the Virtual Skills Lab, and records of student participation in activities	Implementation
Impact	Gains in student learning, course retention, student success, persistence rates, and engagement levels	Impact

The annual assessment will be integrated into the College's Institutional Effectiveness Plan. SJR State uses an online Planning and Assessment system for all academic and non-academic units of the College. Units set unit goals and annual outcomes to measure effectiveness, including setting assessment methods and criteria, and then report on these outcomes at the end of the year. The QEP will be a unit in the Planning and Assessment System under Research and Institutional Effectiveness, managed by the QEP Co-Directors. Aligned to the assessment plan described herein, the QEP will maintain unit goals and annual outcomes, with specified assessment criteria and methods in the Planning and Assessment System.

Data collection will be ongoing to ensure that data are captured at appropriate intervals. Data sources will be quantitative and qualitative in nature. During the Design Phase, Research and Institutional Effectiveness started a data warehouse (along with a data dictionary) that establishes baselines for outcomes using available data sources. The data warehouse will be maintained to include updated data as the QEP progresses.

Table 27: Assessment Data Sources

Data Source	Data Type	Internal/External	Frequency
MAT 1033 Department Final	Quantitative	Internal	Fall/Spring
Student Course Engagement Questionnaire (SCEQ)	Quantitative	Internal	Fall/Spring
Community College Survey of Student Engagement (CCSSE)	Quantitative	External	QEP Year 2 QEP Year 5
Grade distributions	Quantitative	Internal	Fall/Spring
National Community College Benchmark Project (NCCBP)	Quantitative	External	Annually
Student surveys	Qualitative	Internal	Fall/Spring
Faculty self-reflections	Qualitative	Internal	Fall/Spring

While many of the assessment tools are in place, a few still will need to be designed. The QEP Assessment Team will coordinate the design of assessment instruments not currently in place, such as satisfaction surveys, grading rubric, and faculty self-reflection form within Year 1.

The Assessment Team will manage the assessment processes including data collection and analysis, and reporting. The Assessment Team will collaborate with appropriate implementation core members to design any data collection elements including surveys and focus group questionnaires. Data analysis will be continuous as the QEP is implemented.

The QEP Directors will issue annual reports on the implementation and impact assessment. A formative assessment report will be issued mid-year and will provide an update on the implementation process and need for course correction. An annual QEP report will be composed to highlight the summative impact of ***Conquer Math*** in its goals and outcomes as well as a component on formative assessment. Annual QEP reports will be reviewed by the QEP Leadership Team and the Steering Committee.

Implementation Assessment

A semi-annual implementation assessment will guide continuous quality improvement, thereby allowing for mid-course correction as ***Conquer Math*** progresses. The implementation assessment will focus process and product data elements, on process and activities, resource allocation and expenditures, and management for correction. An annual implementation assessment report will be issued in mid-year, with a component in the annual report focusing on implementation assessment as well.

The implementation assessment will use the process and product data elements and analyze questions related to implementation. In particular, this assessment will use the Implementation Plan (see p. 31-42) to review the process, ensuring that the tasks are being accomplished as described, involving the appropriate participants, leading to the proposed tangible results, and according to the proposed timeline. Adjustments in implementation are expected, and will be noted in the report.

Surveys and focus groups will be used to gather feedback from students, as well as faculty and staff as required. In particular, there are two surveys that will be informative for the implementation assessment. First, a QEP Activities Survey will be designed and administered every semester to gauge the quality of the activities and user satisfaction through student, faculty, and staff feedback. Second, the College will continue to administer the Student Initiated Withdrawal survey to track why students report they are leaving MAT 1033.

Finally, the formative assessment will track and report on the outputs/deliverables produced through the QEP. Table 28 outlines the anticipated outputs/deliverables produced by each initiative.

Table 28: Outputs and Deliverables

Course Engagement	Student Support
• Menu of strategies and course guides for teaching/learning strategies • Early assessment master tool • Early intervention referral master form • Number/percent of faculty implementing teaching and learning strategies • Number of engaging teaching and learning strategies used by faculty • Number of students given an early assessment • Number of students earning <70% on assessment who receive an intervention referral • Number of students who receive an intervention referral and follow through • Number of faculty participating in cross-curricular conversations	• Academic Support Centers on each campus • Tutor training curriculum • Virtual Skills Lab (VSL) site • Number of trained tutors • Number of students using tutoring • Number of hours tutoring in math • Number of services and activities provided by Math Specialists and tutors • Satisfaction score for tutoring • Number of hours of Smarthinking for MAT 1033 topics • Satisfaction with VSL • Number page views for VSL • Number of digital learning objects created for VSL • Number of sections using Starfish

Impact Assessment

The QEP Assessment Team will conduct the impact assessment annually to measure progress toward goals and outcomes as well as a summative assessment at the conclusion of the QEP. Annual progress will be reported in the QEP annual report each summer, and identifying whether the gains are adequate. The QEP annual report will be shared with the full Implementation Team for review and feedback. Additionally, the co-directors will present the findings to SJR State faculty at the Fall Convocation held annually in August.

Impact is measured according to the two goals and twelve outcomes established by the QEP Design Team. Improving student learning is a key focus on ***Conquer Math.*** The first goal of ***Conquer Math*** is to increase the percentage of MAT 1033 students who demonstrate proficiency of the knowledge and skills required by Intermediate Algebra as defined by student learning outcomes. The math faculty have already redesigned the student learning outcomes for MAT 1033, creating SLOs that are more precise in nature. In addition, they will be developing, piloting, and implementing a department-wide final examination for MAT 1033 to create consistency in the assessment of student learning at the end-of-course. The department-wide final will be the assessment tool for capturing data related to student learning in MAT 1033. The department final will include questions representative of each of the five SLOs and will be graded using a rubric. Grading will be standardized by the mathematics faculty to ensure grading consistency. Targets for each of the student learning outcomes are for students who successfully complete MAT 1033 with a C or higher.

A preliminary version of the final was piloted by two instructors over Summer Term 2013 with an *n* of 50. A formal pilot will occur this fall. Preliminary results of the summer pilot are presented in Table 29 below as an initial baseline. (A sample grading rubric is included in Appendix J.)

