



## Educator's Equity in STEM II



### EVALUATION REPORT

Year One: September 15, 2016 to June 15, 2017

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## List of Acronyms

ATE	Advanced Technological Education
CEO	Chief Executive Officer
CORE	Center on Research and Evaluation
CTE	Career and Technical Education
DACC	Dona Ana Community College
DUE	Division of Undergraduate Education
EESTEM	Educators Equity in STEM
IC	Innovation Configuration
IRB	Institutional Review Board
MM	Micromessaging to Reach and Teach Every Student™ or Micromessaging
MOU	Memorandum of Understanding
NAPE	National Alliance for Partnerships in Equity
NSCC	Northwest State Community College
NSF	National Science Foundation
PD	Professional Development
PI	Principal Investigator
PLC	Professional Learning Community
QISARS	Quality Implementation Self-Assessment Rating Scale
SMU	Southern Methodist University
SSC	Stark State College
STEM	Science, Technology, Engineering and Mathematics
TAG	The Allison Group
TBD	To be determined
VLC	Virtual Learning Community

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## EXECUTIVE SUMMARY

In September 2016, the National Alliance for Partnerships in Equity Education Foundation (NAPE) received a three year award (\$899,961) to conduct the Educators Equity in STEM II project, DUE 1601548. Funded by the National Science Foundation (NSF) Advanced Technological Education Program (ATE), the grant ends August 31, 2019. This grant builds on the foundation laid by a prior project, Educators Equity in STEM Academy (DUE 1104163), which was administered by NAPE from August 10, 2011 through September 9, 2014, with a supplement that extended the grant through January 31, 2016. The reporting period for this evaluation is September 15, 2016 to June 15, 2017.

NAPE's mission is to build educators' capacity to implement effective solutions that increase student access, educational equity and workforce diversity through professional development, technical assistance, research and evaluation and advocacy. NAPE is a professional alliance comprised of state and local education agencies, national organizations and corporations. The NAPE Education Foundation works to build capacity in the workforce education system. The NAPE Education Foundation is the fiscal agent for EESTEM II.

The EESTEM II project has three education partners:

Dona Ana Community College (DACC), New Mexico	<i>Host, Summer Institute, and PLC/Showcase Support</i>
Stark State College (SSC), Ohio	<i>Host, Summer Institutes, and PLC/Showcase Support</i>
Center on Research & Evaluation (CORE) at Southern Methodist University (SMU)	<i>Research partner</i>

One of the primary activities of year one for the EESTEM II grant was clarification and finalization of the evaluation plan. A detailed plan for evaluation was designed by the CORE team. PI Williams and the external evaluator further developed the plan. The NAPE CEO and Co-PIs provided content input for surveys, which was integrated into the plan. The Institutional Review Boards (IRBs) of both of the partner colleges and NAPE approved the project. The DACC and NAPE IRB approved the project prior to creation of the evaluation instruments. The Stark State College IRB reviewed and approved the EESTEM II research protocol, including the letters of consent and the pre and post institute survey.

The plan contained four evaluative questions.

1. What was the quality of the project's management and implementation?
2. To what degree has EESTEM II's work led to improvement of training and education of the technician workforce?
3. To what degree is the likelihood of the effectiveness of the NAPE training, *Micromessaging to Reach and Teach Every Student™* dependent on:
  - a) quality delivery of PD components and
  - b) overall supports for implementation at each site
4. Do variations in quality of delivery and/or site-level supports for implementation explain variability in outcomes for primary participants?

Under the leadership of Principal Investigator (PI) Williams, the EESTEM II Leadership Team was formed. This critical collaborative group was comprised of the PI, NAPE Program Manager, Gregory Jackson, the Co-PIs from the host sites at SSC and DACC, and early involvement from the NAPE CEO, and included regular check-in with the evaluation team. The Leadership Team held regular meetings and coalesced quickly. This was evidenced by a high level of camaraderie and open communication in meetings and team emails observed by the evaluator. Program Manager Jackson provided clear and timely scheduling and documents required to make progress on activities. Team members communicated and coordinated as needed to produce the required results.

Dates were set, arrangements were completed and Memorandums of Understanding (MOUs) were signed to deliver two four-day *Micromessaging to Reach and Teach Every Student™* trainings at two partner institutions. The first Summer Institute for the Academy was to be conducted a short nine months after funding was received. This meant that the recruiting and selection process needed to be finalized and implemented very quickly. To expedite the process, the project developed an on-line application process and a rubric to evaluate the readiness and the quality of prospective teams in their applications.

Once the application was completed, a national call for institutions to participate was launched. Teams from eleven institutions applied to participate in cohort one. The process was highly successful, and the recruiting goals for year one were met.

The Summer Institutes were conducted after the end of the reporting period for year one, and analysis of the data from participant surveys will be conducted in the report for year two.

The EESTEM II project is an example of a well-thought out project, led by an excellent team, with institutional and community support. The team worked very well together, meeting all tasks to date, despite the late funding date and the complexity of starting a new team of partners that had not previously worked together. A major finding of this evaluation report is that EESTEM II is successful in meeting its goals. The project must also be commended for the quality and quantity of results produced with a very small project staff.

## INTRODUCTION

In September 2016, the National Alliance for Partnerships in Equity Education Foundation (NAPE) received a three year award (\$899,961) to conduct the Educators Equity in STEM II project, DUE 1601548. Funded by the National Science Foundation (NSF) Advanced Technological Education Program (ATE), the grant ends August 31, 2019. This grant builds on the foundation laid by a prior project, Educators Equity in STEM Academy (DUE 1104163), which ended January 31, 2016 (including the supplemental).

The evaluation which follows covers the first nine months of the grant, September 15, 2016 to June 15, 2017 and addresses the first evaluative question: *What was the quality of the project's management and implementation?* The external evaluation will provide an outside, independent perspective on the impact of BEST activities on the technician workforce. Evaluation findings will be used to: a) guide on-going decision making and program improvement efforts, b) document project impact and effectiveness, and c) assess the direct benefits of the project.

The evaluator attended multiple meetings with the project leadership and worked with the project team to develop the detailed evaluation plan and obtain IRB approval. The evaluation covers information from those meetings, combined with findings from the project documentation.

NAPE's mission is to build educators' capacity to implement effective solutions that increase student access, educational equity and workforce diversity through professional development, technical assistance, research and evaluation and advocacy. NAPE is a professional alliance comprised of state and local education agencies, national organizations and corporations. The NAPE Education Foundation works to build capacity in the workforce education system. The NAPE Education Foundation is the fiscal agent for EESTEM II. The EESTEM II project seeks to increase the competency of community college instructors in STEM in creating equitable classrooms. Through professional development and long-term support of the instructors, EESTEM seeks to build the capacity of STEM educators in technician education/career and technical education (CTE) programs to develop and implement plans to increase equity and access for women, students from historically under-represented racial and ethnic minority groups, and students with disabilities. The professional development and long-term support of the instructors (through PLCs) will also improve educator performance, build a community of practice,, create more equitable college cultures, and improve participation, performance, and/or persistence (retention), and success among students in STEM technician education/CTE programs. The logic model describing the theory of change is found in Appendix E.

