Evaluation of the Maine Transition Work-Based Learning Project

Final Evaluation Report

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Maine Transition Work-Based Learning Evaluation

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Acronyms

ACRE:	Association of Community Rehabilitation Educators
AIR:	American Institutes for Research
CRP:	Community Rehabilitation Providers
CSAVR:	Council of State Administrators of Vocational Rehabilitation
DVR:	Division of Vocational Rehabilitation
e-JMG:	Enhanced Jobs for Maine's Graduates
FAPE:	Free appropriate public education
ICI:	Institute for Community Inclusion at the University of Massachusetts Boston
IEP:	Individualized Education Program
IPE:	Individualized Plan for Employment
JMG:	Jobs for Maine's Graduates
RQ:	Research Question
RSA:	Rehabilitation Services Administration
SSDI:	Social Security Disability Insurance
SSI:	Supplemental Security Income
TANF:	Temporary Assistance to Needy Families
TWBL:	Transition Work-Based Learning
VR:	Vocational Rehabilitation
WIOA:	Workforce Innovation and Opportunity Act

Executive Summary

Overview

The Maine Division of Vocational Rehabilitation (DVR) carried out the Transition Work-Based Learning (TWBL) Model Demonstration project in partnership with its implementing partners, including Jobs for Maine's Graduates (JMG), the Council of State Administrators of Vocational Rehabilitation (CSAVR), and the Institute for Community Inclusion (ICI) at the University of Massachusetts Boston. In 2016, the Maine DVR received a 5-year grant for the TWBL project from the U.S. Department of Education's Rehabilitation Services Administration (RSA). The goal of the project was to implement and provide work-based learning (WBL) experiences for transition-age youth with disabilities. Under the project, the Maine DVR implemented and expanded two innovative interventions in the state of Maine: (1) the enhanced Jobs for Maine's Graduates (or e-JMG) program and (2) the Progressive Employment model. As an independent evaluator, the American Institutes for Research (AIR) conducted both an implementation evaluation and an impact evaluation of the two interventions. The Progressive Employment intervention and the e-JMG (building upon the existing JMG model in schools and expanding the model to new schools) were implemented and evaluated in two sites (Augusta and Bangor areas). Both interventions were implemented collaboratively in Bangor, with active cross-referrals and coordination in activities.

The Progressive Employment model is an employment strategy that aims to serve Vocational Rehabilitation (VR) clients by connecting them to WBL experiences that are best aligned with the VR clients' goals, through a focus on building and maintaining relationships with potential employers. This dual customer approach includes WBL opportunities that may lead to job placement, but the emphasis is on flexibility to meet the needs of both VR consumers and businesses. The goal of the program is to connect VR clients with employment opportunities through active engagement with and exposure to WBL experiences, instead of focusing exclusively on immediate job placement.

The e-JMG model is an expansion of the JMG program, which is a high-school program delivered in partnership with public schools, offering for-credit courses to high school students with the aim of improving student engagement and high school graduation rates, and putting students on the path to college or a career. The JMG program uses a competency-based curriculum to address the academic, work-related, and social-emotional needs of students who face multiple barriers to success after high school. Under the TWBL project, the JMG program was expanded to five schools in Maine, and all JMG Specialists who deliver the program were trained in the Association of Community Rehabilitation Educators (ACRE) curriculum. The goal

of the ACRE trainings was to build an enhanced JMG, or e-JMG, to better equip JMG Specialists for addressing the unique employment-related needs of high school students with disabilities.

The evaluation team at AIR used a mixed-methods design to evaluate the implementation of these two programs over the project period (October 2016 to September 2021). The evaluation team used rigorous quasi-experimental methods and data from administrative sources, including the Maine Department of Labor (DOL) and the Maine Department of Education (DOE), to evaluate the impact of the TWBL project on the employment and earnings of youth with disabilities.