Table 29: Student Learning Outcomes

Student Learning Outcome	Baseline	Target
Students who successfully complete MAT 1033 will demonstrate proficiency at the 3.0/4.0 point level on each of the five learning outcomes.	**n=50**	**n=50**
SLO A: Rational Expressions and Equations	**2.04**	**3.00**
Divide two rational expressions	2.82	3.00
Add two rational expressions with different denominators	2.26	3.00
Simplify a complex rational expression	1.02	3.00
Solve a rational equation with different denominators	2.06	3.00
SLO B: Radical Expressions and Equations	**1.96**	**3.00**
Square or multiply radical expressions	1.90	3.00
Rationalize the denominator of an expression with two terms in the denominator	1.16	3.00
Simplify a quotient expression that contains a radical	2.30	3.00
Solve a radical equation	2.46	3.00
SLO C: Quadratic Equations	**1.95**	**3.00**
Use factoring to solve a quadratic equation	2.00	3.00
Use the square root property to solve a quadratic equation	1.74	3.00
Use completing the square to solve a quadratic equation	1.66	3.00
Use the quadratic formula for solve a quadratic equation	2.40	3.00
SLO D: Equation of a Line	**2.32**	**3.00**
Write an equation for a line given two points	2.78	3.00
Write an equation for a line given a point and a parallel line	1.94	3.00
Write an equation for a line given a point and a perpendicular line	1.36	3.00
Write and use an equation for a line given a slope and y-intercept in the context of an application problem	3.22	3.00
SLO E: Linear Equations and Inequalities	**2.67**	**3.00**
Graph a system of linear inequalities	2.28	3.00
Solve a system of linear equations from a graph in the context of an application problem	3.74	3.00
Use the substitution method to solve a system of linear equations	2.66	3.00
Use the elimination method to solve a system of linear equations	1.98	3.00

The QEP Assessment Team will be measuring the impact of Goal 2, Improve student success in Intermediate Algebra and subsequent courses for which MAT 1033 is a pre-requisite. Strengthening student success in this area will ensure that students achieve their ultimate educational and career goals. To measure student success, the Design Team created a comprehensive set of outcomes that will evaluate course and institutional performance including course engagement, course retention, course success, and persistence rates. Targets were informed by reviewing historical trends in each of the outcome data to make them attainable but ambitious.

The faculty and Institutional Research established baselines for all but one outcome for success. ***Conquer Math*** will use the Handelsman et. al (2005) Student Course Engagement Questionnaire (see Appendix I) to assess the impact of new engaging teaching/learning strategies on student engagement in MAT 1033. The SCEQ will be administered at the end of the Fall 2013 Semester to determine a baseline

of course engagement across Intermediate Algebra, prior to the wide-scale piloting of new engagement strategies.

Table 30: Student Success Outcomes

Student Success Outcome	Baseline	Targeted Change	Five Year Target
Increase student course engagement in MAT 1033	TBD	TBD	TBD
Increase course retention rates in MAT 1033	83%	7 percentage points	90%
Increase course success rates in MAT 1033	65%	10 percentage points	75%
Increase course retention rates in MAC 1105	80%	10 percentage points	90%
Increase course success rates in MAC 1105	60%	10 percentage points	70%
Increase persistence rates for MAT 1033 students *Fall-to-Spring persistence* *Fall-to-Fall persistence*	 75% 55%	5 percentage points	 80% 60%
Increase persistence rates for all students *Fall-to-Spring persistence* *Fall-to-Fall persistence*	 74% 52%	2 percentage points	 76% 54%

In summary, the ***Conquer Math*** impact assessment plan demonstrates that the QEP has clearly stated goals that lead to specific measurable outcomes. Table 31 lists each of these outcomes along with assessment instruments, assessment methods and procedures including frequency of measurement, as well as baseline and target criteria. Each assessment is classified as either a direct or indirect measure of student learning (course success is an "indirect" measure of student learning). However, all assessment methods are direct measures of the outcomes they are assessing.

Table 31: Summary Impact Assessment Chart

Outcome	Assessment Instrument	Assessment Type	Method/Procedure/Frequency	Baseline	Overall 5-Year Target
Students will be able to simplify rational expressions and solve rational equations (SLO A)	Department final examination	Direct	Four questions embedded into departmental final exam for MAT 1033. Each question assessed on a scale of 0 to 4 using a common rubric. *Fall and spring*	2.04	3.0/4.0
Students will be able to simplify radical expressions and radical equations (SLO B)	Department final examination	Direct	Four questions embedded into departmental final exam for MAT 1033. Each question assessed on a scale of 0 to 4 using a common rubric. *Fall and spring*	1.96	3.0/4.0
Students will be able to solve quadratic equations (SLO C)	Department final examination	Direct	Four questions embedded into departmental final exam for MAT 1033. Each question assessed on a scale of 0 to 4 using a common rubric. *Fall and spring*	1.95	3.0/4.0
Students will be able to calculate the equation of a line (SLO D)	Department final examination	Direct	Four questions embedded into departmental final exam for MAT 1033. Each question assessed on a scale of 0 to 4 using a common rubric. *Fall and spring*	2.32	3.0/4.0

Outcome	Assessment Instrument	Assessment Type	Method/Procedure/Frequency	Baseline	Overall 5-Year Target
Students will be able to solve and graph systems of linear equations and inequalities (SLO E)	Department final examination	Direct	Four questions embedded into departmental final exam for MAT 1033. Each question assessed on a scale of 0 to 4 using a common rubric. *Fall and spring*	2.67	3.0/4.0
Increase student course engagement in MAT 1033	Student Course Engagement Questionnaire (SCEQ)	Indirect	Administer SCEQ to students in every section of MAT 1033. Analyze results by four dimensions of course engagement. *Fall and spring*	SCEQ score - TBD	Increase – TBD
	Community College Survey of Student Engagement (CCSSE)	Indirect	Administer CCSSE in Year 2 and Year 5, analyzing scores related to Active and Collaborative Learning and Student-Faculty Interaction *Year 2 and Year 5*	Benchmark score of 45.8 in Active and Collaborative Learning (CCSSE 2012 baseline) Benchmark score of 43.5 in Student-Faculty Interaction (CCSSE 2012 baseline)	+3 points in Active and Collaborative Learning by Year 5 +3 points in Student-Faculty Interaction by Year 5
Increase course retention rates for MAT 1033	MAT 1033 Grade Reports from Student Database	Indirect	Calculate percent of students still enrolled in MAT 1033 at the end of a semester. Calculated annually using data extracted from student database for fall and spring semesters. *Annually*	83% Retention	+7% points