The EESTEM II project has three education partners:

Dona Ana Community College (DACC), New Mexico	<i>Host, Summer Institute</i>
Stark State College (SSC), Ohio	<i>Host, Summer Institutes</i>
Center on Research & Evaluation (CORE) at Southern Methodist University (SMU)	<i>Research partner</i>

### Project Mission and Goals

The Educators' Equity in STEM II project seeks to rigorously examine the efficacy, and scale the implementation, of the *Micromessaging to Reach and Teach Every Student<sup>TM</sup>* Academy piloted in DUE

1104163 (August 2011 to January 2016 in Maryland) by creating and testing a national dissemination model by delivering the PD through community college partnerships. Over three years, 100 participants will work in 10-12 community college and secondary site-based teams from across the nation to develop and implement plans to increase equity and access to technician education programs on their campus where females, historically under-represented minorities, and students with disabilities are underrepresented. Participants will conduct action research in their classrooms to test the hypothesis that classroom practice that incorporates micromessaging results in increased self-efficacy and success for students in technical education programs. The 100 participating educators will agree to reach out to 100 additional educators (administrators, faculty, counselors, or staff) on their campus to engage, develop, and support their implementation strategies.

The EESTEM II Academy is based on NAPE's *Micromessaging* program and expands the work conducted in Maryland. The academy includes four components:

- (1) Four-day Summer Institute that is a face-to-face presentation of the *Micromessaging to Reach and Teach Every Student™* training for educators.
- (2) Eight structured and facilitated monthly *Professional Learning Communities* (PLCs) hosted in the academic year for those who complete the Summer Institute.
- (3) Tools and resources needed to support exploration and transform educator practice.
- (4) Capstone experience in which educators customize, implement and measure the strategies and tools in their classrooms throughout the academic year.

The EESTEM II project has one stated goal and three objectives.

**Goal:** To develop an effective model for national delivery of a high-quality professional growth opportunity with fidelity to community college faculty of technician education and secondary career and technical educators to enhance their teaching skills and improve program and campus practices leading to increased academic and technical education outcomes for a diversity of students.

- Objective 1:** Develop a model to implement NAPE's highly effective *EE-STEM Academy* that can be feasibly and easily implemented and conducted *with fidelity* at multiple diverse sites over time.
- Objective 2:** Host the *Micromessaging* program at DACC and SSC to serve 100 community college and secondary educators representing 10-12 community college sites from across the US.
- Objective 3:** Measure the role that organizational-level features (i.e., college, department, and program levels) can play in determining program success.

### **Purpose and Design of the Evaluation**

Following are the questions that will be addressed in the evaluation. A report will be developed at the end of each year and will address each of the five evaluation questions.

1. What was the quality of the project's management and implementation?
  - a) Project activities and deliverables
  - b) Progress toward goal and objectives

- c) Dissemination
- 2. To what degree has EESTEM II's work led to improvement of training and education of the technician workforce?
  - a) What was the impact on faculty knowledge of equity in the classroom?
  - b) What was the impact on classroom practice?
  - c) What was the impact on students?
- 3. To what degree is the likelihood of the effectiveness of the NAPE training, *Micromessaging to Reach and Teach Every Student™* dependent on:
  - c) quality delivery of PD components and
  - d) overall supports for implementation at each site
- 4. Do variations in quality of delivery and/or site-level supports for implementation explain variability in outcomes for primary participants?

There are two teams of evaluators for this project:

- The Allison Group (TAG), led by Terryll Bailey is the external evaluator with responsibility for impact evaluation (evaluative questions one and two) and for developing the evaluation reports. A summary of the approach to the impact evaluation is found in Appendix D.
- The Center on Research & Evaluation (CORE) at the Annette Caldwell Simmons School of Education and Human Development at Southern Methodist University, led by Annie Wright PhD, is responsible for the process and implementation evaluation (evaluative questions three and four).

In the first nine months of the grant, the evaluation team developed and finalized a detailed evaluation plan in collaboration with the PI. This included a step-by-step work plan for evaluation and the design of three instruments:

Tool 1: Pre-Institute Participant Survey

Tool 2: Post-Institute Participant Survey

Tool 3: Implementation Interview DRAFT (Questions are being finalized)

Tool 4: Follow up Survey (under development, will be derived from Tool 2)

In addition, the evaluation team worked with the PI to engage with the Stark State College IRB in its review process. Approval was obtained for the EESTEM II research protocol, including the letters of consent and the pre- and post-institute surveys. The Institutional Review Boards (IRBs) of both of the partner colleges and NAPE approved the project. The DACC and NAPE IRBs approved the project prior to the award of the grant to the NAPE Education Foundation. The Stark State College IRB reviewed and approved the EESTEM II research protocol, including the letters of consent prior to award, and the pre and post institute survey prior to the first institute.

For the current report, the second, third and fourth evaluative questions are not addressed because they rely on data from participants of the EESTEM Academy. This data will not be available until year two.

Sources of data are found in the section below.

## EVALUATION PLAN

One of the primary activities of year one for the EESTEM II grant was clarification and finalization of the evaluation plan. A detailed plan for evaluation was designed by the CORE team. PI Williams and the external evaluator further developed the plan. The NAPE Chief Executive Officer (CEO) and Co-PIs provided content input for surveys, which was integrated into the plan.

The full plan is on the pages which follow containing the full evaluation packet currently in use by the project team. The survey instruments referenced in the Evaluation Packet are found in Appendices A, B and C.

## EVALUATION PLAN

### The Intervention

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Beginning in September 2016, NAPE is initiating a 3-year program titled *Equity Education in STEM II (EESTEM II)*, which utilizes the NAPE *Micromessaging to Reach and Teach Every Student™* (Micromessaging) professional development (PD) to educate community college and secondary technician educators (Career and Technical Educators or “CTEs”) about the power of Micromessaging in order to (1) enhance their teaching skills and (2) improve program and campus practices leading to increased academic and technical education outcomes for diverse students by gender, race and ethnicity, and special population status.

**The NAPE ATE Intervention** has four components, which will be provided to two cohorts of participants:

1. Summer Institute – Training on Micromessaging to Reach and Teach Every Student
2. Training site leaders to facilitate eight structured and facilitated PLCs
3. Providing key tools and resources to support exploration and transform practice
4. Guiding a capstone project for participants

## Conceptual Model

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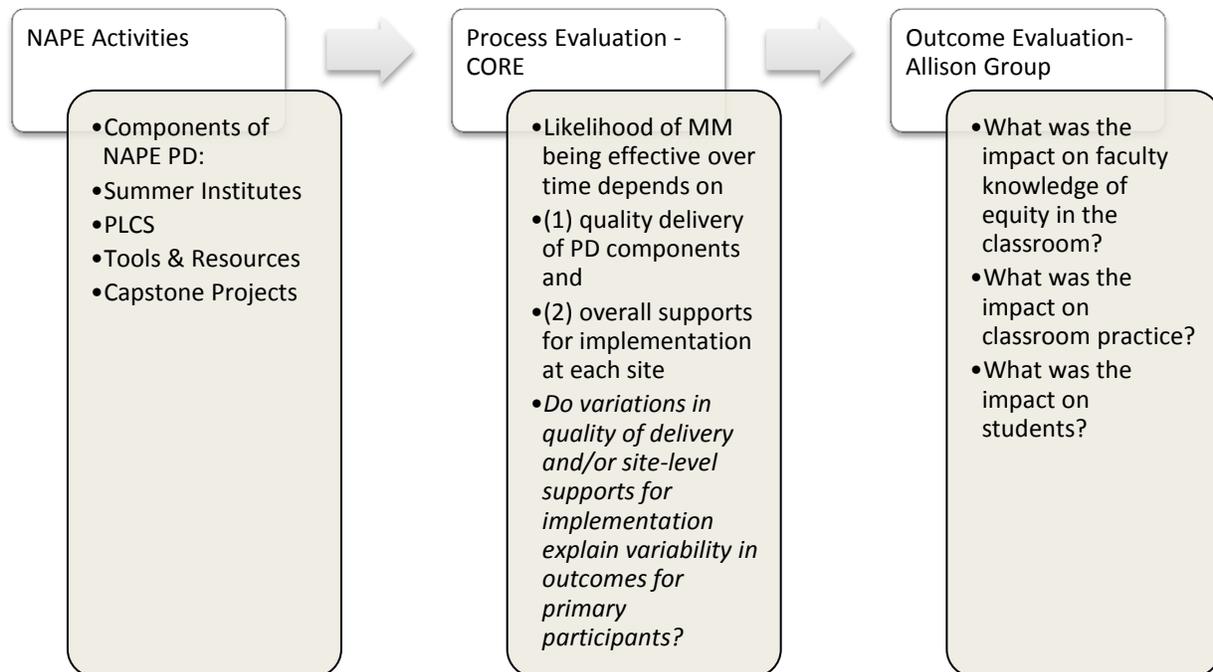


