Technology Implementation Plan to Increase Student Achievement in Mathematics for Bayonne Public Schools

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Introduction

Over the past ten years, technology has become an attractive and essential tool in the mathematics classroom. The mathematics curriculum has changed in many different technological aspects from the four-function calculator to the complex graphics calculator; to computers equipped with specialized software and web-based environment with virtual reality applications. With these specialized tools, technology and mathematics at Bayonne School District can increase the implementation and focus on the areas which develop the skill set the students need to help understand and successfully fulfill the mandated standards in PARCC. These specific tools can change the nature of classroom teaching of mathematics. Students are more engaged in the practices including hands-on "experimenting, investigating and problem-solving" (Gordon, 2011, p. 2) This creates an environment for depth to learning and encouraging the critical thinking application to seek out and ask questions instead of just looking for answers.

The Bayonne School District is dedicated to providing meaningful access to digital technologies for increasing academic success for all students. Bayonne School District's 2016-2019 technology plan states that "ensuring that every school has an equitable, effective digital learning environment and that the students have meaningful access to technology" ("Bayonne School District Three-Year Technology Plan," 2016, p.2). Part of this vision is to employ data-driven decisions on various projects, enhancements, and approaches to issues and concerns. The Director of Educational Technology, who is the supervisor for dedicated technology coordinators for each of the district's three schools, Elementary, Middle, and High

School, has been assigned the duty of addressing negative data from PARCC scores relating to poor Mathematics learning outcomes for students at the three schools.

Needs Assessment

The U.S. Department of Education recommends the utilization of educational technologies to address engagement of students, higher quality of instruction to improve student learning, provide high-quality and effective assessments to the student population (Owens, Song, & Kidd, 2007). The Bayonne School District tasked the Director of Educational Technology to choose, integrate and manage a technology solution to address low achievement scores in Mathematics throughout the district.

Bayonne School District's Strategic Plan states its vision for student achievement by addressing: Assessment and Accountability for Student Performance, Data Analysis and Application, Student Assistance and Support, and Curriculum Development (Bayonne School District Strategic Plan, 2016, p. 6). Although this vision is in place, PARCC Mathematics scores have not improved. This scenario is similar to statistics gathered from benchmark schools located throughout the country. Minority-serving districts, such as Bayonne School District, have significant achievement gaps amongst student populations. Oldham (2018) explains that a research study shows that "gaps by students' race remain significant: district-wide, in 2015–16 about 78.6 percent of white students passed end-of-course exams in math, reading, and science, compared to 34.8 percent of black students and 37.1 percent of Hispanic students" (para. 28-29).

The Department of Education of New Jersey shares that Bayonne School District in needing improvement in mathematics instruction as 36.8% of the student population (9,578 students) is meeting or exceeding expectation on the state assessment ("Bayonne City

Performance Summary Report," 2017). The percentages of students of particular demographic who met or exceeded expectations on the Mathematics Assessment are as follows: White 43.4%, Hispanic 27%, Black or African American 20.9% and Asian, Native Hawaiian, or Pacific Islander 75.6%. The report also states that 15% of the student population are students with disabilities, 58% are economically disadvantaged and 4% are English language learners. The technology solution implemented needs to address the scope of the district's student population and ensure that the implemented technology solution addresses the low PARCC scores of Hispanic and African American students.

Literature Review

Introduction

According to Vygotsky (1998), cognitive development involves intellectual processes that build and instill advanced forms of thinking such as "ordered and comprehended perception, connected with thinking" (p. 121). Vygotsky (1998) lists processes in which students use daily to interpret information in mathematics which are "abstracting, synthesizing, comparing and differentiating…higher mental thinking...voluntary attention, categorical perception, and logical memory" (p. 121). Vygotsky's framework in this area of cognitive indicators at different development stages are apparent in today's classroom as students' progress throughout all grade levels. In the mathematics field, Vygotsky's framework provides a foundation which the curriculum involves higher-order, conceptual, and logical thinking (Gredler, 2012). From the early years of childhood, memory and critical concepts are evolving and developing at a rapid pace. In turn, this growth and connections within these essential concepts and cognitive skills become more evident by the age of twelve, then at the adolescent stage the child's memory takes a significant turn and changes the dynamics from remembering to thinking (Gredler, 2012; Vygotsky, 1998).