Key Findings

- Under the TWBL project, the JMG program significantly increased its outreach to students with disabilities, especially in those schools with programs established through the grant. The proportion of JMG students in high school who had a disability-related barrier increased from an average of 30% before 2017 to 42% by 2019.
- For students with disabilities, JMG participation (prior to ACRE enhancement) in Grade 11 or Grade 12 significantly improved the likelihood of graduating from high school and decreased the likelihood of dropping out. Additionally, among a sample of VR applicants, youth who participated in the JMG program in high school had significantly higher rates of employment and earnings by age 21 compared with VR applicants who did not participate in the JMG program.
- However, we did not observe any additional effects of the e-JMG program compared with the baseline JMG program. While the e-JMG program increased work-related competencies delivered for both students with and without disabilities, the enhanced program did not lead to significant changes in high school graduation rates or employment after school or in postsecondary outcomes in comparison with baseline JMG students. Findings from the implementation evaluation suggest that because JMG Specialists follow a specific JMG curriculum in the classroom, they were unable to practice all ACRE strategies within that curriculum.
- The Progressive Employment model led to an increase in access to career services and improved the likelihood of being employed in the fourth quarter after starting services, compared to youth receiving traditional VR services. However, the employment impacts were concentrated in Bangor only. Progressive Employment had no statistically significant effect on client earnings within four quarters of service start in either Bangor or Augusta, most likely due to the short follow-up period of the evaluation (specifically, many youth were still receiving services at the time of our analysis).

- Although receiving e-JMG increased employment outcomes among non-Progressive Employment clients, no additional benefit was observed for e-JMG among Progressive Employment clients, suggesting that the combined model does not offer additional benefits over the standalone Progressive Employment model.
- Interruptions in VR services and labor market shocks caused by the COVID-19 public health emergency resulted in a decrease in the number of VR services provided and lowered the likelihood of employment at exit for youth who exited VR in 2020, compared with those who exited in previous years.

Conclusion

This evaluation suggests that most TWBL activities were implemented with high fidelity, and that the project produced mostly positive impacts on youth with disabilities. Some of the key lessons from this evaluation include the following:

Both the Maine VR and JMG were strong programs at baseline. Our baseline evaluations suggested that the traditional JMG program and VR services led to substantial gains in graduation and employment, respectively. Although the ACRE-enhanced JMG program did not generate additional benefits over the baseline program, the TWBL demonstration achieved positive outcomes for its clients by expanding the JMG program to five schools.

Observed impacts can be explained by implementation quality and fidelity. We found that Progressive Employment generated positive employment impacts in one of the two sites (Bangor). Findings from the implementation evaluation suggest that Bangor was observed to have greater collaboration across key implementation players, while collaboration across agencies was slower to pick up in Augusta.

Long-term effects of the TWBL project remain to be seen. The employment effects of Progressive Employment were estimated for four quarters after service start, and many clients were still receiving services at the time of our analysis. Findings from this evaluation may benefit from being revisited in the context of future evaluations of the impacts of these programs on employment and earnings in the longer term.

A. Introduction

In 2016, the Maine Division of Vocational Rehabilitation (DVR) received a 5-year grant from the U.S. Department of Education's Rehabilitation Services Administration (RSA) to implement the Transition Work-Based Learning (TWBL) Model Demonstration project, which would provide work-based learning (WBL) experiences to transition-age youth with disabilities. Under the TWBL project, the Maine DVR implemented two programs: the enhanced Jobs for Maine's Graduates (e-JMG) model and the Progressive Employment model. The e-JMG program is an expansion of the Jobs for Maine's Graduates (JMG) curriculum, which added training on a competency-based curriculum developed and certified by the Association of Community Rehabilitation Educators (ACRE). The Progressive Employment model is an employment strategy that aims to serve Vocational Rehabilitation (VR) clients by connecting them to work-based learning (WBL) experiences that are best aligned with their goals, through a focus on building and maintaining relationships with potential employers. Both programs aim to improve employment outcomes for transition-age youth with disabilities.

The Maine DVR implemented the Progressive Employment program in two sites, Augusta and Bangor.[1] The implementation in Bangor involved a combined Progressive Employment plus e-JMG model, which brought together JMG Specialists, who were trained through ACRE, and VR Counselors, who were trained on Progressive Employment, to collaborate in serving students with disabilities. This report presents findings from the implementation and impact evaluations of the two programs. The implementation evaluation documents the key barriers and facilitators to successful implementation of the programs and assesses whether project activities were implemented with fidelity. The impact evaluation assesses the impact of the TWBL project on services received by VR clients, and on their employment and earnings four quarters after their program participation. Additionally, findings on the impact of the baseline JMG and VR programs are provided to contextualize the additional benefits of the TWBL project for youth with disabilities in Maine.