Figure 1. Graphic illustration of conceptual model

### Roles

Project staff will collect data on evaluation indicators. CORE will compile data, analyze and report on all process evaluation indicators: 1) support for implementation of MM at campus sites, 2) sustainability of MM as a result of the (well) supported implementation, and 3) delivery of intervention components (training itself, PLCs, Capstone, + other tools, resources TBD). The Allison Group (TAG) will compile data, analyze and report on all outcome evaluation indicators 1) knowledge and understanding; 2) classroom practice, 3) student success. TAG and CORE will share all data so that it can be used to run process and outcome analyses.

There are four levels of participants. Level one NAPE instructors directly train Level two site facilitators and Level three primary participants. Level two participants are also PLC facilitators. Level four are “extension” participants who are not directly trained by NAPE but who may interact or benefit from training via exposure to levels two and three.

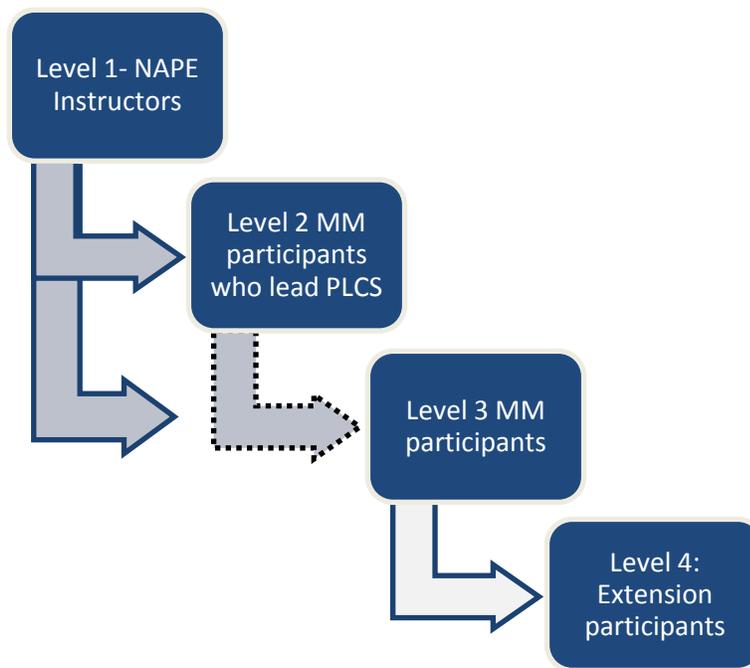


Figure 2. The four levels of participants

## What to Measure – Process and Outcome Evaluations

### Process Evaluation

CORE’s process evaluation will focus on (1) the quality of delivery of PD components and (2) supports for implementation at each site. Surveys and interviews will be the primary data collection strategy. Process Evaluation data collection is from Levels 2 and 3, participants in the MM trainings. The table below summarizes the overall questions, relevant sub-questions for each Level, and the survey data that will be collected to ask and answer these questions.

Table One: Summary of Orienting Process Evaluation Questions Across Levels of Participants

Project Partners	Process Evaluation Questions	
	<b>Quality of Delivery of the Intervention</b>	<b>Supports for Implementation + Sustainability of the Intervention</b>
<b>Level 2-MM participants &amp; PLC facilitators</b>	<p>According to PD participants, how effective were the components of PD/were best practices in PD present? (Training, tools, PLCs, Capstone)</p> <p>What were the quality and usefulness of the Institutes, the PLCs, the capstone projects and the tools and resources provided?.</p>	<p>How do site/PLC facilitators/leads perceive supports for MM programming? Are supports for implementation in place? How strong are the supports? How sustainable are MM practices at this campus?</p>

<b>Level 3- primary participants</b>	According to PD participants, how effective were the components of PD/were best practices in PD present? (Training, tools, PLCs, Capstone)  What were the quality and usefulness of the Institutes, the PLCs, the capstone projects and tools and resources provided??	n/a
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## **Outcome Evaluation**

TAG's outcome evaluation will focus on the impact of MM training for participants. Surveys will be the primary data collection strategy. The table below summarizes the overall questions and relevant sub-questions for each Level.

Table Two: Summary of Orienting Process Evaluation Questions Across Levels of Participants

<b>Project Partners</b>	<b>Outcome Evaluation Questions</b>	
<b>Level 1 – NAPE instructors</b>	What ideas do NAPE instructors have on how to increase impact on institutional changes and capacity to educate technicians?	
<b>Level 2- site lead/PLC facilitators</b>	How do site leads (and/or PLC facilitators) perceive supports for MM programming? Are supports for implementation in place? How strong are the supports? How sustainable are MM practices at this campus?  What knowledge was gained by site leads from the Institutes, the PLCs, the capstone projects and the other resources provided?  To what degree was there a change in site leads' attitudes, beliefs and self efficacy with respect to teaching?  To what degree were Academy materials and concepts applied in the classroom?  What was the impact of the Micromessaging Academy on the institution? Other faculty? Students?	
<b>Level 3- primary</b>	What knowledge was gained by participants from the Institutes, the PLCs, the capstone projects and the other resources provided?  To what degree was there a change in participant attitudes, beliefs and self efficacy with respect to teaching?  To what degree were Academy materials and concepts applied in the classroom?  Impact of micromessaging program on classroom practice and student site-specific outcome measures?  What was the impact of the Micromessaging Academy on the institution? Other faculty?  To what degree did EESTEM II's work lead to improvement of training and education of the technician workforce?	
<b>Overall</b>	To what extent will micromessaging initiatives be sustained and beyond the time period of the grant?  To what extent did the project's work increase the body of knowledge of factors that influence the ability to implement high quality PD?  To what degree did EESTEM II's work lead to improvement of training and education of the technician workforce?	

## How to Measure – Evaluation Tools

CORE and TAG collaborated with NAPE to develop four tools that will be used to ask and answer the process and outcome (impact) questions in Tables One and Two.

Tool 1: Pre Institute Survey (See Appendix A)

Tool 2: Post Institute Survey (See Appendix B)

Tool 3: Implementation Interview (See Appendix C)

Tool 4: Follow up Survey (under development, will be derived from Tool 2)

Table Three provides a summary of what data will be collected from which Level of participant(s), at what time intervals, and what they will measure.