Outcome	Assessment Instrument	Assessment Type	Method/Procedure/Frequency	Baseline	Overall 5-Year Target
Increase course success rates for MAT 1033	MAT 1033 Grade Reports from Student Database	Indirect	Calculate percent of students earning an ABC grade in MAT 1033. Success rate is an enrollee success rate and calculated annually using data extracted from student database for fall and spring semesters *Annually*	65% Success	+10% points
Increase course retention rates for MAC 1105	MAC 1105 Grade Reports from Student Database	Indirect	Calculate percent of students still enrolled in MAC 1105 at the end of a semester. Calculated annually using data extracted from student database for fall and spring semesters. Data excludes dual enrollment students. *Annually*	80% Retention	+10% points
Increase course success rates for MAC 1105	MAC 1105 Grade Reports from Student Database	Indirect	Calculate percent of students earning an ABC grade in MAC 1105. Success rate is an enrollee success rate and calculated annually using data extracted from student database for fall and spring semesters. Data excludes dual enrollment students. *Annually*	60% Success	+10% points
Increase persistence rates for MAT 1033 students	MAT 1033 Grade Reports and Enrollment Data from Student Database	Indirect	Calculate and compare cohort rates for fall-to-spring and fall-to-fall persistence using the National Community College Benchmark Project (NCCBP) definition of persistence for students who enroll in MAT 1033 during a fall term. *Annually*	Fall-to-Spring: 75% Fall-to-Fall: 55%	Fall-to-Spring: +5% pts Fall-to-Fall: +5% pts

Outcome	Assessment Instrument	Assessment Type	Method/Procedure/Frequency	Baseline	Overall 5-Year Target
Increase persistence rates for all credit students	Enrollment Data from Student Database	Indirect	Calculate and compare cohort rates for fall-to-spring and fall-to-fall persistence using the NCCBP definition for all SJR State credit students who enroll during a fall semester. Excludes dual enrollment students. *Annually*	Fall-to-Spring: 74% Fall-to-Fall: 52%	Fall-to-Spring: +2% pts Fall-to-Fall: +2% pts

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Appendices

Appendix A: St. Johns River State College Mission Statement

St. Johns River State College provides students with equal access to a broad spectrum of educational and cultural opportunities while encouraging the pursuit of academic excellence and scholarly achievement through high quality instruction. The College creates and continuously improves affordable, accessible and effective learning opportunities, support services, and resources for the educational needs of the diverse community it serves.

The College fulfills its mission through offering:

1. Transferable freshman and sophomore courses in the arts and sciences, as well as other disciplines, leading to the Associate in Arts degree;
2. Career and technical programs leading to the Associate in Science degree, college credit (technical) certificates, or vocational (PSAV) certificates;
3. Upper level courses leading to the awarding of baccalaureate degrees as authorized by the State Board of Education;
4. Intensive training and course work in the visual and performing arts for students of exceptional talent or promise;
5. Developmental courses for students who need to improve their academic skills and/or prepare for the General Educational Development examination;
6. Delivery of educational services in innovative and efficient ways to assist students whose opportunity for educational attainment is limited by place or time;
7. Support services which assist students in achieving academic success;
8. Partnerships with four-year institutions enabling students to earn baccalaureate degrees while remaining within the service district;
9. Assistance with economic development efforts by offering workforce development and continuing education programs designed to meet local, regional, and statewide needs;
10. Community enrichment and lifelong learning opportunities for the residents of the service district.

Appendix B: QEP Development Committees

Staff*	Title	Campus[§]	QEP Role
Robbie Allen	Librarian	PAC	Dialogue Team
Karen Balcanoff	Director of BAS Organizational Management	SAC	Steering Committee
Royce Bass	Librarian	SAC	Dialogue Team
Stefanie Billette	Faculty, Business	OPC	Dialogue Team
Susan Bodiford	Student	PAC	Dialogue Team
Laura Boilini	Dean of Arts and Sciences	PAC	Steering Committee Design Team
Melanie Brown	VP for Academic Affairs	PAC	Leadership Team Steering Committee Design Team
Lauren Chambers	Student	PAC	Dialogue Team
Sherry Colarusso	Faculty, Mathematics	PAC	Steering Committee Design Team
Holly Coulliette	Associate Dean of Allied Health	SAC	Dialogue Team
Patty Crotty	Faculty, Florida School of the Arts	PAC	Dialogue Team
Cheyene DeBarrow	Student	PAC	Dialogue Team
Stephen Dennis	Faculty, Mathematics	PAC	Design Team
Cristy Furr	Faculty, Humanities	PAC	Steering Committee
Summer Garrett	Faculty, Business	SAC	Steering Committee
Betsy Gailbreath	Faculty, Chemistry	SAC	Steering Committee
Jack Hall	Director of Academic Program Support	PAC	Implementation Assessment Team
Melody Hargraves	Faculty, English	OPC	Dialogue Team
Deborah Hinton	Faculty, Business	PAC	Dialogue Team
Brian Holbert	Faculty, Computer Science	SAC	Steering Committee
Rosalind Humerick	VP for Research and Institutional Effectiveness	PAC	Leadership Team Steering Committee Design Team Assessment Team
Mike Keller	Associate Dean of Arts and Science Department Chair, Mathematics	OPC	Design Team Assessment Team
Julie Kelly	Faculty, Communications	PAC	**QEP Co-Director** QEP Leadership Team Steering Committee Design Team