Berger (2005) indicates there are many strongholds and applications which connect Vygotsky's (1998) cognitive framework as the essence of and foundation to the today's mathematics-based curriculum. Explaining the "idiosyncratic mathematical activities can be regarded as manifestations of complex thinking" (Berger, 2005, p. 159). Starting at a very young age, children can create functions and the simple string of numbers to illustrate a pattern. Berger (2005) indicates that these beginnings should be nurtured and built upon in technology

applications suited for the age group of children. The realization of this concept assists in the make-up of mathematics and technology-infused classroom. In the context of the classroom, allowing freedom of a child to make and shape concepts to become personally meaningful is a true testimony of advancing specific skills in thinking. Eventually taking this framework a step further with the addition of mathematical signs (in algorithms, definitions, theorems, problem-solving, and so on) can be useful in the comprehension of the mathematical object or subject matter.

Technology, Mathematics, Anxiety

Various studies indicate learning mathematics is compounded with the student's attitudes, anxiety and stress; then add the technology component causes additional anxiety not only with students but also teachers (Sun & Pyzdrowski, 2009). Using the online tools specifically designed for the appropriate age group which provides visual images within the mathematics concepts can help in the diffusing of anxiety and foster a learning environment suitable for the students. In offering specific specialized professional development in technological and mathematical applications, teachers can use this technology to enforce fundamental skills and concepts. The technology used in this way can assist in strengthening student cognition (Sun & Pyzdrowski, 2009). Also, Tatar, Zengin, & Kagizmanli (2015) related the online applications which are available for students, parents, and teachers expands and offers a diversified and experimental method in exploring and understanding mathematics concepts and curriculum. These tools provide a diverse and assorted mathematics applications for students to develop skills to demonstrate and achieve success on the PARCC mathematics exam. These tools from a technology-based platform, such as MyMathLab, can help students relate their acquired

knowledge and skills such as critical thinking and problem-solving. The process of recognizing and understanding the questions on mathematics section PARCC attributes to the same skills as exposed to within the technology tools in the classroom.

According to Resnick & Robinson (2018), children are their "own idea makers" (p.37). Today's generation of children is exposed to technology in all aspect of their lives at an early age. This exposure enables children to be actively engaged in exploring and using new technology instruments without fear of disparagement. A union of mathematics curriculum and technology activities through hands-on activities create a natural flow of ideas cultivating the child's cognitive skills set. From numbers, equations, graphs, diagrams, and functions, moving into algebra, geometry to trigonometry and higher mathematics, the approach involving differentiated technologies are sustained and permeated in all areas of life.

An advantage of today's children is their early exposure to emerging technologies which creates the curiosity mindset and take on the challenge of experimenting with the mechanics and applications of a laptop, computer, and iPad. They embrace such technologies and quickly pick up and understand the operation of the software by trial and error, which is labeled as curiosity. The children can create patterns and utilize a coding program, such as Scratch to solve a simple equation mathematically, tell a story or animate a character. In the later years, mathematics evolves into diversified and complex programming, engineering and sciences fields. Accordingly, Papert (1993) reiterates that computers offer new and exciting things that anyone, from kindergarten to adult years can use as a fully functioning tool. In their writings, Papert & Solomon (1971) "convinced that they (computers)…proper way to introduce everyone of whatever age and whatever level of performance, to programming…to mathematics, to physics

and all formal subjects" (p. 2). Along these lines, infusing mathematics lessons with technology-rich in-depth connected activities lends itself to explore an engaging learning environment.

Also, Bers (2012) concludes the elementary age group can master "technological competency" in support of programming environments where they can "apply concepts, skills and strategies to solve authentic problems" (p. 38). In support, technologies, ranging from mathematics manipulatives, blocks, calculators, digital software, augmented and virtual reality are tools that empower and give a sense of accomplishment to individuals in the mindset of Positive Technological Development (PTD) (Bers, 2012). This approach provides a framework which continues into the classroom, not only in mathematics but creating a union and connection with multiple curriculums. By using different aspects of the emerging technologies, children's imagination and the freedom of taking risks to solve problems within a mathematical forum minimizes the perception of complex situations and frustration that seems to set in within this specific curriculum.