Table Three: Summary of Data Collection

Send What:	Send to:	Send when:
<b>Tool 1: Pre Institute Survey</b> <ul style="list-style-type: none"> <li>▪ Demos, identifiers</li> <li>▪ Pre Impact Items</li> </ul>	<ul style="list-style-type: none"> <li>▪ Level Two (MM participants + PLCs)</li> <li>▪ Level Three (MM participants)</li> </ul>	<input type="checkbox"/> Cohort One: Before Institute #1 Summer 2017  <input type="checkbox"/> Cohort Two: Before Institute #2 Summer 2018
<i>Use to measure process and outcome indicators</i>		<i>Expect n=50 in each cohort</i>
<b>Tool 2: Post Institute Survey</b> <ul style="list-style-type: none"> <li>▪ Demos, identifiers</li> <li>▪ Post Impact Items</li> <li>▪ PD Quality</li> </ul>	<ul style="list-style-type: none"> <li>▪ Level Two (MM participants + PLC facilitators)</li> <li>▪ Level Three (MM participants)</li> </ul>	<input type="checkbox"/> Cohort One: Immediately after Institute #1 Summer 2017  <input type="checkbox"/> Cohort Two: Immediately after Institute #2 Summer 2018
<i>Use to measure process and outcome indicators</i>		<i>Expect n=50 in each cohort</i>
<b>Tool 3: Implementation Interview</b> <ul style="list-style-type: none"> <li>▪ PD Quality</li> <li>▪ Supports for Implementation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Level Two PLC facilitators (tbd)<sup>1</sup></li> </ul>	<input type="checkbox"/> Cohort One: April-May 2018  <input type="checkbox"/> Cohort Two: April-May 2019
<i>Phone interview – mix of retrospective ratings and open ended, impression of how training went, how the roll out will go</i>		<i>Expect n=6 for each cohort (at least 12 campuses, one interview per campus)</i>
<b>Tool 4: Follow up survey</b> <ul style="list-style-type: none"> <li>▪ Demos, identifiers</li> <li>▪ Post Impact Items</li> <li>▪ PD Quality (long term), PLCs &amp; Capstone</li> <li>▪ Supports for Implementation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Level Two (MM participants + PLC facilitators)</li> <li>▪ Level Three (MM participants)</li> </ul>	<input type="checkbox"/> Cohort One: One year after Institute #1 Summer 2017, JUNE 2018  <input type="checkbox"/> Cohort Two: One year after Institute

<sup>1</sup> At the time of reporting, CORE and NAPE are collaborating to determine the best informants for this tool

## **IRB**

The DACC, Stark State College, and NAPE IRBs approved the research protocol prior to award. Stark State's IRB required further review and approval of the EESTEM II letters of consent and the pre and post institute surveys prior to the first institute in July 2017. PI Williams worked with the evaluation team to meet the requirements of the IRB. The project provided a description of the procedures to be followed and included sufficient information for the board to determine the risks and/or benefits of the study. The documentation also stressed that participation in the study would be fully voluntary.

All three IRBs understood what the project is asking of individuals and granted permission for the project to conduct its study regarding the efficacy of the Academy and the impact on faculty and students.

## **Reporting**

The Year One report will provide an update on evaluation activities to date including all survey forms, though no data will be available for analysis by Year One reporting.

Year Two report will summarize process and outcome survey data from Cohort 1 across Levels 1, 2 and 3. This includes any/all process data collected since Summer Institute 2017; data will be analyzed descriptively.

The final Year Three report will summarize process and outcome survey data from cohorts 1 and 2, all levels. An anticipated no-cost extension would allow the project to postpone the delivery date of the final report and include data from summers 2019 and 2020. Data will be analyzed for trends over time and the relationship between implementation data and outcome data will be tested.

## **Next Steps**

CORE and project partners plan to apply for a supplemental grant that will address NAPE's overall evaluation capacities, and allow for the collection and analysis of follow up data for Cohort 2 (Time 3-Summer 2020).

## Timeline

The evaluation activities align with the EESTEM II project intervention activities, as shown in the table below.

Table Four: Evaluation Activities Timeline

	Year 1 (16-17)				Year 2 (17-18)				Year 3 (18-19)			
	Planning	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Aug)
<b>Intervention Activities</b>												
Identify PLC facilitators/site leads												
4-day Summer Institute – Cohort 1												
4-day Summer Institute – Cohort 2												
PLC facilitator training												
PLCs meet												
Capstone presentations												
<b>CORE/TAG Evaluation Activities</b>												
Develop & Revise Surveys: All Forms												
Year 1 report												
Survey data collection Cohort 1 Tool 1: Pre-Institute Survey (Levels 2, 3)												
Survey data collection Cohort 1 Tool 2: Post-Institute Survey (Levels 2,3)												
Cohort One Tool 3: Implementation Interview												
Survey data collection Cohort 1 Tool 4: Follow-up Survey (Levels 2,3)												
Data analysis & report prep (Cohort 1)												
Year 2 report												
Survey data collection Cohort 2 Tool 1: Pre-Institute Survey (Levels 2, 3)												
Survey data collection Cohort 2 Tool 2: Post-Institute Survey (Levels 2,3)												
Cohort Two Tool 3: Implementation Interview												
Survey data collection Cohort 2 Tool 4: Follow-up Survey (Levels 2,3)												
Data analysis & report prep (all cohorts & levels)												
Final report												

## QUESTION 1: What was the quality of the project's management and implementation?

The project staff consists of the PI, Ben Williams PhD and the Program Manager, Gregory Jackson, both from the NAPE organization (National Alliance for Partnerships in Equity Education Foundation). They provide direction and management for the Leadership Team consisting of the four co-PIs of the project and a representative of SMU CORE. Additionally, the project receives advisory input through the NAPE National Advisory Board and the CEO of NAPE. Members of the Leadership Team have multiple years experience working with community colleges.

Co-PI Dr. John Walker at Dona Ana Community College retired shortly after the grant funding was awarded. Fred Owensby stepped in for DACC to continue the work. This could have been a major challenge for the project. However, the skillful leadership of the PI combined with the experience levels of the original co-PI and his replacement made for a nearly seamless transition.

Under the leadership of PI Williams, the team held regular meetings and coalesced quickly. This was evidenced by a high level of camaraderie and open communication in meetings and team emails observed by the evaluator. Program Manager Jackson provided clear and timely scheduling and documents required to make progress on activities. Team members communicated and coordinated as needed to produce the required results.

As a result, the project met all of its deliverables for the first nine months of the grant (the reporting period, September 15, 2016 to June 15, 2017).

- Conducted multiple meetings with the Leadership Team
- Prepared tools for fidelity and feasibility research, marketing, and formative and summative evaluation
- Prepared materials for Advisory Committee Meetings
- Prepared logistics for Institute sessions: venue, food, materials, etc.
- Recruited sites for participation
- Selected sites for participation based on a rubric of criteria
- Collected year-end data and developed reports and publications
- Evaluated program elements
- Produced formative and final reports for NSF

### Summer Institutes

Dates were set, arrangements were completed and MOUs were signed to deliver two four-day *Micromessaging to Reach and Teach Every Student™* trainings at two partner institutions:

- July 17-21, 2017 at Stark State College in Canton, Ohio
- August 7-11, 2017 at Dona Ana Community College in Las Cruces, New Mexico

## Cohort 1 Recruitment and Selection

The grant funding was received in mid-September 2016 and the first Summer Institute for the Academy was to be conducted a short nine months later. This meant that the recruiting and selection process needed to be finalized and implemented very quickly.

The recruiting goals were as follows:

- Five or six teams of eight to ten participants
- Teams could be composed of community college and secondary partners; however, at least five had to be community college faculty in technician education programs and the other three to five had to be community college faculty or secondary teachers of gateway courses to the technician education programs.
- An emphasis was placed on recruiting sites serving students in rural communities.

