

Mercy College

NSF Robert Noyce Scholars Program

External Evaluation Report
Project Year 2

Conducted by: Brian C. Baldwin, Ed.D.

bcBaldwin
& ASSOCIATES

Table of Contents

Project Overview	3
Year 2 Evaluation overview	3
Year 2 Recruitment Strategies	5
Year 2 Retention Strategies	6
Summer Coursework.....	6
Data Sources and Collection	7
Empirical Data	7
ATMI	7
MTEBI	8
TTT	8
Qualitative Data: Interviews with Candidates	9
Professional Internship.....	10
Analysis and Summary	11
References.....	11

Project Overview

The Mercy College Robert Noyce Teacher Education Scholarship program seeks to improve the quality of teaching and learning of mathematics in high needs schools in the greater New York City area, with a specialized focus on recruiting teacher candidates who are returning military veterans, retiring or exiting from military service. There are four main goals for this program, namely:

1. To develop a pipeline of mature and diverse secondary school math teachers, recruited from retired or exiting military personnel with strong math backgrounds, who may serve as role models for at-risk students in secondary schools.
2. To improve math teaching and learning through a college-school partnership focusing on linking theory and practice in which school practitioners and college faculty play equivalent roles in the preparation of teachers, assuring the authenticity of the pre-teaching experience and the excellent quality of future teachers available for high-needs public schools.
3. To improve mathematics achievement for a diverse population of secondary school students to enable them to pursue higher mathematics in college and careers in math and science-related professions.
4. To close the performance gap in mathematics among economically advantaged and disadvantaged students, and between ethnically and racially diverse groups of students.

Year 2 Evaluation overview

This evaluation covers the second year of the project, between April 1, 2018, through March 31, 2019. An overview, synopsis style video presentation was made of this evaluation report, and can be viewed at:

<http://www.bcbaldwin.com/home/meirpro/MEIRPro-Year2-Eval>. This video provides an overview of

the main elements contained within this written evaluation report, as well as providing some contextual analysis of the project. Please be aware that this video is “unlisted”, therefore not searchable within the YouTube platform and the Evaluation website link. However, anyone with the URL link can view the video and read the evaluation report, so please share sparingly and accordingly.

This evaluation report follows up on the four candidates of the first cohort, and introduces five candidates in the second cohort.

Mathematics Education
Intensive Residency Program
(MEIRPro)

MERCY COLLEGE
EXTERNAL EVALUATION PRESENTATION
PROJECT YEAR 2, APRIL 1 2018 – MARCH 31, 2019

bcBaldwin
ASSOCIATES

Below in Table 1 is a Conceptual Model, showing the different inputs, activities and anticipated outcomes of the project.

Table 1: Conceptual Model

Inputs	Activities	Short-Term Outcomes	Long-Term Outcomes
Mercy College inputs	<ul style="list-style-type: none"> Recruitment of military veteran math teacher candidates (with Office of Veterans Affairs) 14-month formalized graduate coursework placement of teacher candidate in school with mentor teacher provision of colloquia and PD opportunities aligned with increasing classroom responsibilities in the residency placement 	<ul style="list-style-type: none"> increased student attitudes toward mathematics increased student achievement scores in mathematics increased teacher self-efficacy and confidence increased numbers of returning military veteran teachers to secondary mathematics classrooms 	<ul style="list-style-type: none"> sustained student attitudes toward mathematics sustained, elevated student achievement scores in mathematics sustained increases of returning military veterans to the mission of teaching in high-needs public schools development of school-based teacher leaders from the ranks of returning military veterans, who can be advocates for this type of program
District partner Yonkers Public Schools inputs	<ul style="list-style-type: none"> selection of mentor teachers to act as classroom residency directors 	<ul style="list-style-type: none"> increased teacher self-efficacy and confidence promotion of rigor and values of mathematics education increased student achievement scores in mathematics increased student attendance rates 	<ul style="list-style-type: none"> sustained teacher self-efficacy and confidence selection and hiring of graduates of the MEIRPro project to teach full-time in YPS sustained student achievement scores in mathematics sustained student attendance rates
Evaluation and Assessment	<ul style="list-style-type: none"> data collection via surveys, interviews formative assessment feedback summative assessment 	<ul style="list-style-type: none"> initial and intense data collection at commencement of project ongoing feedback provided to project management team development of yearly 	<ul style="list-style-type: none"> data collection throughout project data collection at end of each project year to determine yearly progress feedback to both project personnel as well as NSF

reporting

annual external
evaluation reports

regarding project
evaluation, suggestions
for improvement and
recommendations for
future implementation
strategies

