This is the detailed evaluation plan for East Central Community College's TAACCCT grant as approved by the U.S. Department of Labor Employment and Training Administration. This plan was developed through the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant Program Round 4 Grant *Winston County Manufacturing Recovery Project* TC-26437-14-60-A-28.

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# Detailed Evaluation Plan for
# The Winston County Manufacturing Recovery Project

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April 2015

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## I. Introduction

The Winston County Manufacturing Recovery Project (Winston County Project) is designed to quickly provide hope and employment opportunities to hundreds of TAA eligible and other workers in rural Winston County, MS. In this intervention, targeted to TAA eligible workers, veterans, displaced workers and other adults in Winston County, East Central Community College (ECCC) will offer coursework and training credentials in a clear, stackable, and latticed sequence aligned with employer-validated work readiness standards and competencies.

ECCC used strong and moderate evidence of effectiveness to support its strategies, which include (1) build programs that meet industry needs, (2) enhance career pathway options for learners and workers, (3) accelerate and improve certification and employment attainment, and (4) strengthen online and technology-enabled learning. The theory of change undergirding the Winston County Project is that if TAA eligible workers, veterans, displaced workers and other adults in Winston County, are provided with an opportunity to quickly complete employer-identified Manufacturing Skills Basic training, they will be in a position to be hired by local industry. Further, they will be more likely to complete such training if they also receive necessary remediation and additional support throughout their academic training (also see Appendix A).

The evaluation of the Winston County Project involves both an implementation and an outcomes/impact analysis. The implementation analysis focuses on how the project is created and run. The analysis is driven by four required questions: *How was the curriculum selected, used, and created? How were programs and program design improved or expanded using grants funds? Did the grantees conduct an in-depth assessment of participants' abilities, skills, and interests to select participants into the grant program?* and *What contributions did each of the partners make?*

The outcomes/impact analysis is directed towards evaluating the difference that the Winston County Project had on participants. This component of the evaluation is framed by two overarching questions: *Did the Winston County Project increase workers' employment?* and *Did the Winston County Project impact workers' earnings?* Additional outcomes to be tracked include retention and completion of program of study, credit hours completed, credentials earned, employment obtained, employment retention, and wage increase.

The evaluation of the Winston County Project will involve both an outcomes and an impact analysis research design. The outcomes analysis will include descriptive analyses to examine outcomes for participants in the new remediation program for which there is no comparison group. This analysis will examine the performance of participants on selected outcomes, including the nine required Solicitation for Grant Applicants (SGA) outcomes (Employment and Training Administration [ETA], 2013). Success rates for the remediation program will be compared to those of other remediation programs at ECCC and other colleges. The impact analysis will use a comparison cohort, quasi-experimental research design to examine differences between carefully designed comparison groups. This design method was chosen because the resources required to duplicate programs to provide random assignment are beyond the project's capacity.

The Rucks Group, LLC, will serve as the third-party evaluator for the Winston County Project. The Rucks Group is four-person (includes an intern) research and evaluation firm that gathers, analyzes, and interprets data for clients to measure the impact of their work. The firm provides external evaluation services on several large multi-year projects funded through the Department of Labor (DOL) as well as other federal agencies. The lead evaluator on the project is Dr. Lana J. Rucks, who has nearly 15 years of research and evaluation experience. She holds a doctorate and Master of Arts degree in social psychology from The Ohio State University with a minor in quantitative methods as well as a Master of Arts degree in experimental psychology from the University of Dayton. She has been invited to speak on evaluation within the United States and abroad. Dr. Rucks is a member of the American Evaluation Association and

serves as the interim President of the Ohio's chapter affiliate. Formative and summative evaluation results will be shared on an ongoing basis with the project team, in addition to being memorialized in reports.

## II. Intervention

As encouraged by the SGA, the Winston County Project builds on previous work conducted by Trade Adjustment Assistance Community College Career Training (TAACCCT) grantees to prepare TAA eligible, displaced workers, and other adults in Winston County for what local employers require. The areas of replication are emphasized throughout this section.