To expedite the process, the project developed an on-line application process and a rubric to evaluate the readiness and the quality of prospective teams in their applications. The application included the following questions:

1. How can participation in the EESTEM II Academy advance your institution's equity goals?
2. How has faculty innovation been supported by the leadership at your institution?
3. How does your institution support professional development and/or programming focused on equity in classrooms and programs of study (curriculum, certificate and degree programs)? Please be specific
4. How many faculty members would you like to include in your team, and what are their titles and roles at your institution or at a secondary partner institution?
5. Do you commit to designating a Site/Professional Learning Community facilitator who will act as the site lead and work directly with NAPE to be trained to facilitate monthly PLCs throughout the duration of the project? Who? And why them?
6. As an extension of the Institute, are you willing to engage at least 10 additional administrators and faculty members, other than those participating in the Institute, in providing additional informal professional development, to disseminate the work, and build sustainability?
7. Is there anything else we should know about your institution and motivation to participate in this professional development?

Once the application was completed, a national call for institutions to participate was launched. Teams from eleven institutions applied to participate in cohort one.

Using evaluative criteria, the rubric provided a guide for scoring the responses of the institutions to the questions in the application. Three dimensions were identified for each item on the application with a rating scale of excellent (3), good (2) and fair (1), as shown in the table below.

Table Five: Selection Rubric

Application Question	Excellent (3)	Good (2)	Fair (1)
1	Used clear, accurate language. Included specific examples that were compelling and clearly connected to the question.	Used proper language. Included examples that clearly connected to the question.	Language was unclear or confusing. Did not include examples, or the examples did not clearly connect to the question.
2	Used clear, accurate language. Included specific examples that were compelling and clearly connected to the question.	Used proper language. Included examples that clearly connected to the question.	Language was unclear or confusing. Did not include examples, or the examples did not clearly connect to the question.
3	All details were unique and related to and supported the response to the question.	Response had three or more details that supported the main idea.	Response had fewer than three details and/or the details provided did not clearly relate to the question.
4	Five or more faculty members, from different disciplines, and includes one secondary teacher	Four faculty members, and/or concentrated in fewer disciplines. May be lacking secondary teacher.	Fewer than four faculty members, concentrated in fewer disciplines. Lacking a secondary teacher.
5	Clearly described the level of commitment in a manner that demonstrated enthusiasm for the project. Provided the name of the site lead and provided specific information that was connected to the question. Response mentions capacity to lead, facilitate and manage projects and groups to produce outcomes and deliverables.	Clearly described the level of commitment. The reasons why the site lead was selected may not have been clearly connected to the role of site lead or purpose of the project. Response was missing one or more of the following: capacity to lead, facilitate and manage projects and groups to produce outcomes and deliverables.	The description of the level of commitment was not clear. The name of the person may be missing. The reasons why the person was selected were unclear, incomplete or did not address the following: capacity to lead, facilitate and manage projects and groups to produce outcomes and deliverables
6	Used clear, accurate language. Response mentions their plan for procuring the 10 and/or the capacity to reach out to other groups, institutions and individuals and communicate about the project.	Used proper language. Response alludes to a plan for procuring the 10 and/or capacity to reach out to other groups, institutions and individuals and communicate about the project.	Language was unclear or confusing. Response provided little or no details about a plan or capacity to reach out to 10 administrators.
7	Response is compelling and demonstrates enthusiasm for the project.	Response is complete and provides additional information about the capacity and enthusiasm of the college to engage with the project.	Response may not be complete or may not provide new information.
Writing	No spelling, grammar, capitalization or punctuation errors. Sentences are all well-formed.	Fewer than 5 spelling and grammar errors. Fewer than 5 capitalization and punctuation errors. One or two flawed sentences.	More than 5 spelling and grammar errors. More than 5 capitalization and punctuation errors. Less than 5 sentences show flawed structure.

Applications were reviewed and scored by all members of the Leadership Team. Scores of each team member were summed for each applicant, and those institutions with the highest scores were invited to attend one of the Institutes (Dona Ana or Stark State). MOUs were issued for each institution. There were few, if any, problems in the operations and logistics with the teams.

The application process and the selection model provided by the rubric worked well for the first cohort. These tools will be utilized and/or modified for year two, and the timeline for each of these steps will be moved up significantly to allow more time for planning.

The process was highly successful, and the recruiting goals for year one were met. While still early in the grant, this model is already showing indicators for collaboration and success in addressing equity gaps across the educational pipeline. Teams were selected from community colleges in five different states representing the East Coast, Midwest, Southwest, and Southeast. Following are the institutions for participation in Cohort One:

- Austin Community College, Texas
- Bainbridge State College, Georgia
- Baltimore City Community College, Maryland
- Delgado Community College, Louisiana
- Northwest State Community College, Ohio
- River Parishes Community College, Louisiana

River Parishes Community College, Bainbridge State College, and Northwest State Community College are all located in rural districts that serve a wide region. Austin Community College, Baltimore City Community College, and Delgado Community College are all in large urban areas, but some have satellite campuses serving suburban and rural communities. Many of the teams also included secondary partners.

### **Leveraging Results**

The partnership between Dona Ana Community College and NAPE led to additional collaboration with DACC participating as one of the pilots in the New Mexico STEM Equity Pipeline Project from 2016-2017, which was funded through NSF (STEM Equity Pipeline 2.0, GSE/EXT/HRD-DUE 1203121).

In addition, Northwest State Community College (NSCC) in Ohio first became involved with NAPE through the Ohio Department of Education-funded Equity in CTE initiative in 2012, which was an expansion of the work started through the original STEM Equity Pipeline, of which Ohio took part from 2009-2012, NSF GSE/EXT/HRD DUE 0734056. In May 2017, NSCC contracted with NAPE to provide a full day of professional development. NSCC submitted one of the strongest applications for participation in the first cohort of Micromessaging implementation. Participation in both of these activities will help build NSCC's capacity, and will act as a model for other institutions in Ohio and around the country.

### **Summary of Project Management and Implementation**

The EESTEM II project is well managed, and PI Williams is to be commended for meeting the project recruitment goals and for completing all of the activities that were scheduled in the reporting period. The project assembled an experienced group of co-PIs and staff to form the Leadership Team. This, combined with the leadership skill of the PI allowed the project to complete in nine months what it had planned to complete in twelve. The team coalesced early to solve problems and to launch the national call for institutions to participate in the Summer Institute. The development of an online application and a clear and useful rubric led to the identification of six qualified community colleges that will be sending 8-10 participants to each of the Institutes this summer, meeting the recruitment goals for year one.

The Summer Institutes were conducted after the end of the reporting period for year one, and analysis of the data from participant surveys will be conducted in the report for year two.

**QUESTION 2: To what degree has EESTEM II's work led to improvement of training and education of the technician workforce?**

Question two will address improvement of training and education of the technician workforce. In the reporting period, no faculty were directly affected by the project. Evidence will be compiled and analyzed with respect to the impact of the EESTEM II Academy on faculty knowledge of equity in the classroom, the impact on classroom practice and the impact on students. Data will be gathered via the Institute pre- and post-surveys and the one year follow up survey, focus groups and interviews. The instruments that will be used are found in Appendices A, B and C.

That said, those faculty who are participating in the first cohort of Micromessaging training this summer have indicated that they are excited to be a part of this professional development, and to have the grant cover their costs for participation.