The transition from adolescence into adulthood is a critical yet challenging stage in life, especially for youth with disabilities, who disproportionately face environmental and attitudinal barriers that may impede their ability to develop the essential skills and capacities that are needed to successfully transition from high school into employment. Over time, various federal laws and policy initiatives have expanded the services available to youth with disabilities to support their transition into adulthood. Examples of such laws include (1) the Individuals with Disabilities Education Act (IDEA) of 1975, which guaranteed access to a free appropriate public

[1] The Augusta and Bangor areas refer to all locations served by the regional office in Augusta and in Bangor, respectively.

education (FAPE) in the least restrictive environment to every child with a disability; (2) the Carl D. Perkins Vocational Education Act of 1984, which expanded access to vocational assessment for students with disabilities; (3) IDEA 1990, which added traumatic brain injury and autism as disability categories and through which Congress mandated that, as a part of a student's Individualized Education Program (IEP), an individual transition plan must be developed to help the student transition to postsecondary life; (4) IDEA 1997, which added a requirement for states to enact policies and procedures to ensure a free appropriate public education; and (5) IDEA 2004, which called for early intervention for students with disabilities, greater accountability, and improved educational outcomes, while raising the standards for instructors who teach special education classes. During the 2019–2020 school year, 14% of all public school students—or 7.3 million students—received special educations services under IDEA (De Brey et al., 2021).

Despite the passage of these laws and various policy initiatives, national data show persistent gaps in labor market participation and employment rates for youth with and without disabilities. In 2020, among youth with disabilities, the labor force participation rate was 23.6% for youth ages 16–19 and 44.2% for youth ages 20–24. This rate was substantially higher for youth without disabilities at 35.0% and 70.4%, respectively. Similarly, the unemployment rate for youth with disabilities was 26.7% for youth ages 16–19 and 21.1% for youth ages 20–24; these rates were much higher than the unemployment rates for youth without disabilities from corresponding age groups, which were 17.7% and 13.5%, respectively (U.S. Bureau of Labor Statistics, 2021).

In 2014, the Workforce Innovation and Opportunity Act (WIOA) was enacted to help job seekers of all ages obtain employment, education, training, and supported services. In particular, WIOA mandated that state VR agencies set aside at least 15% of their program funds to provide pre-employment transition services to students with disabilities (U.S. Department of Education, 2020). Work-based learning is one of the five types of pre-employment services recognized by WIOA. It links work experience with a planned program of study. Typical WBL experiences include informational interviews, job site visits, job shadowing, paid and unpaid internships, and on-the-job training. Research has shown that youth who have WBL experience have better long-term education and employment outcomes (Fraker et al., 2014; Hemmeter et al., 2015; Luecking 2009; Schochet et al., 2008).

In Maine, prior to the TWBL project, the Maine DVR had been implementing the Progressive Employment model for its youth and young adult clients with disabilities in two sites, Portland and Lewiston. Progressive Employment invests heavily in interactions with employers to create mutual benefits for the employer as well as the VR client in supporting WBL experiences for individuals with disabilities. In 2016, under RSA's Disability Innovation Fund, the Maine DVR

introduced Progressive Employment for transition-age youth in two sites (Bangor and Augusta), delivered ACRE trainings to JMG specialists across the states, and supported additional expansion and enhancement of the JMG program in Bangor. This report presents findings on the relative contribution of each innovative practice of each of these models alone, and also the contribution of a combined model, to advance the evidence base for what works to improve outcomes among youth with disabilities. The results of this evaluation will provide other state VR agencies with a road map for whether and how to combine practices emerging from disability-specific fields with practices that target underserved youth.

Section B of this report includes more information about the programs implemented under the TWBL project and the theory of change. Section C includes an overview of the evaluation design and the data sources used in the project evaluation. Section D presents the findings from the implementation evaluation. Section E presents findings from the impact evaluation, with different sections addressing the impact of the baseline JMG program (E.1); the impact of baseline VR services (E.2); a comparison of employment trajectories after high school for JMG and VR clients (E.3); the impact of the ACRE-enhanced JMG program (e-JMG; E.4); the impact of Progressive Employment and the additional impact of e-JMG plus Progressive Employment (E.5); and the impact of COVID-19 on VR services and outcomes for youth with disabilities in Maine (E.6). Finally, Section F concludes the report by offering lessons learned from the evaluation and policy recommendations.