The current project replicates the strategic approach used by the Round 2 project, Missouri Manufacturing Workforce Innovation Networks, through St. Louis Community College and replicated by the Round 3 project, Golden Triangle Manufacturing Project, through East Mississippi Community College (EMCC). Folding these previous works into the current project results in four strategic approaches, including (1) build programs that meet industry needs, (2) enhance career pathway options for learners and workers, (3) accelerate and improve certification and employment attainment, and (4) strengthen online and technology-enabled learning.

In regard to the design and delivery of training and education approaches, the project again is replicating the work of previous TAACCCT grantees. Specifically, it replicates the stackable and latticed credentials approach developed by another Round 3 grantee, SOLUTIONS project through Southwest Tennessee Community, and the Manufacturing Skills Basic training and Navigator support programs developed by the Round 1 project, Mississippi Corridor Consortium Career Accelerated Pathway through Itawamba Community College. A schematic of how students will enter and progress through the project is presented in Figure 1.

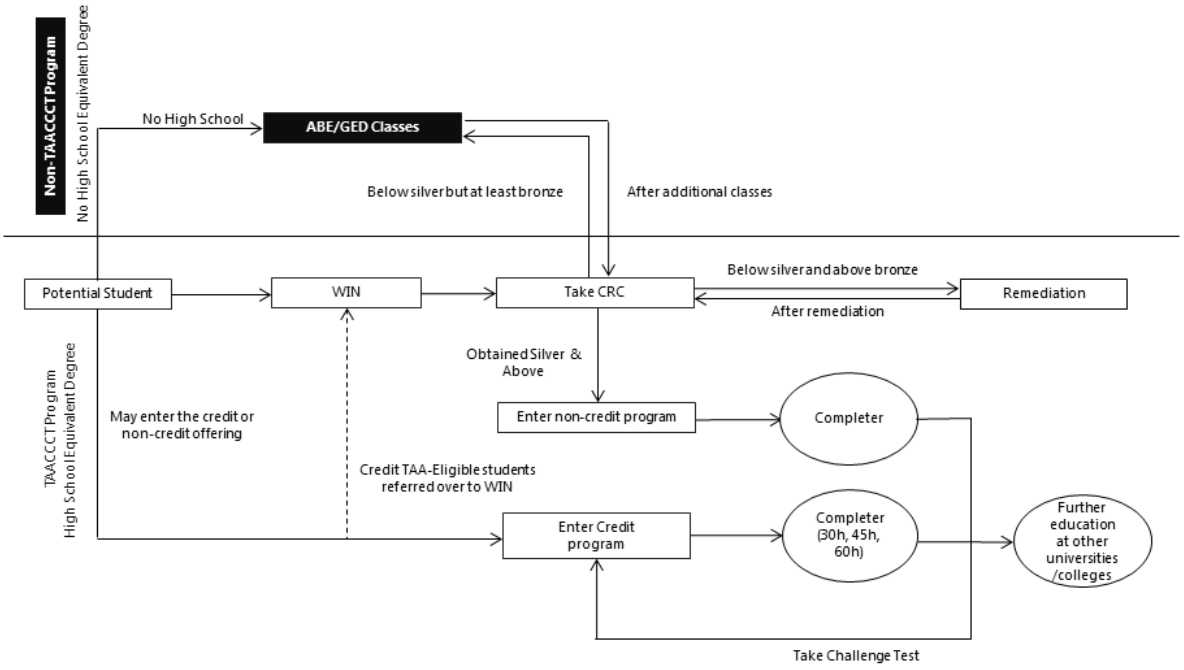


Figure 1. Visual overview of the Winston County Recovery Project

To provide remediation for workers with low literacy or math skills, ECCC will adapt the evidence-based I-BEST instruction model to develop an accelerated remediation program that will be oriented to skills that local industries need and will be competency-based and include self-paced, technology-enabled learning. ECCC will replicate the Navigator support program developed by the 2011 TAACCCT Mississippi Corridor Consortium Career Accelerated Pathway project to provide evidence-based comprehensive and personalized student support services and career guidance. The individual hired to be a Navigator will recruit, coach, provide support services, and place participants. In addition, for individuals with extensive experience, the Course Challenge Examination was developed to provide instructional credit for students who have mastered the outcomes of a particular course. The Course Challenge Examination allows students the opportunity to pass a challenge examination offered by a qualified faculty member for students to demonstrate mastery of course content. The estimated number of participants in the remediation program is 200.