Staff*	Title	Campus§	QEP Role
Anna Lebesch	VP for Workforce Development	PAC	Leadership Team Steering Committee Design Team
Michelle Mancil	Math Academic Support Specialist	OPC	Implementation
LaRee Moody	Faculty, Health Science	OPC	Steering Committee
Jeannine Morgan	Department Chair, Communications	OPC	Steering Committee
Pete Morgan	Counselor	PAC	Steering Committee
Rob O'Leary	Faculty, Florida School of the Arts	PAC	Steering Committee
Melinda Padgett	Faculty, Criminal Justice	SAC	Steering Committee
Melanie Parker	Math Academic Support Specialist	PAC	Implementation
Laura Parsons	Administrative Assistant, Research and Institutional Effectiveness	PAC	Design Team Assessment Team
Joe Pickens	President	PAC	Leadership Team
Traci Reed	Faculty, Mathematics	PAC	Design Team
Bruna Roddy	Student	SAC	Dialogue Team
Jim Rogers	Institutional Effectiveness Specialist	PAC	Assessment Team
Jill Scott	Faculty, Nursing	OPC	Dialogue Team
Carla Shows	Director of Grant Development	PAC	Design Team
Harlow Thompson	Student	PAC	Dialogue Team
Krista Ubbels	Faculty, Humanities	SAC	Dialogue Team
Christina Will	Librarian	SAC	Steering Committee
Mark Wilson	Faculty, Mathematics	SAC	Steering Committee Design Team
GeorgeAnn Woodward	Math Academic Support Specialist	SAC	Implementation
Cathy Wright	Faculty, Biology	OPC	Dialogue Team
William Veczko	Faculty, Mathematics	OPC	**QEP Co-Director** QEP Leadership Team Dialogue Team Design Team
Dixie Yeager	Librarian	OPC	Dialogue Team

** Listed alphabetically by last name*
§OPC = Orange Park Campus, PAC = Palatka Campus, SAC = St. Augustine Campus

Appendix C: Data analysis of four potential QEP topics by Steering Committee

Critical Thinking Analysis	
Evidence of Need	**Refuting Evidence**
The Fall 2011 QEP Survey indicated that faculty perceived critical thinking as the number one weakness in terms of academic achievement and student learning. In addition, few students identified critical thinking as a strength ▪ 50.5% (faculty weakness) ▪ 28.6% (student weakness) ▪ 14.1% (student strength)	Internal departmental embedded assessments satisfy the minimum criteria set for student achievement.
In 2011, the proficiency level of students in terms of critical thinking as measured by the ETS Proficiency Profile indicated only 4% were proficient, 12% were marginally proficient, and 85% were not proficient.	The mean score for SJR State students in critical thinking on the ETS was higher than the cohort: ▪ 111.46 vs. 110.36
2010 CCSSE scores indicate that: ○ Students make fewer class presentations than CCSSE cohort (Q 4b 1.86 vs. 2.06) ○ Students work on fewer papers or projects that require integrating ideas or information from various sources (Q 4d 2.62 vs. 2.74) ○ 14.6% of students have never written a paper or done a project of any length. (Q 6c overall question 2.79 vs. 2.85) ○ students in general at SJR State think less critically and analytically than the cohort (Q 12e 2.87 vs. 2.90)	
2010 CCSSE scores addressing student perceptions of critical thinking as defined by three highest levels of Bloom's taxonomy have improved but are equal to or slightly below the cohort. (Q 5a-f)	These scores have improved since 2004 as have the cohort

Developmental Education Analysis	
Evidence of Need	**Refuting Evidence**
Development Education in General: • SJR State students who tested into college prep and completed college-prep requirements have retention rates that are lower than other state colleges (62.5% vs. 69.0%) • In 2011, 42% of recent high school graduates were not college ready: ○ 37% were not ready in math ○ 17% were not ready in reading ○ 16% were not ready in writing	

Evidence of Need	Refuting Evidence

Developmental Mathematics:
• Developmental math course success rates are below the average Arts and Sciences success rates (65% vs. 75% for 2010-11)
• MAT 0028 success rates are declining over past three years (61%, 59%, 55%)
• MAT 0028 is a high enrollment course (2010-11 enrollment was 1,268)
• High withdrawal rate in MAT 0028
  ○ Overall withdrawal rate is higher compared to other Arts and Sciences courses (20% vs. 14%)
  ○ Number of student-initiated withdrawals for academic reasons is also higher compared to other Arts and Sciences courses (56% vs. 30%)
• Attainment of learning outcomes as assess by MAT 0028 exit test results are declining (76% in 2008 to 68% in 2012)
	Developmental Mathematics:
	• Course success rates for MAT 0028 are higher than the 2011 NCCBP cohort (Ranked in the 94th percentile)
	• Success of MAT 0028 students in MAT 1033 is above the 2011 NCCBP cohort (Ranked in the 63th percentile)

Developmental Writing: • Developmental writing course success rates are below the average Arts and Sciences success rates (69% vs. 75% for 2010-11) • Developmental writing course success rates have declined over the last three years	**Developmental Writing:** • Course success rates are higher than the 2011 NCCBP cohort (Ranked in the 78th percentile)
Development Reading: • Developmental reading course success rates are below the average Arts and Sciences success rates (70% vs. 75% for 2010-11) • REA 0002/0017 success rates are declining (70%, 70%, 66%) • Withdrawal rate in REA 0002/0017 is slightly higher compared to other Arts and Sciences courses (17% vs. 14%)	**Developmental Reading:** • Course success rates are higher than the 2011 NCCBP cohort (Ranked in the 65th percentile)

Gatekeeper Courses Analysis	
Evidence of Need	**Refuting Evidence**

ENC 1101 – Composition I:
• High enrollment course (1,909 student enrollment in 2010-11)
	ENC 1101 – Composition I:
	• ENC 1101 course success is slightly above the average Arts and Sciences success rate (76% vs. 75% for 2010-11)
	• Withdrawal rate is lower compared to others
	  ○ Overall rate is lower compared to other Arts and Sciences courses (12% vs. 14%)
	  ○ Number of student initiated withdrawals for academic reasons is lower than average
	• ENC 1101 success rates are higher than 2011 NCCBP cohort (Ranked in 88th percentile)
	• End of course timed essay in ENC 1101 as measured by departmental assessments satisfy the minimum criteria set for student achievement and have increased (2.49 to 2.75)

