School + University Partnership = Math Success
2018 NJSBA/NJASA/NJASBO Annual Workshop Conference

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About the Presenters

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Andrew R. Piotrowski, Ed.D.
Math Research:
Catholic School Teachers’ Perceptions of Factors Related to Low Mathematics Achievement: A Qualitative Case Study

Joseph P. Vespignani, Ed.D.
New Teacher Support Research:
Exploring My Leadership Practice in Connection to the Support System for Second- to Fourth-Year Non-Tenured Teachers
Workshop Objectives

▶ Offer a blueprint for the implementation of a Professional Development School (PDS).

▶ Provide administrators and board members with best practices to augment student performance in Math through an ongoing professional development program for non-tenured staff.

▶ Develop a framework to implement a joint-school university culture in secondary education.

▶ Identify obstacles and challenges.
District Analysis

Please discuss the following questions in a small group:

➢ What type of university partnerships does your district currently maintain?
➢ How does your district currently support non-tenured staff members?
Math: The Research

- Federal legislation to fund programs to improve academic achievement, from the Elementary and Secondary Education Act of 1965 to the ESSA today, has existed in the United States for the past 50 years. However, the achievement gap in mathematics still exists and continues to be a major topic of concern for educators and policy makers.

- In the Trends in International Mathematics and Science Study (2015), the United States still ranks behind eight educational systems in average mathematics scores (National Center for Educational Statistics, 2015).

- The principles for successful mathematics instruction include: high mathematics expectations, strong support for all students, teachers who understand what students know and need to learn, and assessments that support learning and furnish useful information to both teachers and learners (NCTM, 2000).
Hill, Rowan, and Ball (2005) concluded that students exposed to teachers with mathematical knowledge for teaching have experienced gains in their mathematics scores (Hill, Rowan, & Ball, 2005).

Teachers develop mathematical knowledge for teaching when they attend mathematics-focused professional development “focused on mathematical detail, well-explicated reasoning, as well as agility with a variety of mathematical productions from textbooks and students” (Hill & Ball, 2009, p. 70).
Math: The Research

- Mathematical knowledge for teaching was developed to assist mathematics teachers in what they must know and be able to do in order to teach their students, particularly when they cannot demonstrate how to solve math problems to their students (Hill & Ball, 2009).

- Price and Ball (1997) stressed that district leaders are vital in the process of recruiting resources in order for reform to take place in mathematics education. The resources administrators can provide benefit all educators in establishing a climate of mathematics achievement for all students.
Mentoring: The Research

- Adult learners need professional learning opportunities that provide the knowledge base as well as the time to practice new skills to change their performance (NJDOE, 2015).

- Quality mentoring during the first year of teaching impacts teacher retention and is the most significant factor for professional growth (Gimbel, Lopes, & Nolan Greer, 2011; Fluckiger, McGlamery, & Edick, 2006; Normore & Loughry, 2006; Wong, 2004).

- Schools would be better suited to augment the one on one mentoring approach and cultivate structures that offer a professional culture that promote collective inquiry (Johnson & Birkeland, 2003).
Teacher preparation programs should have a continuing role in the growth of their graduates during the initial years of teaching (Guise, 2013).

For school improvement to occur, it requires the establishment of a joint-school university culture (NAPDS, 2008).

Teacher preparation programs must work with schools to develop new models of partnerships that link pre-service and induction (Liston, Whitcomb, & Borko, 2006).
A PDS setting focuses on the professional preparation of pre-service and in-service teachers to increase student performance, and aims to support the transition from pre-service to the workplace (Hill, Lee, & Leftwich, 2014).

In this setting, a university professor works closely with school administrators and teacher leaders to better support pre-service and in-service teachers.