The Manufacturing Skills-Basic credential offers an introduction to advanced manufacturing using technology-enabled training tools and includes training in precision measurement, blueprint reading, lean manufacturing, safety, basic computer skills, and high-performance manufacturing. ECCC will partner with the Mississippi Department of Employment security, its WIN Job Centers and the Mississippi Partnership Workforce Investment Board to recruit and qualify TAA eligible workers, veterans, displace workers, and other adults in Winston County for this project. The project is expecting to enroll approximately 650 individuals in this program.

To address the need for better career pathway options for manufacturing workers, ECCC will modify its existing Electrical Technology Career and Technical Education Program by embedding credentials and skills training recommended by local industry and modularizing the program into 30-hour, 45-hour, and 60-hour components to accelerate certification and employment by providing multiple exit points. This program will be made readily accessible by using hybrid and technology-enabled training systems at ECCC's Louisville Center in Winston County. Approximately 66 individuals are expected to continue their education by participating in this program. Articulation agreements will be sought between ECCC and Mississippi State University's Industrial Technology program, Mississippi University for Women's Business Tech and Management Program, and the University of West Alabama's Bachelor of Technology program within 12 months.

## IV. Implementation Analysis Design

An implementation analysis will be conducted to document the execution of the project. To lay the foundation for the implementation analysis, the theory of change was articulated in a logic model (see Appendix A). Essentially the Winston County Project hypothesizes that if TAA eligible workers, veterans, displaced workers and other adults in Winston County are provided an opportunity to quickly learn skills required by local employers, they will increase their employability. By providing an opportunity to accelerate certification and employment through multiple exit points, individuals will move along a career path and experience an increase in earnings.

Toward analyzing the steps taken by the institution to create and run the training programs of the project, the third-party evaluator will:

- Conduct structured interviews with industry representatives, including the leadership team, students, faculty, and project management team
- Make site visits to selected classes and industry sites
- Review quarterly reports, feedback from FPO, and other documents provided by the project management team.

Suggestions to strengthen implementation will be provided early within the project through interim quarterly reports and a comprehensive annual report. These reports will summarize progress to date with suggestions for mid-course corrections, provide comments on the fidelity of implementation relative to the conceptual framework outlined (e.g., the logic model), and include recommendations to strengthen the implementation while being sensitive to not interfere with the impact/outcome analysis.

*IV. A. Implementation Analysis Research Questions*

The implementation analysis is conceptually divided into two components: The decisions driving the implementation and the results of the implementation. The questions related to implementation include the requisite research questions from DOL SGA (ETA, 2013) as well as additional research questions pertinent to the intervention being tested:

1. How was the particular curriculum selected, used, or created?
2. How were programs and program design improved or expanded using grant funds? What delivery methods were offered? What was the program administrative structure? What support services and other services were offered?
3. Did the grantees conduct an in-depth assessment of participants' abilities, skills and interests to select participants into the grant programs? What assessment tools and process were used? Who conducted the assessment? How were the assessment results used? Were the assessment results

useful in determining the appropriate program and course sequence for participants? Was career guidance provided and if so, through what methods?

4. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of: (1) program design, (2) curriculum development, (3) recruitment, (4) training, (5) placement, 6) program management, (7) leveraging of resources, and (8) commitment to program sustainability? What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact?
5. How was institutional capacity being expanded?
6. How effective are the recruitment activities in recruiting participants? TAA eligible participants? Veteran participants?
7. If enrollment levels are not achieved, how are recruitment activities being modified to attract additional participants?
8. Are participants obtaining skills needed by industry (e.g., are participants more marketable)?
9. Is industry providing internships and hiring project participants?
10. What difference is the entrepreneurial training making on students?
11. Are program completers (e.g., Career Readiness credential, Manufacturing Skills-Basic certification, and the three levels of Electrical Technology Program) continuing their education experience?
12. How will the project be sustained after the grant funding ends?

*IV. B. Implementation Analysis Data Strategies*

Qualitative and quantitative data will be collected to address the previously outlined questions. On-site interviews with project staff, partner organizations, and other key stakeholders will be conducted. Qualitative data will be coded by both operationalized variables and conceptualized variables. This

approach is being used to aid the process of identifying themes that can be replicated to other sites.