NSF Noyce

- funding for all inputs from Mercy and district partners

Year 2 Recruitment Strategies

Recruitment remains the major story for the MEIRPro project. The second year brought six additional veteran teacher candidates to the project, beginning with coursework in Summer 2018. One of the candidates dropped out of the program early in the Fall semester. The candidate that dropped out of the program from the first cohort has re-started the program. All told, there are five new candidates in the second year cohort. A total of four candidates from the first cohort have completed the program.

Recruitment events and activities happened in similar fashions to the first year: Career Fairs, Veterans Fairs, as well as networking events with organizations for veterans. To a minor extent, social media (Facebook and Twitter) were used as additional platforms for getting the word out. In fact, the well-known and heavily subscribed Facebook group *Troops to Teachers* has provided a link to the MEIRPro recruiting flyer and contact information for Dr. Farber.



Additionally, Mercy College produced a professional video featuring Dr. Farber, school district officials, and new interns to discuss and promote the program. This video is located at: <https://www.youtube.com/watch?v=8B6px80dI9Q&feature=youtu.be>

So, recruiting remains a major challenge as the project moves into its third year. Recommendations moving forward include continuation of the strategies from the first and second years of the project (veterans fairs, interviews, etc.), but also with a much greater emphasis on college-wide involvement through higher-impact social media (College

accounts) with direct links to the program website and application pages. As of the preparation of this report (March 2019), recruiting for the third and fourth years have already started. A revised recruiting goal of 11 candidates for the 2019-2020 academic year has been established in conjunction with the NSF program officer, Dr. Steve Turley.

Year 2 Retention Strategies

A finding from the evaluation report from the end of the first year of the project was that there was a fairly low level of self-confidence reported by the candidates, as measured by the ATMI. Specific focus within the courses on development of self-confidence by realizing their strengths and being prepared for the classroom by having well thought-out instructional and assessment strategies in place during student teaching. To this end, all candidates who began student teaching in Fall 2018 are on track to complete student teaching by the end of spring semester 2019 (as of this writing in March 2019).

Other retention strategies include travel and participation at the Noyce Conference in Washington, as well as local and regional math education conferences on Long Island, greater New York City and upstate New York.

Summer Coursework

Selected candidates complete coursework in two consecutive summers, separated by a year-long field placement in the Yonkers Public Schools. During the first summer, students enroll in nine credits of coursework in courses such as Foundations in Education, Math Teaching Methods, and Special Education. During the academic year, and during the second summer, candidates enroll in courses including Reading / Writing in the Content Area, Mathematics Problem Solving, and Educational Psychology / Adolescent Development.

In total, candidates complete a total of 36 graduate credits, earn a Masters degree and are eligible for New York State teaching certification in mathematics upon successful completion of the Educating All Students (EAS) test, the Content Specialty Test (CST) for Mathematics, and finally the edTPA for Secondary Mathematics. Candidates also receive a full scholarship to cover the cost of tuition (approximately \$32,800), as well as ongoing on-site and online follow-up support through their first year of teaching. In return, candidates must agree to teaching mathematics in a high-needs (according to NSF regulations) school for two years following graduation of the program, conferral of degree and awarding of certification. It is the candidates' responsibility to secure a full-time teaching position upon graduation. However, networking and conferencing opportunities during the candidates' time in the program should enable easy transition into full-time teaching positions.

Data Sources and Collection

Empirical Data was collected from the candidates using three different instruments:

1. Attitudes Towards Mathematics Instrument (ATMI)
2. Mathematics Teaching Efficacy and Beliefs Instrument (MTEBI)
3. Troops – To – Teachers Survey (TTT)

Each of these instruments provide greater insight into candidates' readiness, preparedness, and confidence in themselves as a military veteran preparing to become a mathematics teacher in a high-needs school district.