B. Background and TWBL Implementation

B.1. Maine TWBL Model Demonstration Project

The Maine DVR carried out the 5-year TWBL Model Demonstration project with its partners—JMG, the CSAVR, and the ICI—from October 2016 to September 2021.

The primary goal of the TWBL demonstration project was to implement and evaluate the impact of two promising interventions underway in Maine, along with combined strategies from these two interventions. First, the project expanded and enhanced the JMG program by providing disability-focused training and strategies to all JMG Specialists. This training intended to build capacity of JMG specialists in meeting the WBL needs of youth with disabilities in their classrooms. Second, the TWBL demonstration project aimed to improve the employment outcomes of students with disabilities served by the Maine DVR by providing Progressive Employment training and technical assistance to VR Counselors and Employment Specialists in Augusta and Bangor. The Progressive Employment and e-JMG programs were combined in Bangor in five high schools where JMG Specialists and VR Counselors work together to serve students with disabilities. All project activities targeted transition-age youth who were in the final 2 years of high school. Exhibit 1 shows a summary of project activities by site.

Exhibit 1. TWBL Project Activities by Site

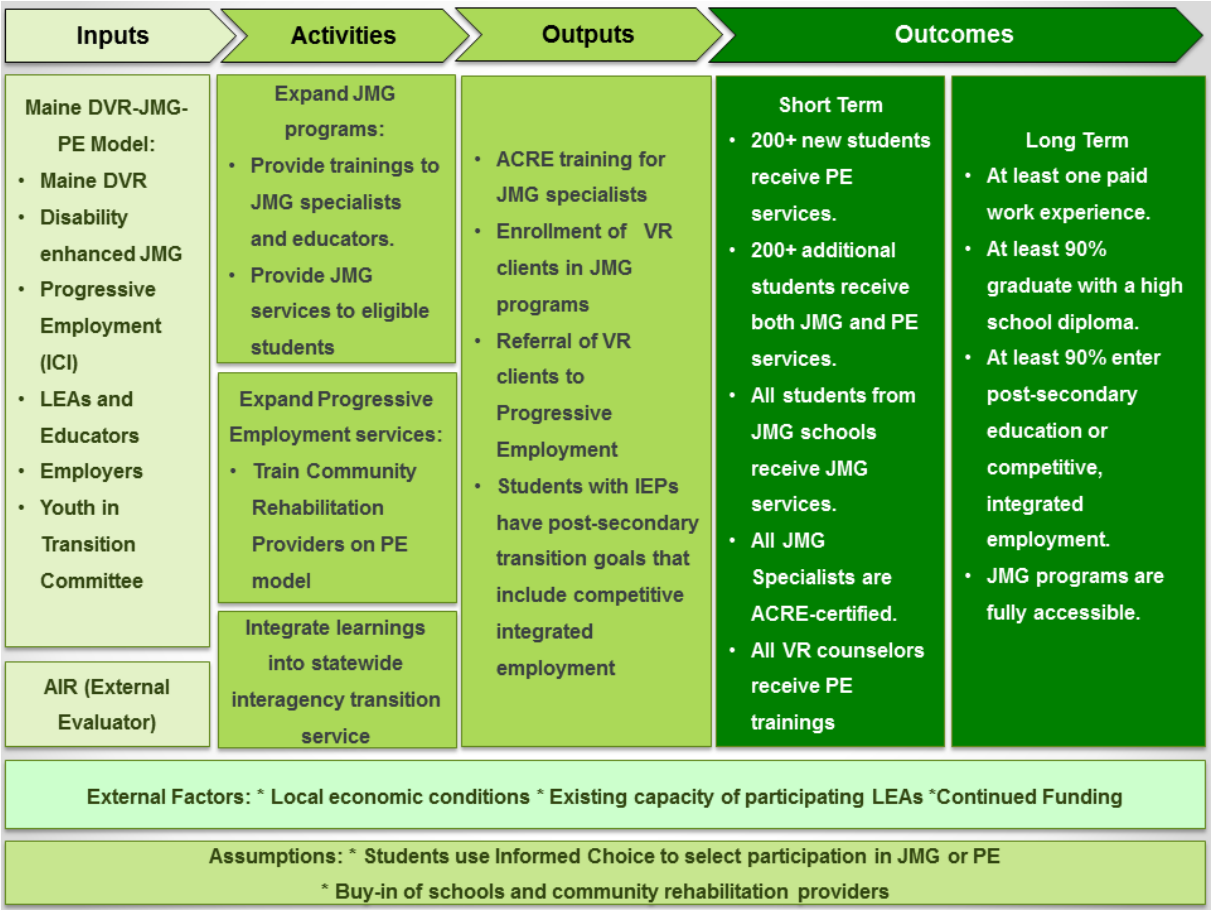
Augusta Area	Bangor Area	Rest of Maine
Baseline (Pre-TWBL) activities		
• VR services provided to all eligible persons with disabilities (except those on waitlist or those who drop out of VR prior to service start) • JMG program implemented in one high school	• VR services provided to all eligible persons with disabilities (except those on waitlist or those who drop out of VR prior to service start) • JMG program not implemented in any high school	• VR services provided to all eligible persons with disabilities (except those on waitlist or those who drop out of VR prior to service start) • JMG program implemented in 54 high schools • Progressive Employment offered to youth and young adults with disabilities in Portland and Lewiston