Table 1 presents an overview of the data sources as they relate to individual research questions. In addition, in certain cases, questionnaires will be disseminated to supplement the qualitative data collected.

**Table 1. Implementation Research Questions and Data Sources**

| Research Questions | Data Sources |
|---|---|
| 1. How was the particular curriculum selected, used, or created? | Development of the logic model; interviews and discussions with project staff |
| 2. How were programs and program design improved or expanded using grant funds? What delivery methods were offered? What was the program administrative structure? What support services and other services were offered? | Review of all reports, documents and data provided by the colleges; interviews with key staff from the institution and project |
| 3. Did the grantees conduct an in-depth assessment of participant's abilities, skills, and interests to select participants into the grant programs? What assessment tools and process were used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided and if so, through what methods? | Interviews and discussions with student participants; interviews with project staff; questionnaire dissemination; ACT WorkKeys result in student/applicant folder. |
| 4. What contributions did each of the partners (employers, workforce system, other training providers and educators, philanthropic organizations, and others as applicable) make in terms of: (1) program design, (2) curriculum development, (3) recruitment, (4) training, (5) placement, (6) program management, (7) leveraging of resources, and (8) commitment to program sustainability? What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact? | On-site interviews with project team members, partners and stakeholders; questionnaire dissemination |
| 5. How was institutional capacity expanded? | Document review to determine change in the number of existing instructors, equipment, articulation agreements, equipment/labs space, and recruitment tools; interviews with project staff |
| 6. How effective are the recruitment activities in recruiting participants? TAA eligible participants? Veteran participants? | Total unduplicated headcount of program applicants, TAA eligible, and veteran status number sent initially to remediation, number sent |

| Table 1. Implementation Research Questions and Data Sources | |
|---|---|
| **Research Questions** | **Data Sources** |
| | initially to Manufacturing Skills-Basic, number directly entering Electrical Technology Program |
| 7. If enrollment levels are not achieved, how are recruitment activities being modified to attract additional participants? | Document review and interview with project staff |
| 8. Are participants obtaining skills needed by industry (e.g., are participants more marketable)? | Placement rates from NSPARc – program subset of annual data presented in the Mississippi Community College Performance Profile. |
| 9. Is industry providing internships and hiring project participants? | Work Based Learning reports |
| 10. What difference is the entrepreneurial training making on students? | Questionnaires and interviews with industry; feedback from project staff |
| 11. Are program completers (e.g., Career Readiness credential, Manufacturing Skills-Basic certification, and the three levels of Electrical Technology Program) continuing their education experience? | Project data for individuals completing remediation work moving into the Manufacturing Basic –Skills program; Transfer report using National Student Clearinghouse data – number of credit program students gaining a credential at ECCC that transfer-out to (a) 2-year program, (b) 4-year program. |
| 12. How will the project be sustained after the grant funding ends? | Questionnaires and interviews with industry; feedback from project staff |

The program manager, college staff, and third-party evaluator will responsible for gathering data for the evaluation. The program manager and college staff will be responsible for administrating forms and collecting project- and participant-level data. Data will be collected at baseline, including demographic information, after the completion of the in-class training component, after the internship, and one to three quarters after program completion. Additional data tracking implementation and outcomes will come from data from the Jenzabar EX system used by ECCC to track students in career and technical education programs. Data from this system is uploaded to nSPARC, which is under contract with the State Workforce Investment Board through the Mississippi Department of Employment Security to collect and track all student data for Mississippi's community colleges. nSPARC manages the state longitudinal data system and has access to Mississippi unemployment insurance data. Additional details

regarding the collection of participant performance data are discussed in the *V. E. Outcomes/Impacts of Data Collection and Analysis* section of this report.

## V. Outcomes/Impact Analysis Design

The evaluation of the Winston County Project will involve both an outcomes analysis and an impact analysis research design. The outcome analysis will include descriptive analyses to examine outcomes for participants in the new remediation program for which there is no comparison group. This analysis will examine the performance of participants on selected outcomes, including the nine required SGA outcomes (ETA, 2013). Success rates for the remediation program will be compared to those of other remediation programs at ECCC and other colleges.