**QUESTION 3: To what degree is the likelihood of the effectiveness of the NAPE training, *Micromessaging to Reach and Teach Every Student™* dependent on: a) quality delivery of PD components and b) overall supports for implementation at each site**

**QUESTION 4: Do variations in quality of delivery and/or site-level supports for implementation explain variability in outcomes for primary participants?**

Starting in year two, the Center on Research & Evaluation (CORE) at the Annette Caldwell Simmons School of Education and Human Development at Southern Methodist University will conduct the research and data analysis to address evaluative questions three and four. CORE will measure changes in supports for implementation, implementation capacity building, and feasibility of the sites to continue to implement *Micromessaging* over time (sustainability) and expand issues of equity to other areas of the program, department, or college (diffusion).

The activities addressed by questions three and four are designed to support the continuous improvement of NAPE's efforts to design and deliver high quality training models in the future. This includes the ability for NAPE to identify the capacities that most influence the effectiveness of the training, and to create a framework for continuous improvement that will extend beyond the years of the grant.

Sources of data will include pre-post and follow up surveys of EESTEM II Academy participants, along with implementation interviews. The components of the Quality Implementation Self-Assessment Rating Scale (QISARS) were used to develop survey items and interview questions. The QISARS covers six domains: Planning for Implementation, Developing an Implementation Team, Fostering a Supportive Climate for the Program, Monitoring the Implementation Along the Way, Receiving Training and Technical Assistance related to Implementation, and Collaborating Closely with the developers of the *Micromessaging* program. The implementation interview will be administered to the Level 2 site leaders at n=6 Cohort One sites in April and May of 2018. It will be administered again to the (unduplicated Level 2 site leaders at n=6 or 8 Cohort Two sites in April and May of 2019. Interview questions will be based on the QISARS domains and will ask participants to reflect on the extent to which these supports were in place at their institution during the year the Micromessaging program was delivered. Interview and survey data will be used to answer process evaluation questions, including: : *Do sites with very high*

*implementation supports necessarily produce strong teacher-level outcomes? What components of quality implementation are most highly correlated with program outcomes?*

## CONCLUSIONS AND RECOMMENDATIONS

The EESTEM II project is an example of a well-thought out project, led by an excellent team, with institutional and community support. The team worked very well together, meeting all tasks to date, despite the late funding date and the complexity of starting a new team of partners that had not previously worked together. In addition, the IRB approval process with Stark State College required additional steps, and the team continued to problem-solve to develop solutions, until IRB approval was obtained from all three participating institutions: DACC, NAPE, and Stark State College.

The first nine months of the grant centered on operationalizing the Summer Institutes at two locations, customizing the *Micromessaging to Reach and Teach Every Student™*, and developing and implementing a recruitment and selection process. The project was very successful, and met its recruiting goals, with selecting six institutions, each with teams of 8-10.

The second focus of the first year was to solidify the evaluation team and detailed plan. With CORE in Texas and The Allison Group in Washington State, the PI initially worked to provide a bridge for the organizations to develop a working relationship. His efforts were successful, and evaluators Wright and Bailey formed a strong collaborative relationship to navigate multiple revisions and finalize the detailed plan, develop and revise the pre/post Institute surveys and participant identifiers for the CORE study in order to meet the requirements of the IRB. The evaluation plan, designed by CORE and further developed by the PI and The Allison Group, served the project well, and its efficacy will be further tested in the coming year.

A major finding of this evaluation report is that EESTEM II is successful in meeting its goals. The project must also be commended for the quality and quantity of results produced with a very small project staff. An important part of this grant is capacity building at each of the participating institutions through outreach efforts that will occur throughout the academic year of capstone preparation and implementation. In year one, the project laid a strong foundation for this outcome.

For any continuing improvement process associated with good project management, program assessment is integral. The project team has done an excellent job in considering this aspect of the process. The one recommendation is that the PI work with the evaluators to perform a review of the surveys based on the pilot data to ensure that the team is getting all the responses in the most useful form.

# APPENDIX A

## TOOL 1 – PRE-INSTITUTE PARTICIPANT SURVEY

### Appendix A: Tool 1 – Pre-Institute Participant Survey

#### EESTEM II Summer Institute: Pre-Workshop Participant Survey

This survey should be administered electronically to Summer Institute Participants in either Level 2 or 3, prior to starting the Institute.

1. **Directions:** *Please indicate the degree to which you agree/disagree with each statement below.*

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
When a student does better than usual, many times it is because I exerted a little extra effort.	<input type="checkbox"/>					
As an instructor, I have the ability to affect the attitudes and beliefs of my students.	<input type="checkbox"/>					
An instructor is very limited in what they can achieve because a student's home environment is a large influence on their achievement.	<input type="checkbox"/>					
When the grades of my students improve it is usually because I found more effective teaching approaches.	<input type="checkbox"/>					
As an instructor, I can influence my institution's environment and its effect on students.	<input type="checkbox"/>					
My decisions as an instructor can directly influence my students' behavior outside the classroom.	<input type="checkbox"/>					
I play a critical role in providing equal access to the entire spectrum of career choices for my students.	<input type="checkbox"/>					
I can reverse the consequences of stereotypes on my students.	<input type="checkbox"/>					
I have a direct effect on the level of self-efficacy of students in my classroom(s).	<input type="checkbox"/>					
I have the power to affect my students' access to and success in STEM careers.	<input type="checkbox"/>					
I have a direct effect on the development of my students' intelligence.	<input type="checkbox"/>					

**2. Please rate your current level of understanding and skill for each of the following areas.**

	<b>No knowledge</b>	<b>Beginner</b> You have some experience or basic knowledge	<b>Proficient</b> You can utilize at a satisfactory level	<b>Advanced</b> You can utilize better than most	<b>Expert</b> You can utilize with a superior level of skill and teach to others
The contribution and accountability of the instructor to disparities and inequities in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to facilitate an equitable learning environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How stereotypes or “single stories” limit the opportunities and potential for students and their future careers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How “single stories” can be created and perpetuated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How implicit bias affects the messages that instructors send to students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The power of labels on students and their success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to encourage the exploration of STEM careers for those underrepresented by gender, race and ethnicity and (dis)ability status.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How the accumulation of micromessages affects a person’s self efficacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to use the four sources of self efficacy to increase success in STEM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to reinforce a growth mindset to build students’ self-efficacy in STEM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to impact a student’s attribution style to improve their performance and persistence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to move from deficit-based to asset-based learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to develop culturally responsive instruction to improve equity in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to disrupt the cycle of inequity and foster strategies that increase potential for success for marginalized students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please respond to the items below to help us summarize general background and demographics information of Institute participants. Thank you!

**3. Identifier**

City in which you were born (for example, Austin or Seattle)  
Month you were born (for example, April or November)  
Date of birth (for example, 15 or 09)  
Name of your college (drop down)


**4. Workshop location and year:**

Dona Ana Community College, NM - 2017  
Stark State College, OH - 2017  
Dona Ana Community College, NM – 2018  
Stark State College, OH – 2018

**5. Occupation/Role (please select all that apply)**

- College Instructor
- College Instructor and Administrator
- High School/Secondary Instructor
- High School/Secondary Instructor and Administrator
- College Academic/Career Advisor/Counselor
- Other, please specify

**6. Teaching Experience:**

How many years have you been in your current position?

If you are an instructor, how many years of teaching experience do you have

**7. Have you ever received professional development or other training related to improving educational equity?**

- Yes
- No

**8. Did any of the training occur in the last five years?**

- Yes
- No
- If you have ever had this type of training, please describe:

Please answer the following questions so that we may supply data on our participants required by our funder, the National Science Foundation.