Latham and Vogt (2007) concluded that this setting positively affects the duration of time that teachers remain in the profession.
PDS Best Practice: Three Considerations

- Member Selection
- Structure
- Practices
Consideration One: Selection

PDS/University Partnership Member Selection

- Select a professor in residence aligned with the needs of the school
- Select a diverse group of teacher representation
- Select teachers who hold the supervisor or CE principal certifications
Responsibilities:

- Ensuring that evaluation procedures are implemented;
- Identifying PD opportunities for staff members; and
- Overseeing the mentorship of new teachers at the building level.
Consideration Two: Structure

PDS Structure

- Design a schedule for bi-weekly meetings
- Ensure representation from each Professional Learning Community
- Establish organizational routines for classroom visits and time for feedback
Consideration Three: Practices

PDS Practices

- Student performance data analysis
- Peer coach for all non-tenured teachers
- Research conducted in the classrooms
- Additional resources provided to staff
PDS Memorandum of Agreement

Example

- Placement of teaching candidates from FDU’s School of Education into qualified teachers’ classrooms at Calabro Elementary School for clinical field experiences, including the 14-week Apprenticeship Teaching;

- Conducting research at Calabro Elementary School by FDU’s School of Education faculty;

- Conducting professional development workshops to Calabro Elementary School faculty and families on various topics including literacy, multicultural education, and strategies for English Language Learners;
PDS Memorandum of Agreement Example

- Conducting PARCC data analysis at Calabro Elementary School by FDU’s School of Education faculty;

- Working to improve the literacy and mathematics achievement of Calabro Elementary School’s student population;

- Participating in Calabro Elementary School’s School Improvement Panel;

- Collaborating on the planning, implementation, and evaluation of potential programs and projects including obtaining grants.
Examine the approaches that early-career teachers take when utilizing mathematics textbooks, as well as the processes by which teachers select and modify textbook activities.

The goal is to improve strategies for selecting and modifying textbook activities and, ultimately, to provide all students with access to high quality, evidence-based mathematics instruction.

The study will last a minimum of one school year, and will include weekly interviews with teachers and weekly classroom observations.

Analysis of textbooks, workbooks, and teacher lesson plans.
The Results:
School-Wide PARCC Math Proficiency

Salavatore R. Calabro Elementary School

2015-16  20.9%
2016-17  41.1%
2017-18  70%
The Results:
School-Wide PARCC ELA Proficiency

Salavatore R. Calabro Elementary School

2015-16  53%

2016-17  91%

2017-18  93%
Joint-School University Partnership: Secondary Education

How to develop a relationship?

▶ Increase Dual Enrollment Course Offerings
▶ Develop an Early College/Middle College Program
▶ Apply for University Grants
Joint-School University Partnership: Secondary Education

- Establishing a relationship with a higher education institution allows access to resources.

- Virtual Tutoring

- Opportunities for Grants

- Club Opportunities
A Partnership

with Brookdale Community College
What is the Early College Academy?

The Early College Academy is intended to give academically prepared students the opportunity to earn an Associate of Arts, Social Science degree from Brookdale Community College while also achieving their high school diploma.

The Early College Academy is structured as a four year cohort allowing enrolled students to satisfy high school graduation requirements and Brookdale’s college-level courses in fulfillment of the Associate degree requirements.
# Early College Academy Course Sequence

## Grade 9

<table>
<thead>
<tr>
<th>COURSE</th>
<th>AP CREDIT</th>
<th>BCC CREDIT</th>
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<tbody>
<tr>
<td>Lab Biology Honors</td>
<td></td>
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<tr>
<td>English 1 Honors</td>
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<td></td>
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<tr>
<td>Algebra II Honors</td>
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<tr>
<td>Phys Ed/Health 1</td>
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<td>Academic Elective</td>
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<tr>
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<tr>
<td>AP Art History</td>
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<tr>
<td>AP World History (BCC HIST 105 &amp; 106)</td>
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<tr>
<td>BCC First Year Seminar</td>
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**Grade 9 Total BCC Credit** 10