The impact analysis will use a comparison cohort quasi-experimental research design to examine differences between carefully designed comparison groups. This design method was chosen because the resources required to duplicate programs to provide random assignment are beyond the project's capacity. In other words, there would not be enough participants expected to effectively implement random assignment. Moreover, a high level of TAA eligible participants is expected to participate. Because these individuals cannot be randomly assigned, the treatment group and the control group would not be expected to be similar at baseline.

For the Manufacturing Skills-Basic credential component of the intervention, comparisons will be made with students who recently enrolled in the Manufacturing Skills-Basic credential program at nearby EMCC, the originator of the program. A concurrent cohort of students who enroll in the traditional Electrical Technology CTE Program on ECCC's main campus in Decatur will be used as the comparison group for ECCC's modified Electrical Technology CTE Program in Louisville. The nine outcomes required in the SGA will be used in the evaluation as well as additionally identified outcomes. Data

collection will involve gathering and compiling data from several sources and analyzing it using descriptive and causal inference analytical approaches.

### *V. A. Outcomes/Impact Analysis Research Questions*

Framing the outcomes analysis are two overarching questions: *Did the Winston County Project increase workers' employment? Did the Winston County Project impact workers' earnings?* Additional research questions developed are conceptually nested within these larger questions. These additional research questions are detailed in the following section, with the first nine questions directly addressing the outcomes related to the required outcomes outlined in the SGA (ETA, 2013):

1. How many unique participants did the grant serve?
2. How many participants completed a grant-funded program of study?
3. How many participants were retained in their program of study or another TAACCCT grant-funded program of study?
4. How many participants earned credit hours?
5. How many participants earned credentials/certificates?
6. How many participants enrolled in further education?
7. How many of the Winston County Project participants who were non-incumbent workers obtained employment within one quarter of completion (e.g., the Manufacturing Skills-Basic and Electrical Technology program)?
8. How many non-incumbent Winston County Project participants employed in the first quarter after each phase of program completion (e.g., the Manufacturing Skills-Basic and Electrical Technology program) were retained in employment two and three quarters later?
9. How many of the Winston County Project participants who were incumbent workers received a wage increase post-enrollment?
10. Are the services provided by the Navigator aiding recruitment, retention, and success rates?

11. What was the program completion rate for Career Readiness credential, Manufacturing Skills-Basic, and the three levels of Electrical Technology Program (overall, and by subgroups)?
12. What was the rate of students receiving credit for non-credit training or Prior Learning Assessments?
13. What are, if any, identifiable factors that impacted on the progression through each level of program completion? That is, what influenced an individual from moving from Career Readiness credential to Manufacturing Skills-Basic to the three levels of Electrical Technology Program?

*V. B. Outcomes Analysis*

Table 2 lists the outcomes of interest to be analyzed as part of the impact study of the Winston County Project. The first nine outcomes represent the required outcomes, as outlined in the SGA. The subsequent outcomes are ones that the project team deems appropriate to include.

**Table 2. Measures for Outcomes Analysis**

| Outcome | Measurement |
|---|---|
| 1. How many unique participants did the grant serve? | Unduplicated audited headcount in remediation, Manufacturing Skills-Basic, and Electrical Technology programs |
| 2. How many participants completed a grant-funded program of study? | Number of individuals receiving remediation program certificate of completion, Manufacturing Skills-Basic certificates and/or Electrical Program (three levels) certificates or degrees |
| 3. How many participants were retained in their program of study or another TAACCCT grant-funded program of study? | Credit: Non-completers retained in program of study at program year-end or grant end. |
| 4. How many participants earned credit hours? | Unduplicated headcount of all students with > 0 career hours earned. |
| 5. How many participants earned credentials/certificates? | Number of individuals receiving remediation program certificate of completion, Manufacturing Skills-Basic certificates and/or Electrical Program (three levels) certificates or degrees (same as #2) |
| 6. How many participants enrolled in further education? | Project data for individuals completing remediation work moving into the Manufacturing Basic –Skills program and for individuals completing Manufacturing Skills – Basic program and moving into the Electrical Technology Program; Transfer report using National Student Clearinghouse data – number of credit program students gaining a credential at ECCC continue to the next level in the same program (i.e. 30-hour to |