Semi-structured interviews were also conducted with the candidates from the second cohort which focused on decisions and opportunities to transition from the military to the mathematics classroom, and skills that they have learned thus far both in the education classroom as well as in their internship classrooms that have helped mold their identities as future math teaching professionals.

Empirical Data

ATMI

The ATMI is designed to measure teachers' self-efficacy and self-confidence on four subscales: value, self-confidence, enjoyment and motivation (Tapia & Marsh, 1996). By completing the survey, the candidates self-reported ratings to a number of items that aimed to measure candidates' values on these four subscales. Table 2 below shows the candidates' self-reported means for each of these subscales. Any rating lower than a "4" rating warrants discussion and consideration as a factor to address by other means.

Table 2: ATMI values

Sub-scale	Rating
Value	2.36
Self-confidence	3.45
Enjoyment	2.58
Motivation	2.30

As noted in Table 2, the candidates exhibited lower levels of value, self-confidence, enjoyment and motivation (all the subscales) than expected. The data for the Year 1 cohort exhibited the lowest level of self-confidence for the candidates, while this year self-confidence levels ranked the highest. A conclusion from that analysis could be that because the self-confidence subscale was noted in last year's report to be one of concern, there was greater emphasis on that in the coursework and discussions that the candidates had with the faculty – to possibly the detriment of

the other subscales. A recommendation would be to address all the sub-scales equally in coursework prior to beginning the Professional Internship.

MTEBI

The MTEBI is designed to measure two subscales: Personal Math Teaching Efficacy and Mathematics Teaching Outcome Expectancy (Huinkler & Madison, 1997). Namely, this instrument measures how well candidates think how professionally successful they will be in terms of both their teaching, as well as how their students learn mathematics concepts and material. Similar to the ATMI survey above, the candidates self-reported ratings to a number of items that aimed to measure candidates' values on these two subscales. Table 3 below shows the candidates' self-reported means for each of these subscales. Any rating lower than a "4" rating warrants discussion and consideration as a factor to address by other means.

Sub-scale	Rating
PMTE	2.59
MTOE	2.32

As seen from the data from the MTEBI instrument, both subscales warrant a further review. These results further confirm the results from the ATMI instrument, which indicate that the candidates began the program with low amounts of self-efficacy for their own professional experience and ability to be successful in their professional responsibilities. While these results are not surprising for career change adults that are migrating to the field of math teaching, the results do warrant some further consideration given that the candidates are former soldiers in the military. A built-in assumption that former soldiers carry a high amount of self-confidence into their new career might be called into question – and at a minimum needs to be addressed within the program.

TTT

The TTT is designed to take a snapshot of the demographics of the profiles of veterans returning to the teaching workforce upon successful retirement or transitioning to a civilian career after the military (Feistritz, Hill, & Willett, 1998). Highlights of the data collected from the candidates in the second cohort included:

- 60% male, 40% female (more gender diversity than last year with 100% male)
- 100% from minority or ethnic group (compared to ~10% of overall teaching workforce)
- 100% placement in urban areas for internship
- #1 reason for going into teaching:
 - 40% state "Value or significance of education in society"

- 80% state that they are satisfied with their relationship with other teachers
- 40% state that they favor higher standards for HS graduation
- 100% state that they favor reducing the class size
- 100% state that they favor more integration of technology into teaching and learning mathematics
- 100% state that they will remain teachers in 5 years

The data collected from the Troops to Teachers survey highlight high minority participation, high standards for teachers and students, more technology in teaching, and long-term retention as teachers. In other words, these candidates see mathematics teaching in high-needs schools as career that they will remain in until retirement.

Year-End data collection from all candidates will be completed within the next two months, as the candidates complete their year-long professional internship. With comparing beginning values with ending values, it is anticipated that we will see a growth over time of both coursework as well as internship that will show that the candidates have gained self-confidence and skills throughout the duration of the program.