Student Population

In a final report from the National Mathematics Advisory Panel (2008) children are entering Pre-K and Kindergarten with a solid understanding of numbers and other aspects within the context of mathematics. This early knowledge helps the children develop the mathematical functions and relations in primary, intermediate, middle and high school years. Unfortunately, there is an inequity when it comes to children from lower income families. The knowledge which the lower income children come to school with is of lesser content than that of the peers in the middle-income level families (National Mathematics Advisory Panel, 2008). This disadvantage

seems to follow through with the achievement gap increasingly widens and creates separation as students' progress through their school years. With the addition of instructional personalized and adaptive learning systems in the classroom, the gap shrinks and supports an increase in understanding of mathematical concepts at an early age for lower-income students (National Mathematics Advisory Panel, 2008).

The Individuals with Disabilities Education Act (IDEA) (2018) requires public school district to follow this legislation in making available "free appropriate public education to eligible children with disabilities" including and ensuring that Individual Education Plan (IEP), 504 and other related special education services are provided for the children (para. 1). The National Mathematics Panel (2008) recommends for students with learning disabilities or low-achieving results other forms of "explicit systematic instruction" such as computer applications, and visual representations to supplement and lead to an increase of positive results in mathematics functions and problem-solving at the classroom and standardized testing levels (p. 48).

According to the National Mathematics Panel (2008), multiple studies have shown that instructional software has positive results on students' achievement in mathematics, compared to classroom instruction without specialized technologies. Technology-based drills, interactive concept practicing, and online tutorials can help improve student performance in certain areas of mathematics. Many studies indicate that teaching computer programming to students supports the growth of specific mathematical concepts, applications, and problem-solving (National Mathematics Panel, 2008).

Stoilescu, Mcdougall, & Egodawatte (2016) indicates there are many challenges that teachers face when implementing mathematics curriculum in a classroom. The challenges categorized into five distinct areas. The five areas are "(a) teacher professional development and pedagogical skills; (b) student learning needs; (c) settlement issues and families' social and economic background; (d) administrative difficulties and resources; and (e) curricular issues" (Stoilescu, Mcdougall, & Egodawatte, 2016, p. 83). Teacher concerns in the area of professional development consistent with other studies which time away from the classroom along with the length of the training sessions and training on the technical aspects involved in the lessons and with the equipment. Student learning needs similarly addressed in other studies (National Mathematics Panel, 2008; Sanchal, & Sharma, 2017). In these studies, student learning in the area of mathematics linked to everyday and current problem-based activities where abstract and hands-on activities are cognitive skill emphasis. These relations or interactions enable students to feel comfortable and enjoying mathematics lessons. In correlation with the skill set the student confidence increases resulting in improvement of the attitude toward the subject of mathematics.

Oldham (2018), contends that district leaders recognize progress in raising student test scores happened in small increments and indicates that more work was needed to see a meaningful increase in test scores. "In 2015–16, third-grade reading proficiency fell to 45.7 percent from 48.8 percent two years earlier, while eighth-grade reading proficiency was flat at 39.7 percent compared to 39.9 percent two years earlier" (Oldham, 2018, para. 28). In representation, district leaders confirm that there have been gains in achieving better test scores and helping in the advancement in the overall academic achievements. Duly noted in this study is that there seems to be a pattern of persistent achievement gaps between students from families in

professions, such as engineers and university professors, and students from working-class families. Gaps by students' race remain substantial, "district-wide, in 2015–16 about 78.6 percent of white students passed end-of-course exams in math, reading, and science, compared to 34.8 percent of black students and 37.1 percent of Hispanic students" (Oldham, 2018, para. 29).

Nganji and Brayshaw (2017) state "...existing learning environments do not consider the needs of students with multiple disabilities. Nevertheless, it is possible to anticipate that students with multiple disabilities would use learning environments, and then design learning environments to meet their needs" (p. 307). As the concerns of flexibility, understanding, and adaptability of the diverse set of technologies focused in on the area of mathematics, Nganji and Brayshaw (2017) institute the idea of personalization for students with disabilities. The technology would be customized and equipped with specific learning materials designed to enhance the learning environment. The personalized learning platform compatibility and customization allows students with disabilities the opportunity to find and use the specific elements required for the lessons. In turn, allowing the students to participate in and comprehend the subject-matter at the level in which the concepts and applications are united with the elements needed for taking and passing the standardized tests.