ENC 1102 – Composition II: • ENC 1102 course success rates are slightly below the average Arts and Sciences success rates (74% vs. 75% for 2010-11) • High enrollment course (1,592 student enrollment in 2010-11) • High withdrawal rate: Overall rate is high compared to other Arts and Sciences courses (17% vs. 17%)	**ENC 1102 – Composition II:** • ENC 1102 success rates are higher than 2011 NCCBP cohort (Ranked in the 86th percentile) • Oral presentation as measured by departmental assessments satisfy the minimum criteria set for student achievement and have increased (2.79 to 3.36)
MAT 1033 – Intermediate Algebra: • MAT 1033 Course success rates are well below the average Arts & Sciences success rates (60% vs. 75% for 2010-11) • MAT 1033 course success rates have declined over the last three years (64%, 65%, 60%) • High enrollment course (1,245 student enrollment in 2010-11) • High withdrawal rate: Overall rate is high compared to other Arts and Science courses (17% vs. 14%) • Number of student initiated withdrawals for academic reasons also higher (42% vs. 30%)	
MAC 1105 – College Algebra: • MAC 1105 course success rates below the average Arts and Science success rate (65% vs. 75% for 2010-11) • MAC 1105 course success rates have declined from 68% in 2006-07 to 65% in 2010-11 • High enrollment course (1,655 student enrollment in 2010-11)	**MAC 1105 – College Algebra:** • MAC 1105 success rates (fall term) are higher than the 2011 NCCBP cohort (ranked 86th percentile)

Writing Skills Analysis	
Evidence of Need	**Refuting Evidence**
• 35.6% of faculty respondents perceived writing skills as the second most significant weakness in terms of academic achievement and student learning on the Fall 2011 QEP Survey	• 38.8% of student respondents considered writing as one of the top four strengths on the Fall 2011 QEP Survey
• 2010 CCSSE scores indicate that: ○ Students work on fewer papers or projects that require integrating ideas or information from various sources (Q 4d: 2.62 vs. 2.74) ○ 14.6% of students have never written a paper or done a project of any length (Q 6c overall question: 2.79 vs. 2.85)	• 2010 CCSSE scores indicate that: ○ Students write clearly and effectively (Q 12c 2.74 vs. 2.72) • ENC 1101 success rates are higher than 2011 NCCBP cohort (Ranked in the 88th percentile) • ENC 1102 success rates are higher than 2011 NCCBP cohort (Ranked in the 86th percentile) • In 2011, the mean score for SJR State students in writing on the ETS Proficiency Profile was higher than the cohort (113.53 vs. 112.64) • End of course timed essay in ENC 1101 as measured by departmental assessments satisfy the minimum criteria set for student achievement

Appendix D: Topic Selection Ranking Form

The data analysis/discussion presented today points to this being a significant issue for the improvement of student learning at SJR State.					
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Critical Thinking					
Writing Skills					
Developmental Ed (College Prep)					
Gatekeeper Courses					

Comments:

An improvement in performance in this area would lead to an increase in student success for a significant percentage of the SJR State student body.					
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Critical Thinking					
Writing Skills					
Developmental Ed (College Prep)					
Gatekeeper Courses					

Comments:

I believe that SJR State has the ability/capacity to implement an issue of this scope in terms of the financial, physical, and human resources necessary to do so.					
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Critical Thinking					
Writing Skills					
Developmental Ed (College Prep)					
Gatekeeper Courses					

Comments:

If SJR State was to put its best effort into just one of the areas discussed today, which one do you think would have the greatest overall effect on student success at the College?

Appendix E: CCSSE Benchmarks and 2012 CCSSE Scores

Description of the CCSSE and CCSSE Benchmarks

The Community College Survey of Student Engagement (CCSSE)[5] provides information about effective educational practice in community colleges and assists institutions in using that information to promote improvements in student learning and persistence. CCSSE's goal is to provide member colleges with results that can be used to inform decision making and target institutional improvements. Student engagement, or the amount of time and energy students invest in meaningful educational practices, is the underlying foundation for CCSSE's work. CCSSE's survey instrument is designed to capture student engagement as a measure of institutional quality.

CCSSE utilizes a set of five benchmarks of effective educational practice in community colleges. These benchmarks encompass 38 engagement items from the survey that reflect many of the most important aspects of the student experience.

The benchmarks are described briefly below:

- **Active and collaborative learning** – measured by seven survey questions, such as whether the student asked questions or contributed to class discussions, made a class presentation, or worked with other student on projects during class.
- **Student effort** – gauged by eight questions, such as how often have you prepared two or more drafts of a paper, come to class without completing assignments, or used the computer lab.
- **Academic challenge** – ten questions relate to this benchmark, such as how often have you worked harder than you thought you could, how much does your coursework emphasize synthesizing and organizing ideas in new ways, or how many papers or reports did you write during the school year.
- **Student – faculty interaction** – assessed using six questions including how often have you used email to communicate with an instructor, talked about career plans with an instructor or advisor, or received prompt feedback.
- **Support for learners** – measured by seven survey questions which include how much does the college emphasize providing the support you need to help you succeed, help you cope with non-academic responsibilities, or how often have you used academic advising/planning services.