| Table 2. Measures for Outcomes Analysis | |
|---|---|
| **Outcome** | **Measurement** |
| | 45-hour), that transfer into another program at ECCC, or that transfer-out to (a) 2-year program, (b) 4-year program at another institution. |
| 7. How many Winston County Project participants who were non-incumbent workers obtained employment within one quarter of completion (e.g., the Manufacturing Skills-Basic and Electrical Technology program)? | NSPARc data – placement (annual) for non-incumbent participants. Sort by hire date minus program entry date. |
| 8. How many non-incumbent Winston County Project participants employed in the first quarter after each phase of program completion (e.g., the Manufacturing Skills-Basic and Electrical Technology program) were retained in employment two and three quarters later? | NSPARc data – Number of participants employed 6 and 9 months after gaining a non-credit or credit credential. |
| 9. How many of the Winston County Project participants who were incumbent workers (e.g., the Manufacturing Skills-Basic and Electrical Technology program) received a wage increase post-enrollment? | NSPARc data for comparison of wages during enrollment period for participants with wages in the quarter before enrollment. |
| 10. Are the services provided by the Navigator aiding recruitment, retention, and success rates? | Consider using program completion rate for both credit and non-credit, including remediation; retention rate (first semester to second semester) for credit program; and employment rate for Manufacturing Skills-Basic and Electrical Technology. |
| 11. What was the program completion rate for remediation program, Manufacturing Skills-Basic, and the three levels of Electrical Technology program (overall, and by subgroup [e.g., TAA eligible and veteran status participants])? | Consider comparing number of completers for each program divided by audited headcount for remediation, Manufacturing Skills-Basic, and Electrical Technology (30-hour). Multi-program completers would be counted multiple times. |
| 12. What was the rate of students receiving credit for non-credit training or Prior Learning Assessments (overall, and by subgroup [e.g., TAA eligible and veteran status participants])? | Number of PLA Assessments given, unduplicated headcount of PLA assessment takers gaining credit hours, total number of PLA credit hours granted. Break by TAA and Veteran sub-groups. |
| 13. What are, if any, identifiable factors that impacted on the progression through each level of program completion? That is, what influenced an individual from moving from Career Readiness credential to Manufacturing Skills-Basic to the three levels of the Electrical Technology program? | Conduct internal analysis of Winston County participants to compare completers and non-completers; Conduct exit interviews for non-completers (when possible) |

*V. D. Non-Experimental Design Selected*

A comparison cohort, quasi-experimental design will be used to measure the impact of the Manufacturing Skills-Basic component intervention and the modified Electrical Technology CTE Program. A quasi-experimental design is appropriate in situations in which practical and ethical barriers prevent conducting a randomized controlled evaluation (Shadish, Cook, & Campbell, 2002; Ong-Dean, Hofstetter, & Strick, 2011; Cook & Shadish, 1994). Indeed, DOL recognizes several barriers to implementing randomly controlled evaluations. For instance, according to the SGA, a random control evaluation study should be used when a large number of participants is expected to be enrolled during the period of performance. If only a moderate-to-high number of participants is expected to be enrolled, then a quasi-experimental design would be appropriate (ETA, 2013).

In the present context, there is no opportunity to randomly assign participants because costs to duplicate programs for random assignment are beyond the capacity of the grant. Recent valid cohorts for the same programs of study in other locations make the comparative cohort design appropriate. A cohort chosen from students who recently enrolled in the Manufacturing Skills Basic component at nearby EMCC will be used as the comparison group for the replicated Manufacturing Skills-Basic credential program at the Louisville Center. A concurrent cohort of students who enroll in the traditional Electrical Technology CTE Program on ECCC's main campus in Decatur will be used as the comparison group for ECCC's modified Electrical Technology CTE Program in Louisville. This design will also include an examination of the outcomes of a second set of two control groups (both historical) as a comparison to more fully control for threats to internal validity. The magnitude of the difference in outcomes will be compared to determine whether differences observed between the grant participant groups and comparison cohorts are due to other extraneous factors related to the periods of observation.