**9. Gender**

- Woman
- Man
- Transgender
- Gender queer
- Intersex
- Other gender preference (please specify)

**10. Are you...?**

- Yes, **Hispanic/Latino** (A person of Cuban, Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.)
- No, **not Hispanic/Latino**

**11. The above question is about ethnicity, not race. No matter what you selected above, please continue to answer the following by marking one or more boxes to indicate what you consider your race to be.**

**What is your race? (Choose one or more)**

- American Indian or Alaska Native** (A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.)
- Asian** (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.)
- Black or African American** (A person having origins in any of the black racial groups of Africa.)
- Native Hawaiian or Other Pacific Islander** (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)
- White** (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.)

# APPENDIX B

## TOOL 2 – POST-INSTITUTE PARTICIPANT SURVEY

### Appendix B: Tool 2 – Post-Institute Participant Survey

#### EESTEM II Summer Institute: Post-Workshop Participant Survey

This survey should be administered electronically to Summer Institute Participants in Either Level 2 or 3, immediately following the completion of the Institute.

1. Directions: *Please indicate the degree to which you agree or disagree with each of the statements below.*

	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree
When a student does better than usual, many times it is because I exerted a little extra effort.	<input type="checkbox"/>					
As an instructor, I have the ability to affect the attitudes and beliefs of my students.	<input type="checkbox"/>					
An instructor is very limited in what they can achieve because a student's home environment is a large influence on their achievement.	<input type="checkbox"/>					
When the grades of my students improve it is usually because I found more effective teaching approaches.	<input type="checkbox"/>					
As an instructor, I can influence my institution's environment and its effect on students.	<input type="checkbox"/>					
My decisions as an instructor can directly influence my students' behavior outside the classroom.	<input type="checkbox"/>					
I play a critical role in providing equal access to the entire spectrum of career choices for my students.	<input type="checkbox"/>					
I can reverse the consequences of stereotypes on my students.	<input type="checkbox"/>					
I have a direct effect on the level of self-efficacy of students in my classroom(s).	<input type="checkbox"/>					
I have the power to affect my students' access to and success in STEM careers.	<input type="checkbox"/>					
I have a direct effect on the development of my students' intelligence.	<input type="checkbox"/>					

2. Please rate your current level of understanding and skill for each of the following areas.

	<b>No knowledge</b>	<b>Beginner</b> You have some experience or basic	<b>Proficient</b> You can utilize at a satisfactory level	<b>Advanced</b> You can utilize better than most	<b>Expert</b> You can utilize with a superior level of skill
The contribution and accountability of the instructor to disparities and inequities in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to facilitate an equitable learning environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How stereotypes or “single stories” limit the opportunities and potential for students and their future careers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How “single stories” can be created and perpetuated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How implicit bias affects the messages that instructors send to students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The power of labels on students and their success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to encourage the exploration of STEM careers for those underrepresented by gender, race and ethnicity and (dis)ability status.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How the accumulation of micromessages affects a person’s self efficacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to use the four sources of self efficacy to increase success in STEM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to reinforce a growth mindset to build students’ self-efficacy in STEM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to impact a student’s attribution style to improve their performance and persistence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to move from deficit-based to asset-based learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to develop culturally responsive instruction to improve equity in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to disrupt the cycle of inequity and foster strategies that increase potential for success for marginalized students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**3. To what extent have your skills in each of the following areas improved as a result of participating in the Summer Institute**

	1= Not at all: you did not learn this skill in this Institute				7= Your knowledge and skill improved dramatically			
The contribution and accountability of the instructor to disparities and inequities in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to facilitate an equitable learning environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How stereotypes or “single stories” limit the opportunities and potential for students and their future careers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How “single stories” can be created and perpetuated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How implicit bias affects the messages that instructors send to students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The power of labels on students and their success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to encourage the exploration of STEM careers for those underrepresented by gender, race and ethnicity and (dis)ability status.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How the accumulation of micromessages affects a person’s self efficacy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to use the four sources of self efficacy to increase success in STEM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to reinforce a growth mindset to build students’ self-efficacy in STEM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to impact a student’s attribution style to improve their performance and persistence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to move from deficit-based to asset-based learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to develop culturally responsive instruction to improve equity in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How to disrupt the cycle of inequity and foster strategies that increase potential for success for marginalized students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**4. Please indicate the level of impact you believe your learning and the materials from the EESTEM Institute will have on your students:**

- High impact
- Moderate impact
- Some impact
- Neutral
- A little impact
- Very little impact
- No impact
- Not sure
- Does not apply to me

Please provide additional comments or explanation of your ratings:

**5. To what extent were the following features incorporated into the Summer Institute you just completed?**

	Not at All 1	2	3	4	5	6	Very Much 7
The training included presentation of new material that I had not seen before.	<input type="checkbox"/>						
Training content was tailored to participants' input and questions.	<input type="checkbox"/>						
Training materials were relevant to me in my teaching practice.	<input type="checkbox"/>						
The training provided me with useful ideas to improve my classroom instruction.	<input type="checkbox"/>						
The presenter(s) were not able to answer all of my questions in a satisfactory way.	<input type="checkbox"/>						
My participation in NAPE Institute training increased my knowledge of microinequity in the classroom.	<input type="checkbox"/>						
Training material was presented in an interesting, engaging way.	<input type="checkbox"/>						
Training provided me with opportunities to practice or apply new things that I learned.	<input type="checkbox"/>						
I feel confident that I can integrate the material learned in this training into my classroom instruction.	<input type="checkbox"/>						
I still have a lot of questions about the material that was presented in this training.	<input type="checkbox"/>						

**6. How likely are you to implement ideas and concepts you learned at this Institute in your classes?**

- Extremely Likely
- Likely
- Neither likely nor unlikely
- Unlikely
- Extremely unlikely
- Does not apply to me

Please explain your answer. Be specific about what you think you will or will not do, and why.

**7. Please indicate the degree to which you agree or disagree with each of the statements below.**

	Strongly Agree	Agree	Agree Somewhat	Neutral	Disagree Somewhat	Disagree	Strongly Disagree
I would recommend NAPE Institute training to others. (10)	<input type="checkbox"/>						
NAPE Institute training was an effective use of my time. (11)	<input type="checkbox"/>						
NAPE Institute training met my expectations. (12)	<input type="checkbox"/>						
NAPE Institute training was useful to me. (13)	<input type="checkbox"/>						
Because of NAPE Institute training, I will be better able to meet my students' needs. (9)	<input type="checkbox"/>						

**8. Briefly, what aspect(s) of the Institute was particularly beneficial or significant for you?**

**9. Briefly, how might the Institute be improved?**

**10. Other comments?**

Please respond to the items below to help us summarize general background and demographics information of Institute participants. Thank you!

**11. Identifier**

City in which you were born (for example, Austin or Seattle)

Month you were born (for example, April or November)

Date of birth (for example, 15 or 09)

Name of your college (drop down)


**12. Workshop location and year:**

Dona Ana Community College, NM - 2017

Stark State College, OH - 2017

**13. Teaching Experience:**

How many years have you been in your current position?

- If you are an instructor, how many years of teaching experience do you have •

Please answer the following questions so that we may supply data on our participants required by our funder, the National Science Foundation.