**Explorers must pass BCC Accuplacer during the Fall of their 9th grade year.**

## Grade 10

<table>
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<tr>
<th>COURSE</th>
<th>AP CREDIT</th>
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<tbody>
<tr>
<td>AP Biology (BCC BIOL 101)</td>
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<tr>
<td>AP Language &amp; Composition (BCC ENGL 121 &amp; 122)</td>
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<tr>
<td>Pre-Calculus Honors</td>
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<tr>
<td>Phys Ed/Drivers Ed</td>
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<tr>
<td>World Language (CLEP = 4 BCC credit)</td>
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<tr>
<td>U.S. History 1</td>
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<tr>
<td>Intro Psych/Abnormal Psych (PSYCH 105 &amp; 216) @ RHS</td>
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<tr>
<td>AP Seminar</td>
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**Grade 10 Total BCC Credit** 16

(20 with CLEP)
# Early College Academy Course Sequence

## Grade 11

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<tr>
<th>COURSE</th>
<th>AP CREDIT</th>
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<tr>
<td>Elective</td>
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<tr>
<td>AP Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP Literature &amp; Composition</td>
<td>3 + 3 = 6</td>
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<tr>
<td>(BCC ENGL 245 &amp; 246)</td>
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<tr>
<td>Phys Ed/Health 3</td>
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**BCC Hazlet**

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<tr>
<th>COURSE</th>
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<td>BCC COMP 129</td>
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<td>BCC CHEM 100</td>
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<td>BCC HIST 135</td>
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**Grade 11 Total BCC Credit**

20

## Grade 12

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<td>Elective</td>
<td></td>
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<tr>
<td>Elective</td>
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<tr>
<td>Phys Ed/Drivers Ed</td>
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<tr>
<td>BCC HIST 107 &amp; HIST 108</td>
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**BCC Lincroft**

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<td>BCC ECON 155</td>
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<tr>
<td>BCC ANTH 105</td>
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<tr>
<td>BCC SPCH 115</td>
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**Grade 12 Total BCC Credit**

18

Total BCC Credit = 64
With CLEP = 68
A Glimpse At Our Current Explorers!
The Results:
2018 Advanced Placement Testing Administration

Raritan High School

39% increase in exams with 3 or higher
265 tests scored a 3 or higher (185 last year)
Administered 564 exams (447 last year +117)
24 Exams were graded as 5 (23 last year/4% increase)
89 Exams were graded as 4 (69 last year/30% increase)
152 Exams were graded as 3 (93 last year/63 % increase)
# AP Recognitions Raritan High School

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
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<tbody>
<tr>
<td>AP Scholar</td>
<td>35</td>
<td>27</td>
<td>23</td>
<td>8</td>
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<tr>
<td>AP Scholar with Honor</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>AP Scholar with Distinction</td>
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<td>7</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>National AP Scholar</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<tr>
<td>AP Capstone Diploma</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<tr>
<td>AP Seminar and Research</td>
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<tr>
<td>Certificate</td>
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<tr>
<td>Total</td>
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<td>33</td>
<td>14</td>
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<tr>
<td>Avg. Score</td>
<td>3.21</td>
<td>3.24</td>
<td>3.37</td>
<td>3.54</td>
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Obstacles and Challenges

In your group, please discuss the following:

➢ The obstacles and challenges that may be encountered to fully implement a partnership with a university?

➢ Develop suggestions for meeting these challenges.
Potential Obstacles

➢ Requires designated times for meetings to occur while ensuring that all participants are both willing and available to attend.

➢ The principal and staff would need to be open to working with university faculty to create a culture that embraces pre-service teachers as part of the school community (NAPDS, 2008).
Potential Obstacles

- Parental consent for research to be conducted in the classrooms.

- Teachers would need to welcome not only university faculty but also the pre-service teachers into their classrooms. Some teachers may not be willing to relinquish control of their classrooms to pre-service teachers.

- Thus, the establishment of a PDS requires principals and schools to support organizational change for new teacher support.
Final Thoughts
References


References


References