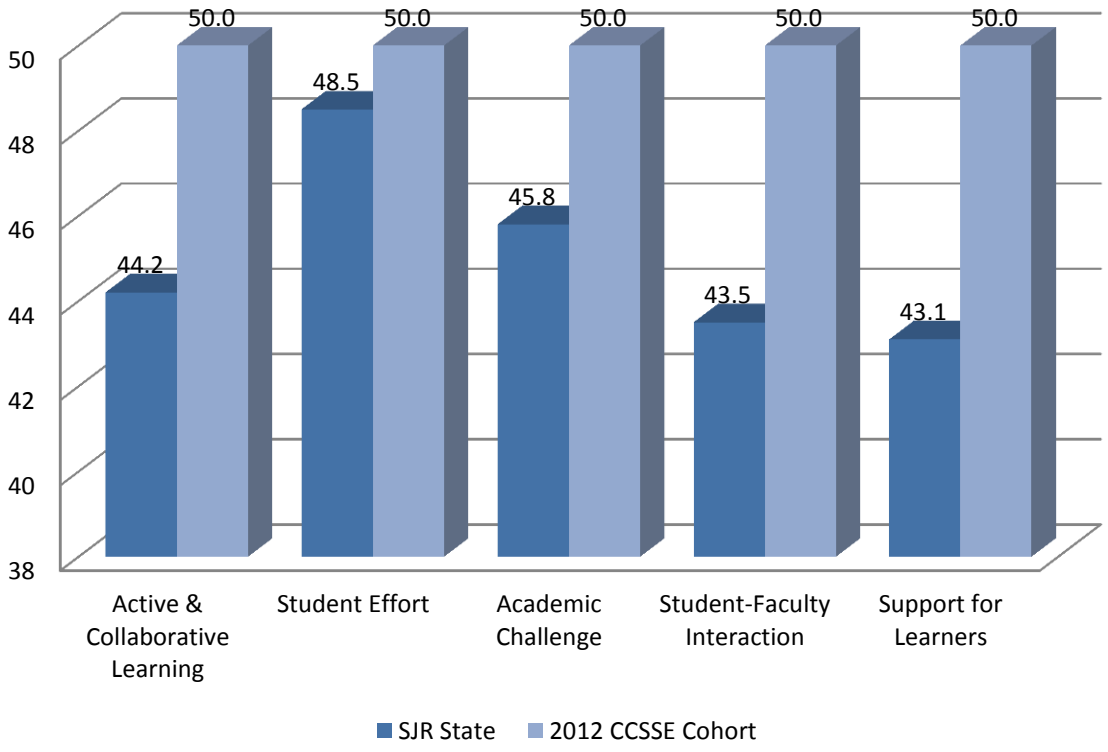
The benchmark scores are standardized around the mean of the 3-year cohort so that respondents' scores have a mean of 50, weighted by full- and part-time attendance status, and a standard deviation of 25. Benchmark scores are then computed by averaging the scores on the associated items. This allows for immediate observation of whether or not SJR States's scores are above or below those of other participating schools. Thus, the data may be used both to identify relative strengths and to zero in on areas in which the College may need to improve.

[5] Descriptions of CCSSE and the CCSSE benchmarks are from the CCSSE Summary Report 2010 and Benchmark Report 2010

2012 CCSSE Scores

St. Johns River State College uses the 2012 CCSSE benchmark scores as the baselines for assessment data and outcomes. Below are the 2012 benchmark scores for reference.

Figure 7: 2012 CCSSE Benchmark Scores

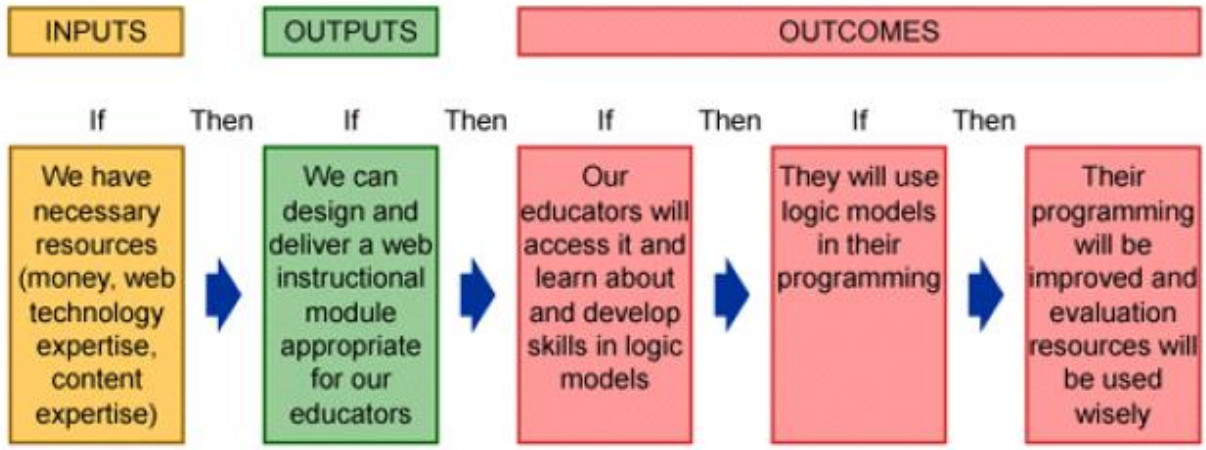


Appendix F: Sample Logic Model

Logic Model Table

PROCESS			*OUTCOMES*					
Resources		**Activities**	**Outputs**		**Outcomes**		**Goals**
What do we need to make this program succeed? Who will be involved? Where will this happen? What other partners or collaborators will be needed? Who is the target population? What are the necessary materials, equipment, curricula?	➡	**What do we need to accomplish?** What activities occur within each major program component? Is the service based on best practices, theory, or principles?	**What will these activities produce that we can measure?** How many participants will be served? Who are they? How many processes, contacts, events will take place? What objectives have we set for this program? What are the contract performance requirements (if any)? What are the deliverables?	➡	**What changes will result from these activities?** What changes in behavior, knowledge, or attitude would you expect to see at the end of the program? How will you collect data to measure these changes?	➡	**What are the desired long-term impacts of this program?** What change do you want to create with this program? What does success look like? How will individual's lives be different? How will the institution and/or community benefit?

Sample Simplified Logic (Taylor-Powell and Henert, 2008)

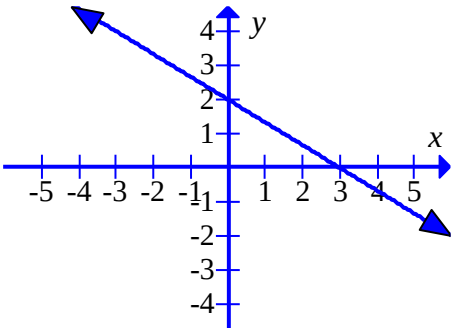


Appendix G: Sample Teaching and Learning Strategies

Guided Notes Sample

Intercepts

A line is determined by two points. Two useful points for graphing are the ***x*- and *y*-intercepts**.