The power analysis determined the required size of the comparison groups. Because the effect size is unknown, it is assumed to be small. The power was set at .7 and assumed a significance level of .05 ($p \leq .05$; Keppel, 1991). G*power (Mayr, Erdfelder, Buchner, & Faul, 2007) was used to complete the

calculations. Using these parameters, the comparison group size was determined to be n=441 for the Manufacturing Skills Basic cohort (n=656) and n=70 for the modified Electrical Technology CTE cohort (n=66).

Incorporating a group as a "comparison" group, rather than using a randomly assigned control group, introduces "individual differences" which compromises the ability to infer with confidence that the differences observed between the participating and comparison groups are indeed attributable to the Winston County Project. To the extent that it is viable, these individual differences will be controlled for by using the statistical technique called *propensity score modeling* (PSM). PSM essentially models the likelihood that an individual in the non-participating group would have selected to be in the participating group. Efforts will be made to include individuals in the comparison group such that the distribution of propensity scores will be similar across both conditions (Rosenbaum & Rubin, 1983). The following general approach will be used: 1) create a propensity score by running a logistics regression model based on observed covariates; 2) balance the propensity scores across treatment and comparison groups; 3) balance the observed covariates across treatment and comparison groups within strata of the propensity score; 4) employ a matching or weighting strategy to further balance the covariates across treatment and comparison groups; and 5) balance the covariates across treatment and comparison groups in the matched or weighted sample.

The observed covariates will be based on a variety of baseline characteristics, such as demographics, dispositional characteristics (e.g., age, ethnicity, gender, race, education level, and military background), work history, and previous employment characteristics (e.g., reasons for job separation, earnings, size of company).

*V. D. Outcomes/Impact Data Collection and Analysis*

Conducting the impact analysis will require collecting and compiling unit-level data from several difference data sources. The process to obtain unit-level participant performance data for the third-party

evaluator analysis is as follows: ECCC will enter the participant into its Jenzabar EX system. For data not compatible with the Jenzabar EX system, a customized database will be maintained. ECCC will securely upload data from these systems to nSPARC, a process that is routinely used because nSPARC is under contract with the Mississippi Department of Employment Security to collect and track student data for all Mississippi community colleges. Moreover, nSPARC has access to the Mississippi Department of Employment Security Unemployment Insurance administrative database. As such, nSPARC is uniquely positioned to provide follow-up employment, retention, and wage data as well as program completion, including degrees/certifications earned for participant and comparison groups.

The impact analysis will focus on participants in two programs for which comparison groups can be selected (the replicated Manufacturing Skills-Basic credential program and the modified Electrical Technology CTE) and will consist of both descriptive analysis and causal analysis. Descriptive analysis will be conducted to examine differences in outcomes between the program participants and the comparison group on outcomes articulated earlier in this document, including subgroup analysis. Toward making causal inferences of the impact of grant activities on participant outcomes, sets of multi-variate regression models will be estimated to examine differences between program participants and the comparison group. A set of logistic regression models will be estimated to determine differences in the likelihood of program retention, completion of programs of study, enrollment in further education, employment, job retention, and average wages between the program and control groups. Logistic regression will be used for this portion of the analysis because the dependent variable is binary (e.g., 1=completed, 0=uncompleted; 1=employed, 0=unemployed). Variables to be used in analysis are listed in Table 3. The effect size will be determined by the difference between the Winston County Project participants and the comparison group.

| Table 3. Variables Used in the Regression Analysis | |
|---|---|
| **Outcome Variables** | **Description** |
| Program Completion | 1=complete program, 0=otherwise |
| Additional Education | 1=enroll in additional post-secondary education after completing program, 0=otherwise |
| Employment | 1=employment within one quarter of exit from program, 0=otherwise |
| Employment Retention | 1=employed after three quarters of exit from program, 0=otherwise |
| Earnings | Annualized earnings after program completion |
| Earnings Change | Change in earnings before and after program participation |
| **Test Variable** | **Description** |
| Program Participation | 1=participate in Winston County Project, 0=otherwise |
| **Control Variables** | |
| *Individual Demographics* | |
| Gender | 1=male, 0=female |
| Age | continuous variable |
| Race<br>Dummy Variables:<br>1 =white, 0=otherwise<br>1=black, 0=otherwise<br>1=Hispanic, 0=otherwise | |
| Veteran Status | 1=veteran, 0=otherwise |
| *Degree Path* | |
| Dummy Variables:<br>1=Manufacturing Skills-Basic, 0=otherwise<br>1=Electrical Technology, 0=otherwise | |
| *Credential Attainment* | |
| Career Readiness Credential | 1=attained Career Readiness Credential, 0=otherwise |
| *Program Participation* | |
| SNAP | 1=received SNAP benefits, 0=otherwise |
| TANF | 1=received TANF benefits, 0=otherwise |
| TAA Eligible | 1=TAA eligible/trade affected, 0=otherwise |