**14. Gender**

- Woman
- Man
- Transgender
- Gender queer
- Intersex
- Other gender preference (please specify)

**15. Are you...?**

- Yes, **Hispanic/Latino** (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.)
- No, **not Hispanic/Latino**

The above question is about ethnicity, not race. No matter what you selected above, please continue to answer the following by marking one or more boxes to indicate what you consider your race to be.

**16. What is your race? (Choose one or more)**

- American Indian or Alaska Native** (A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.)
- Asian** (A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.)
- Black or African American** (A person having origins in any of the black racial groups of Africa.)
- Native Hawaiian or Other Pacific Islander** (A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.)
- White** (A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.)

## **APPENDIX C**

### **TOOL 3 IMPLEMENTATION INTERVIEW DRAFT**

#### **Appendix C: Tool 3 Implementation Interview DRAFT (Questions are being finalized)**

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*To be asked of n=6 Level 2 NAPE site lead/PLC facilitators about each of their campuses.*

*Need to confirm that all n=6 participants have a consent on file and need to submit items to Stark State IRB.*

*Pre/baseline – ask in September-Oct of 2017; Post/end of project – ask early Summer 2019, after both cohorts have had a full year of implementation*

Please comment on what you know about each site. Please draw on any information you have, including personal experience and/or observation, information used to identify these sites for the project, etc. Draw on your experience with other sites as well, comparing these sites to others.

#### **QUALITY OF MM TRAINING**

Please comment on the overall quality of the MM training. Did the Summer Institute reach its goals, as far as you understood them? What could be changed or improved?

#### **PREPARATION FOR MM IMPLEMENTATION**

How well prepared do you think this site is for implementing MM? What needs is MM meeting for this site and what resources do you have in place for being able to implement it well?

How well prepared do you think you are for supporting full implementation of MM, including PLCs and Capstone projects.

What plans and/or other resources have been provided to you and what other supports are planned? (Do you have what you need from NAPE? Do you have what you need from your campus?)

#### **IMPLEMENTATION TEAM**

Is there an implementation team in place (Is there a small team in place who has clearly defined roles and is responsible for overseeing the project?) Are you in charge of it?

Please comment on the support team in place at this site.

Do team members have sufficient time and resources in place to effectively oversee MM implementation, including PLCs and Capstone?

#### **FOSTERING A SUPPORTIVE CLIMATE**

Please comment on the overall climate of this site, related to MM; how open are people to the general ideas, and/or what resistances have you seen? Were participants in the Institute seem to see benefits to MM?

What is the general impression of Micromessaging topics at this campus?

Who are the key people in administrative roles at this site and do they seem supportive of MM? In what ways?

#### **MONITORING IMPLEMENTATION**

What are the expectations for how MM will be rolled out in this site; what is the expected timeline and how will the site lead/PLC facilitator communicate progress along this timeline back to NAPE?

Who is responsible for keeping track of how things are going?

**RECEIVE/PROVIDE TECHNICAL ASSISTANCE ~ COLLABORATE WITH PROGRAM DEVELOPERS**

What role will NAPE program staff provide, what types and frequencies of collaboration are expected?

How often are you in contact with NAPE program staff (who provided the intervention)? Is this too much, just right, not enough?

## **APPENDIX D**

### **APPROACH TO EVALUATION**

#### **Approach to Evaluation**

##### ***Theoretical Foundation***

The evaluation of the SMART Center is primarily based on adaption of the Context-Input-Process-Product evaluation model developed by the Evaluation Center at Western Michigan University, under the direction of Arlen Gulickson, PhD and Daniel Stufflebeam PhD. The year's activities were evaluated following Gulickson's four essential elements:

1. The degree to which the project is achieving its goals.
2. The level of impact, and the degree to which the project is reaching intended individuals or groups.
3. The effectiveness of the products and services delivered to constituents.
4. Ways in which the project can be significantly improved.

The investigative approaches recommended by the Evaluation Center at Western Michigan University were utilized to produce a theoretically based, complete and comprehensive review of the center:

- **Objective Orientation:** How closely the products and services meet the stated goals and objectives as stated in the grant proposal.
- **Teaching/Learning Process Orientation:** Based on the perspective of teachers, how the center activities are assisting or facilitating teaching and learning.
- **Customer Orientation:** From the perspective of students, how the center activities are improving learning, comprehension and retention.
- **Faculty and Institutional Support:** The degree to which the center efforts are integrated and accepted, and the positive changes resulting from the efforts.
- **Business and Industry Support:** The level of acceptance and support for the center efforts by business and industry, especially those which hire graduates and utilize the technician workforce.
- **Management:** The degree to which processes are in place or under development that leverage the effort with the goal of building on the center activities, products and services after the funding period comes to an end.

Each item in the evaluation plan was considered from one or more of the approaches listed above. The following methods were used to develop the data necessary to cover the topics in the evaluation plan:

- Interviews with Principal Investigator, Center staff, partners and faculty.
- Determination of impacts and influences on technician level education.
- Analysis of documents.
- Analysis of applicable survey and other data gathered to date.

Project data-gathering activities and subsequent data analysis were guided by standards developed by the Joint committee on Educational Standards and Evaluation. All active and passive data gathering activities involving human subjects were approved by the appropriate institutions' IRB (Institutional Review Board).

## APPENDIX E EESTEM II LOGIC MODEL

### EESTEM II Logic Model

The Need: To improve academic outcomes for a diversity of students in technician education courses at community colleges.				
Activities	Outputs	Short Term Outcomes	Mid-Term Outcomes	Long-Term Outcomes
<p>Develop model to deliver the micromessaging program in multiple locations to geographically diverse teams of faculty</p> <p>Develop measures of feasibility and fidelity</p> <p>Develop and embed PLC Facilitator model</p> <p>Pilot the Summer Institutes</p> <p>Conduct PLCs</p> <p>Conduct research into factors that maximize transfer of training with fidelity and feasibility</p> <p>Disseminate project results</p>	<p>Detailed implementation plan for micromessaging in multiple sites</p> <p>Measures of feasibility and fidelity</p> <p>28 hours of professional development</p> <p>Delivery of seven units on micromessaging</p> <p>10 teams of faculty trained in micromessaging in the classroom (total of 100 faculty from 10 sites)</p> <p>Training for PLC facilitators</p> <p>Virtual Learning Community / public portal</p> <p>Resources and support for implementing <i>Micromessaging</i> in the classroom</p> <p>Interventions based on research, chosen and implemented by faculty in their classrooms</p> <p>Capstone presentations / self reports of results by faculty</p> <p>CoP for PLC facilitators</p> <p>Database of metrics to measure impact of interventions on students as evidenced by capstones</p> <p>Assessment of sites in 6 domains</p>	<p>Increased understanding of the factors required for feasibility and fidelity</p> <p>Increased understanding of scaling of <i>Micromessaging</i></p> <p>Increased collaboration and sharing of ideas about self-awareness, multicultural understanding, and practical and adaptable strategies</p> <p>Increased understanding of fidelity and feasibility in applying interventions at community colleges</p> <p>Increased understanding of the impact of bias and how to mitigate it</p>	<p>New and applied knowledge about implementing and scaling <i>Micromessaging</i></p> <p>A best practices PD model for scale-up of micromessaging in multiple settings with fidelity</p> <p>Improved pedagogy and classroom practice at 10 sites</p> <p>Permanent change in faculty attitudes and behaviors towards classroom equity and access for students</p> <p>Improved student outcomes</p>	<p>Increase in the capacity to educate women and underrepresented populations in preparation for STEM careers</p> <p>Increase in the body of knowledge about institutional factors that maximize effectiveness of PD and training in equity</p>