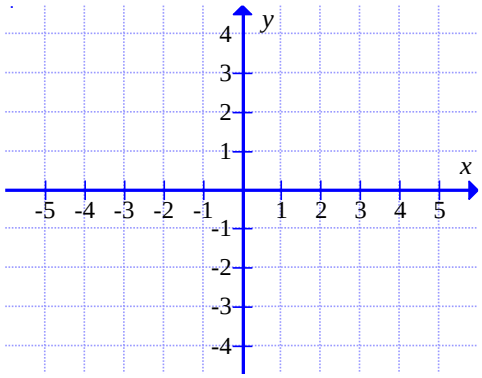
- A point that intersects the *x*-axis is known as the _____

  To find the *x*-intercept, _____ and solve for *x*

- A point that intersects the *y*-axis is known as the _____

  To find the *y*-intercept, _____ and solve for *y*

3. Find the intercepts and graph the equation $2x - y = 4$



Pencast Screenshot

SECTION 5.4

① (a) $(3x^4)(5x^3)$ $\boxed{15x^7}$

(b) $-4a^3(3a^5)$ $\boxed{-12a^8}$

(c) $-2(8x^3-9x^2)$ $-16x^3+18x^2$

(d) $5x^2(-4x^2+3x^1-2)$ $\boxed{-20x^4+15x^3-10x^2}$

F-O-I-L

FIRST OUT IN LAST

② (a) $(4m-5)(3m+1)$

$12m^2+4m-15m-5$

$\boxed{12m^2-11m-5}$

(b) $(6a-5)(3a+4b)$

$18a^2+24ab-15ab-20b^2$

$\boxed{18a^2+9ab-20b^2}$

(c) $(2k+3z)(5k-3z)$

$10k^2-6kz+15kz-9z^2$

$\boxed{10k^2+9kz-9z^2}$

(d) $(3x-4)(2x^2+x)$

$6x^3+3x^2-8x^2-4x$

$\boxed{6x^3-5x^2-4x}$

① $(x+y)(x-y) = x^2-y^2$

$x^2-xy+xy-y^2$

$(x+3)(x-3) = \boxed{x^2-9}$

② $(x+y)^2 = (x+y)(x+y)$

$x^2+xy+xy+y^2 = x^2+2xy+y^2$

$(x+4)^2 = \boxed{x^2+8x+16}$

③ $(x-y)^2 = (x-y)(x-y)$

$x^2-xy-xy+y^2 = x^2-2xy+y^2$

$(x-5)^2 = \boxed{x^2-10x+25}$

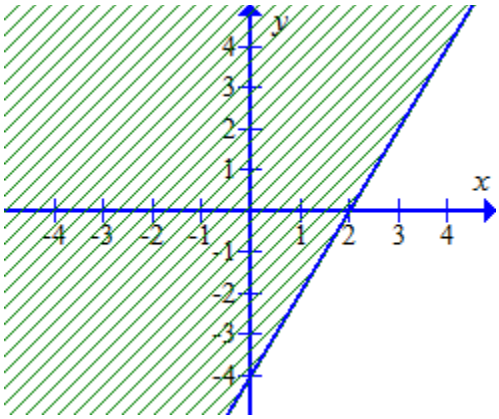
HW: 5-18 (odds) + 33-39 (odds) + 43-62 (odds)

This pencast was created with my Livescribe™ smartpen. Click here to see how to create your own.

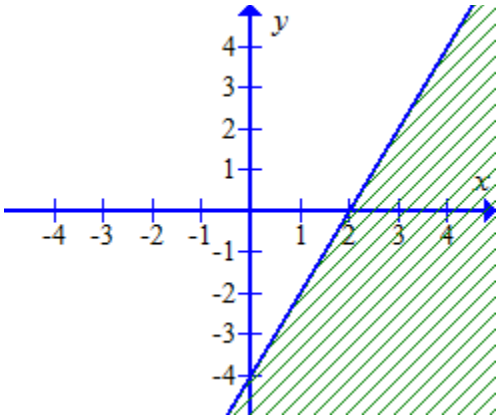
Sample Clicker Question

3. Select the graph that most closely resembles the graph of $y \geq 2x - 4$

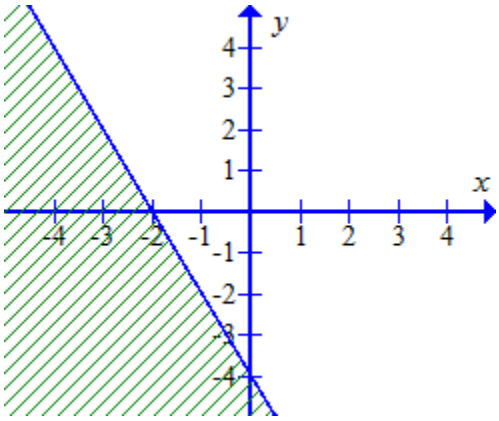
(a)



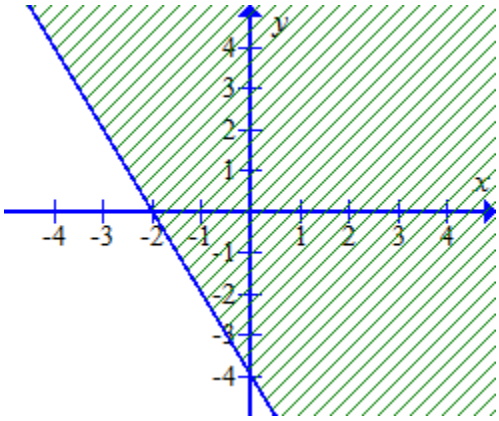
(b)



(c)



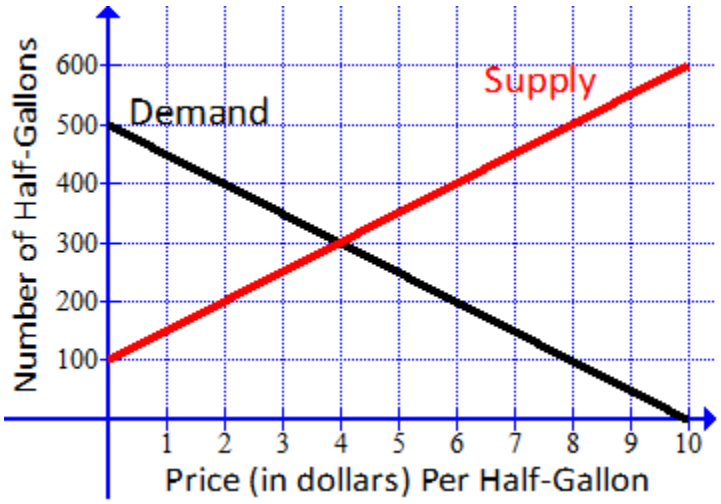
(d)



Cross Curricular Question Sample

4.1 – Systems of Linear Equations in Two Variables

1. The graph below shows the supply and demand lines for a certain brand of frozen yogurt.



(a) If the price is $6.00 per half-gallon, what is the supply?