## VI. Limitations

There are several limitations to being able to infer a causal relationship between the Winston County Project and the observed outcomes. First, from a practical standpoint, it may not be possible to do propensity matching because this technique assumes the use of a sample of the population, and because the sample population is small, the entire population may need to be used. We would in that case attempt

to control for differences with regression analysis. However, there remains the possibility that a third variable could be responsible for the differences observed.

In a related issue, it is unclear how well the comparison group will match to the Winston County Project participants. The comparison cohorts are chosen from students who recently enrolled in the Manufacturing Skills-Basic credential program at nearby EMCC and from a concurrent cohort of students who enrolled in the traditional Electrical Technology CTE Program on ECCC's main campus in Decatur; these cohorts will be used as the comparison group for ECCC's modified Electrical Technology CTE Program in Louisville. Even though the profile of the students is similar to the participants of the Winston County Project, it is possible that the number of individuals who match may be low. Therefore, the criteria for matching may need to be lowered to increase the sample size. Doing that increases the likelihood of introducing a third variable; not doing this will reduce the power. This challenge emphasizes the importance of conducting the internal analyses mentioned previously.

Possible additional limitations to the success of the project include the delay in starting (due to lack of access to facilities related to tornado damage, which was known to and approved by the Federal Program Officer), the dearth of adequate numbers of available internship opportunities, and the possibility that the needs of key industry partners for workers trained in this way will change.

## VII. Reports

Providing both formative and summative evaluation feedback is a critical component of the evaluation, and interim and final reporting are compulsory by DOL. Therefore, the reporting strategy is designed to address both of these needs. The implementation is intimately related to the outcomes/impact analysis; therefore, the reports will integrate these components by interpreting the outcomes/impact analysis through the lens of the implementation analysis. They will also integrate the two analyses to

examine the extent that implementation failure or success played in the observed outcomes (Rossi, Lipsey, & Freeman, 2004).

DOL Reporting. DOL reporting will follow the timeline outlined in Table 4. The project manager and the third-party evaluator work together to meet these reporting deadlines.

**Table 4. DOL Reporting Timeline**

| | | | | |
|---|---|---|---|---|
| Project Year | October 1–September 30 | | | |
| Project Quarter Ends | December 31 | March 31 | June 30 | September 30 |
| Quarterly Project Report Data due to Project Manager | January 14 | April 14 | July 14 | October 14 |
| Quarterly Progress Report due to DOL | February 14 | May 14 | August 14 | November 14 |
| Annual Performance Reviews | November 14 annually | | | |
| Interim Evaluation Report | November 14, 2016 | | | |
| Final Evaluation Report | November 14, 2018 | | | |

Quarterly Report. The project manager and college staff will be responsible for preparing the quarterly reports within 45 days after the end of each calendar-year quarter. The quarterly report will provide updated information on the progress of identified strategies and related implementation measures. In addition, the quarterly reports will include information regarding grant activities as it relates to capacity building, best practices, and challenges and issues, including planned responses.

Annual Report. An annual report will be submitted each fourth quarter of the project. The project manager and college staff will submit data for all participants and non-participating individuals in aggregate for the outcomes measures outlined. In addition, information about innovations and other achievements will be shared.

Internal Documentation. Communicating on-going evaluation results to the project team will occur through formal reports that are submitted as shown in Table 4. In addition, more informal reports and summaries will be provided on an on-going basis. For instance, results from site visits and interviews will be provided to the team in a more rapid turnaround time. Therefore, formal reporting will serve the

goal of memorializing the findings because the actual information from the reports would have already been communicated to the team.

**VIII. Reference List**


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Appendix A – Winston County Project Logic Model