Teacher & TPACK Instruction

Guerrero (2010) defines TPACK (Technological Pedagogical Content Knowledge) as "a rich understanding of how teaching and learning within a specific content area occur and change as a result of authentic, meaningful application of appropriate technologies" (p 132). Over the past few decades, mathematics concepts and technology had made considerable changes and connections enabling guidance on the development and expansion of new mathematical

applications (Guerrero, 2010). Since mathematics continuously evolves in using technology as a classroom tool to influence "what we know, how we know it, what we teach, how we teach it" the TPACK framework reveals instrumental combinations of methods for teachers to apply in their lessons and activities (Guerrero, 2010, p. 133).

The TPACK model illustrates crucial and identifiable areas for teachers to embrace when implementing technology within their class. TPACK guidelines for infusing technology within mathematics learning environment are (a) curriculum best addressed in supporting the teaching and learning; (b) integrating in a meaningful way of instruction; (c) understanding of student's attitude and behaviors, along with classroom management; and (d) in-depth and complete knowledge of the concepts in mathematics teachers are continually changing and growing in their conceptions and use of technology (Guerrero, 2010). The TPACK model demonstrates the understanding of how to use technology to instruct using mathematics or any other subject area concepts that heighten student learning experiences. It is a combination of all areas of the TPACK model which illuminates the authentic student learning experiences in the classroom. Technology's role in mathematics should be appropriate and improve student learning employing a positive, enriching, authentic and nonroutine methods in the lessons. TPACK model lends itself to mathematics teachers by creating and illustrating specific treatment in a teacher's capacity to differentiate between the types of technology that are most suited to mathematics and makes decisions regarding its appropriate application.

Student Perceptions of Mathematics and Technology

An essential aspect of the TPACK framework connects students' attitude and behavior in the mathematics classroom with authentic learning experiences. The perceptions of students are

critical to understanding by the teachers. For a technology-infused mathematics classroom, the "evidence of student performance and positive attitudes are linked to the perceptions of the learning environment" (Tshewang, Chandra, & Yeh, 2017, p. 270). Meagher (2011) concludes that the evidence of infusing a specific technology platform dedicated to mathematics concepts provides the basic understanding, enhancements, and challenges which change students "beliefs and attitudes about mathematics" (p. 2). Before the students subjected to testing, they must be provided with the necessary technology terminology and practice to foster positive experiences when using technology in mathematics. Meagher (2012) stated: "the lesson here is that the student's relationship with Mathematica (specific program) needs to be nurtured" (p. 14). This nurturing, on any mathematical technology infused platform, beforehand places the student at ease when they sit down and take online exams.

Today's educational programs offer multiple variations of differentiated technology platforms which can be implemented to help improve and enrich the mathematics skills necessary for meeting the standards on the state tests and boost 21st Century skills. One skill, computer fluency, includes the comfort level of the students using the specialized technology mathematics program. This familiarity with the ease of usage of technology tools helps reduce the stress and anxiety of test taking which in turn the students are at a much-relaxed state to understand and answer the questions to the best of their ability.

Mathematics classrooms are no exception to the penetration of technology as prescribed by Cheung & Slavin (2013). In a similar situation, Sanchal & Sharma (2017) stresses the importance in which cognitive skills are the driving forces in creating and maintaining a positive student mindset toward mathematics throughout the many years of schooling. These skills are

highly effective in the success rate of understanding and using complex mathematical concepts. According to Sanchal & Sharma (2017), the components of "attitude, confidence, the importance of mathematics, and engagement" are interconnected and create a mechanics which drive student perceptions and behaviors (p. 89). The interrelation of the components relates to the students by illustrating the importance of mathematics in real-world situations. This approach creates enlightening classroom lessons touching and relating to everyday life, provides authenticity and connection to mathematics learning. One way, according to Sanchal & Sharma (2017), is to raise the level of confidence in mathematical applications and problem-solving, affecting students positively in their attitudes but also in a context that can help students see the use in real terms. This method builds on student engagement and curiosity, allowing for an understanding of the mathematical concepts.

Benefits of Adaptive Learning Systems

Adaptive learning software allows educational institutions to personalize the learning experience for learners based on their learning styles, areas of weaknesses and strengths. As educators and institutions determine and enter academic learning goals relating to a specific discipline, the adaptive learning system connects students with appropriate learning activities to increase achievement amongst the learner population. Vesin et al. (2018) explain that "creating this relation allows teachers and students to follow the learning curve and learning trajectories so that both sides could be able to reflect, make informed decisions, and scaffold interventions" (p.2).