(b) If the price is $2.00 per half-gallon, what is the demand?

(c) At what price does the supply equal the demand?

(d) For how many half-gallons does supply equal demand?

FACULTY COURSE ENGAGEMENT AND STUDENT SUPPORT ACTIVITY FORM

Name _____
Semester: _____

PRE-COURSE PLAN

1. What is the focus of your new course engagement activity(-ies)? [*Provide a brief narrative description – box will expand as you type*]

2. What activities will be used to improve course engagement in MAT 1033? [*check at least one that applies*]
   - ☐Guided Notes
   - ☐Pencasts
   - ☐Clicker technology
   - ☐Performance on Demand
   - ☐Bridging Math Content to Applied Concepts
   - ☐Use early assessment and early intervention
   - ☐Metacognitive strategies
   - ☐Instruction on study cycle
   - ☐Other (please specify): _____

3. Which of Handelsman's engagement dimension(s) does the activity(-ies) address? [*check all that apply*]
   - ☐Skill: *The degree to which students practice skills that promote learning*
   - ☐Participation: *The degree to which students have relationship to others*
   - ☐Emotional: *The degree to which students experience emotional involvement with class material through internalization and experiences*
   - ☐Performance: *The degree of importance students place on performance in class (i.e. graded material)*

4. What activities will be used to strengthen student support in mathematics? [*check all that apply*]
   - ☐"In office" tutoring
   - ☐Academic support centers
   - ☐Smarthinking
   - ☐Virtual Skills Lab
   - ☐Course orientation
   - ☐Starfish early alert (year 2+)
   - ☐Other (please specify): _____

5. Which of the ***Conquer Math*** goals will your activity address? [*check all that apply*]
   - ☐Improved Student Learning (e.g. student performance on course objectives)
   - ☐Increased Student Success (e.g. course success rates, student retention rates)

POST-COURSE REFLECTION
(Complete this section at the end of the semester)

Type your responses in the box below each question. The box will expand as you type.

1. Was your activity successful?

2. Will you use it in subsequent courses?

3. If this activity was successful, how did you make it work for you?

4. What are the pitfalls or learning curves associated with this activity?

5. Did the students appear more engaged in class?

6. If the activity(-ies) did ***not*** work, what challenges did you encounter and how did these challenges impact implementation?

7. Do you plan to modify the activity to pilot/implement again?

8. How will you present this information to the department?

Appendix I: Handelsman's Student Course Engagement Questionnaire (SCEQ)

Source: Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *Journal of Educational Research, 98,* 184-191.

STUDENT ENGAGEMENT QUESTIONNAIRE

To what extent do the following behaviors, thoughts, and feelings describe *you, in this course.* Please rate each of them on the following scale:

5 = very characteristic of me	4 = characteristic of me	3 = moderately characteristic of me	2 = not really characteristic of me	1 = not at all characteristic of me

1. _____ Raising my hand in class
2. _____ Participating actively in small group discussions
3. _____ Asking questions when I don't understand the instructor
4. _____ Doing all the homework problems
5. _____ Coming to class every day
6. _____ Going to the professor's office hours to review assignments or tests, or to ask questions
7. _____ Thinking about the course between class meetings
8. _____ Finding ways to make the course interesting to me
9. _____ Taking good notes in class
10. _____ Looking over class notes between classes to make sure I understand the material
11. _____ Really desiring to learn the material
12. _____ Being confident that I can learn and do well in the class
13. _____ Putting forth effort
14. _____ Being organized
15. _____ Getting a good grade
16. _____ Doing well on the tests
17. _____ Staying up on the readings
18. _____ Having fun in class
19. _____ Helping fellow students
20. _____ Making sure to study on a regular basis
21. _____ Finding ways to make the course material relevant to my life
22. _____ Applying course material to my life
23. _____ Listening carefully in class

The following subscale is used to determine engagement according to the four dimensions.

Engagement Dimension Subscale	Questions
Skills Engagement	Q4, Q5, Q9, Q10, Q13, Q14, Q17, Q20, Q23
Emotional Engagement	Q7, Q8, Q11, Q21, Q22
Participation/Interaction Engagement	Q1, Q2, Q3, Q6, Q18, Q19
Performance Engagement	Q12, Q15, Q16

Appendix J: MAT 1033 Department Final Grading Rubric

Sample Generic Grading Rubric for Department Final Question

Points	
0	Student left the question blank. *or* Student wrote something but has no idea how to solve the problem.
1	Student has some idea of how to solve the problem, but made more than one major error or more than two minor errors. *or* Student wrote the correct answer but no work was shown or the procedure shown would not lead to the correct answer.
2	Student has an idea of how to solve the problem, but made either one major error or two minor errors.
3	Student has a good idea of how to solve the problem, but made a minor error.
4	No errors were made. An appropriate procedure was used to obtain the correct answer.

Appendix K: Glossary of Abbreviations

Acronym	Term
A.A.	Associate in Arts
AMATYC	American Mathematical Association of Two-Year Colleges
A.S.	Associate in Science
CCCSE	Community College Center for Student Engagement
CCSSE	Community College Survey of Student Engagement
CRS	Classroom Response System
DFW	Student failure rate - e.g. students earning a D or F or withdrawing from course
ETS	Educational Testing Service
FTE	Full-Time Equivalent
FTIC	First Time In College
IPEDS	Integrated Postsecondary Education Data System
IT	Information Technology
MAA	Mathematical Association of America
MAC 1105	College Algebra (college credit course)
MAT 0028	Introductory Algebra (development course)
MAT 1033	Intermediate Algebra (college credit course)
NCCBP	National Community College Benchmark Project
OPC	Orange Park Campus
PAC	Palatka Campus
QEP	Quality Enhancement Plan
SAC	St. Augustine Campus
SACS	Southern Association of Colleges and Schools
SCEQ	Student Course Engagement Questionnaire
SJR State	St. Johns River State College
SLO	Student Learning Outcome
VSL	Virtual Skills Lab