Qualitative Data: Interviews with Candidates

Semi-structured interviews were conducted with all five members of the second cohort at the beginning of their second semester of student teachers. All of the candidates were at the same point in the progress within the program: All had completed the first summer of coursework, fall semester of academic work and fall semester student teaching. All candidates were all currently in spring semester of coursework, and spring semester of student teaching. The interviews took place approximately halfway through the fall semester. Upon completion of the semester, the candidates needed only to complete the CST, EAS and complete the edTPA portfolio in order to earn New York State certification in mathematics.

The interviews were individual discussions with each candidate that were structured around three important themes:

1. decisions influencing the candidate to transition from the military to becoming a math teacher,
2. leadership and organizational experiences from the military that have proven beneficial in their student teaching experiences
3. pedagogical and curricular strategies and skills refined through formal coursework in the program that have proven beneficial in their student teaching experiences

Theme One: Only one of the candidates had made an entire career in the military (20 years) prior to enrolling in the MEIRPro program at Mercy College. The rest of

the candidates had military careers ranging from a few years to a decade of service. Across the board, candidates suggested that the main reason that they wanted to become a teacher upon leaving the military was that they felt that they wanted to give back to the communities and make a difference in the lives of children – especially in the lives of children in urban and predominately-minority communities.

Theme Two: A commonality that arose from most of the interviews regarding the relationship between the candidates’ military background and their classrooms that they felt that they had experience in showing, modeling and commanding respect from others. A few of the candidates suggested short vignettes regarding helping a “tough to reach” student, which resulted in a more respectful relationship between the candidate and the student.

Theme Three: The relationship of educational theories into educational practice has long been fraught with difficulty. A one-size-fits-all approach to teaching students has been shown to be frustrating with most teacher candidates over the years – namely because theories learned in teacher education coursework is in direct conflict with how the candidates themselves were taught. However, there was strong agreement between candidates that there were many strategies that they have implemented in their student teaching classrooms that work – and that they would not have tried otherwise – namely with non-traditional assessment methods, and the use of instructional technology.

Professional Internship

Supervisors have submitted a number of timely evaluations throughout the course of their professional internship experiences in the Yonkers schools. Task Stream was utilized as the platform for uploading and analyzing the inters’ strengths and weaknesses aligned with a rubric that incorporates the following areas:

- Planning, preparation and delivery of instruction
- Classroom management
- Assessment
- Professional Growth and Responsibilities, and
- Program-specific objectives to secondary math teaching (problem solving, reasoning, technology integration, etc.)

Analysis indicated the following general themes throughout the observation evaluations:

Candidates began the internship with difficulties with classroom management, lesson planning, and efficiency. These are common areas of difficulty with most beginning and developing teachers, so there are no major concerns at this point. As the observation evaluations take place closer to the completion of the school year,

there will be a focus on the development and growth of these professional skills of teaching. Additionally, interns will have to submit a satisfactory edTPA portfolio as a NY State requirement for issuance of the teaching certificate.

Analysis and Summary

In summary, recruitment remains a difficult factor moving forward. Strategies for increasing recruitment include continuation of what worked last year (veterans fairs, etc.), with additional incorporation of social networking (Twitter, Facebook, etc.). The coursework required for the program is strong, and appropriate for beginning teacher candidates such as those in the MEIRPro program. It might warrant further discussion within the administrative team regarding specific incorporation of strategies to deal with lower levels of the subscales measured via the ATMI and MTEBI. The TTT survey indicated great minority recruitment success, and strong value of mathematics teaching as a career that the candidates will continue until retirement.

References

- Feistritzer, C. E., Hill, M. D., & Willett, G. G. (1998). *Profile of Troops to Teachers*. Washington, DC: National Center for Education Information.
- Huinkler, D., & Madison, S. K. (1997). Preparing efficacious elementary teachers in science and mathematics: The influence of methods courses. *Journal of Science Teacher Education*, 8(2), 107-126.
- Tapia, M., & Marsh, G. E. (1996). An instrument to measure mathematics attitudes. *Academic Exchange Quarterly*, 8(2), 16-22.