With the inception of personalized learning solutions such as Pearson's MyMathLab, students can receive an educational experience that is appropriate for their individual needs and

learning styles. Lynch (2018) states that "[students] need to have a personalized approach to learning…[with this] students can receive an education that is perfect for their unique learning style at the appropriate pace" (para. 1). Personalized learning solutions provide educators and school districts with descriptive data on how students are performing in any lesson which utilizes the tool (Lynch, 2018, para. 2).

Implementing a Mathematics Curriculum

Stoilescu, Mcdougall, & Egodawatte (2016) indicates there are many challenges that teachers face when implementing mathematics curriculum in a classroom. The challenges categorized into five distinct areas. The five areas are "(a) teacher professional development and pedagogical skills; (b) student learning needs; (c) settlement issues and families' social and economic background; (d) administrative difficulties and resources; and (e) curricular issues" (Stoilescu, Mcdougall, & Egodawatte, 2016, p. 83). Teacher concerns in the area of professional development consistent with other studies which time away from the classroom along with the length of the training sessions and training on the technical aspects involved in the lessons and with the equipment.

Student learning needs, similarly addressed in other studies (National Mathematics Panel, 2008; Sanchal, & Sharma, 2017), are considered important in the transformation to a technology-infused mathematics classroom. In these studies, student learning in the area of mathematics linked to everyday and current problem-based activities where abstract and hands-on activities are cognitive skill emphasis. These relations or interactions enable students to feel comfortable and enjoying mathematics lessons. In correlation with the skill set the student confidence increases resulting in improvement of the attitude toward the subject of mathematics.

Likewise, Goos (2010) and Jung & Conderman (2015) concluded student learning, teacher knowledge, and understanding allows a dynamic union with technology and mathematics creating energizing and engaging learning environments which infiltrate the cognitive skills necessary for students to be successful in mathematics and on any standardized exam. Such mathematical instruction encapsulates computational fluency, critical thinking, and operational functions leading to online and hands-on experimenting, investigating, and problem-solving which bring depth to the students understanding of the basic concepts (Goos, 2010). Implementing these rich skills encourage students and teachers to "ask questions rather than only looking for answers" (Goos, 2010, p. 68).

Jung & Conderman (2015), added for successful implementation of using mathematics and technology together, classrooms become "an informal mathematical learning community" (p. 67). This community, at any age level, is important as fostering collaboration, expressing one's ideas, listening, and critical thinking by talking out solutions to mathematics problems. Wenger (2010) points out "communities of practice" reinforces the practice of conversation where students are highly absorbed in the applications and vocabulary of the subject matter. The students are learning from each other and able to recall and apply the understanding of technological platforms and standardized tests. "New technologies...are well aligned with the peer-to-peer learning processes typical of communities of practice" (p. 7).

Description of Project

In the summer of 2019, the Director of Educational Technology for the Bayonne School District will implement Pearson's MyMathLab, an adaptive learning technology solution, for students who performed poorly on the Mathematics assessment on the 2017-2018 PARCC examination. The technology will be introduced to the student population during the summer school program intended for remediation of poor performance in the Mathematics discipline.

Students will be provided with Chromebooks to access and interact with the software. Pearson's MyMathLab will guide students through the curriculum and focus on areas of weakness until an understanding of the content has been met. The placement exam will be conducted after the implementation of the tool to gauge the success of the technology integration. Additionally, data is provided by the MyMathLab software to assist teachers to adapt their curriculum, in the following academic year, to address areas of weakness amongst the student population.

Each of the three schools within the district will be provided with the same goals for the project implementation. These goals will assist the school district in assessing the success and progress of the initiative. The goals of the project include:

- Goal 1: Each school's technology coordinator will acquire thorough training on the use of the MyMathLab software.
- Goal 2: Teachers involved in the summer school program will acquire thorough training on the use of the MyMathLab software by the technology coordinators.

- Goal 3: Scores on the Mathematics Assessment in the PARCC examination by Hispanic and African American students, students with disabilities and English Language Learners will improve by at least 25 percent.
- Goal 4: Bayonne School District's overall assessment on the PARCC examinations will fall within the "Excelling" category on the 2019-2020 New Jersey Performance Summary Report.

Implementation and Evaluation

The Bayonne School District will assess the cost associated with implementing the adaptive learning initiative for the Mathematics curriculum. Necessary resources for the effective implementation of the project will include: (a) professional development for teachers involved; (b) student licensing fees for student access to MyMathLab; and (c) technical support for teacher and students. In May of 2019, the Director of Educational Technology will purchase student licenses at a rate of $100 per student (Johnson, 2017, p. 41). The exact cost for the implementation will be calculated once the district has determined the number of students who qualify to participate in the Mathematics summer school program. Computer labs with 50 Chromebooks exist at each of the schools in the Bayonne School District. These locations will be utilized to eliminate the need to purchase computers for this initiative.

With a large district, like Bayonne, and with the enrollment of students increasing yearly, so does the budget. Consequently, technology coordinators must work along with educators to balance the cost of the educational programs and accompanying equipment with the needs and preferences of their students. Robinson (2018) explains that the acquisition of technology, alone, is not enough to guarantee increased educational performance; resources such as training and

available support personnel is essential (p. 41). Professional development, instructional time, along with incorporating MyMathLab into the daily classroom activities can have an impact on the district's outcome and vision for every student, going through the mathematics program. Cheung & Slavin (2013) state that educational programs which implemented for more than 30 minutes per week are proven to be more efficient than those which implemented less than 30 minutes per week. However, allotting applicable time for educational programs continue to be a challenge for educators.

The Director of Educational Technology and the technology coordinators from each of the three schools, will develop, design, and implement professional development sessions for the Mathematics teachers involved in the summer school program. This training will provide teachers with the necessary information and knowledge to accurately deliver the adaptive learning experience to the students with the use of the MyMathLab software. A summative assessment will be completed by the participating teachers to assess their knowledge of the software to ensure that they have acquired the knowledge needed to support the students during the program correctly. If teachers have not exhibited a strong understanding of the software, additional follow-up training sessions will be facilitated on an individual basis.

Once the population of teachers who will be involved in the summer school program has been identified, and training, an action plan and schedule for the program will be created. A meeting will include all participants in the study will meet with the Director of Educational Technology and the technology coordinators to address any logistical concerns regarding the schedule or responsibilities of the participants. The action plan will be altered and revised as needed.

In June 2019, the Director of Educational Technology will collaborate with the Director of Curriculum to collect math PARCC scores from each of the schools. These scores will provide a list of students who are need of remediation and require participation in the summer school program. Letters describing the initiative and program will be disseminated to parents of the students requesting permission for participation. Elementary, Middle and High School students who are need of remediation will be placed into separate groups according to their school level. Each of the three schools will have a programmed adaptive learning module with customized curriculum according to their grade levels.

In August of 2019, the summer school program will have ended. On the last day of the program, the students will complete a summative assessment comprised of questions relating to their grade level and curriculum. These scores will provide data on the effectiveness of the adaptive learning software initiative. Additionally, these scores will be analyzed and compared with students' mathematics PARCC scores achieved prior to student's involved in the summer school program. Finally, at the end of the fall academic term, student achievement scores and final grades in math courses will be analyzed to determine if student achievement, among the participants of the summer school program, has improved.

To promote continuous improvement in mathematics, regular faculty meetings will be conducted to share insights and updates on student learning outcomes in the discipline. The following summer school program, in 2020, will be revised to address students' areas of weakness realized during the academic year and from proceeding PARCC assessments.

Conclusion

Emerging into one entity in the classroom, mathematics and technology command powerful, engaging, and authentic problem-solving and critical thinking activities which enable students and teachers to understand and utilize the essential skills for the 21st Century learner. These skills are measured through standardized tests, such as the PARCC. As part of the undertaking for the technology coordinators in the Bayonne School District, these skills are adapted and infused in the technology components unifying mathematics with computer applications. Concerning computers and mathematics, Papert (1993) declared "computer presence can bring children into a more humanistic as well as a more humane relationship with mathematics" by eliminating any preconceived notions of "mathophobia-the fear of learning math" (p. 39). Mathematics would become a "natural vocabulary" by merging technology and establishing these applications within the curriculum.

Our recommendations for the district technology department is to incorporate MyMathLab, a computer-based personalized learning platform, to increase the fluency and enable students to embrace mathematics with engaging and hands-on activities. This technology platform allows students to enjoy and understand mathematics at their own pace. Also, students will achieve mastery of the concepts and excel in PARCC, and other standardized tests build upon the 21st Century skill set and future undertakings. This mastery will increase the ability for students to problem solve and think critically while applying the core mathematics concepts. In turn, Bayonne School District will meet all four goals in the area of Mathematics.

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