Augusta Area	Bangor Area	Rest of Maine
Post-TWBL activities		
• VR services provided to all eligible persons with disabilities (except those on waitlist or those who drop out of VR prior to service start) • **Progressive Employment started with youth with disabilities** • **ACRE training provided to JMG program in the existing JMG school**	• VR services provided to all eligible persons with disabilities (except those on waitlist or those who drop out of VR prior to service start) • **Progressive Employment started with youth with disabilities** • **Five new high schools recruited for JMG and started e-JMG** • **e-JMG and Progressive Employment implemented collaboratively**	• VR services provided to all eligible persons with disabilities (except those on waitlist or those who drop out of VR prior to service start) • Progressive Employment offered to youth and young adults with disabilities in Portland and Lewiston • **ACRE training provided to JMG program in the existing JMG school for all 55 high schools**

Note. Activities added under TWBL are reflected in bold text. TWBL = transition work-based learning; VR = vocational rehabilitation. The Augusta and Bangor areas refer to all locations served by the regional office in Augusta and in Bangor, respectively.

The project logic model, as shown in Exhibit 2, describes the short- and long-term outcomes and magnitude of improvements in employment, postsecondary education, and, by extension, independent living skills that can be gained through this project. The Maine DVR and its partners proposed these strategies to address barriers that limit employment and educational outcomes among students with disabilities. First, the project was expected to improve the professional capacity of VR and JMG to meet the demand for services for youth with disabilities by providing trainings to JMG Specialists and VR Counselors. Second, the project was expected to expand JMG and Progressive Employment to address the need for statewide use of promising innovations. Third, the project was expected to increase access to multiple pathways to employment for students with disabilities by engaging with employers using JMG and Progressive Employment to ensure that students with disabilities have work experience before leaving high school. Overall, the project aimed to improve the economic opportunities and long-term career prospects for transition-age youth with disabilities.

Exhibit 2. Project Logic Model



Note. ACRE = Association of Community Rehabilitation Educators; AIR = American Institutes for Research; DVR = Division of Vocational Rehabilitation; ICI = Institute for Community Inclusion; IEP = Individualized Plan for Employment; LEA = local education agency; PE = Progressive Employment; VR = vocational rehabilitation.

B.2. Description of Interventions

B.2.1. JMG and e-JMG

Founded in 1993, JMG is a year-round program that partners with public schools to offer for-credit courses that aim to improve high school graduation rates and put students on a path to college or a career. JMG serves students who face multiple barriers to school and/or work, including students with disabilities or health barriers as defined by JMG. Each JMG class is taught by an on-site, full-time JMG Specialist. The JMG model follows a competency-based approach, with student-focused planning and student development. The specific curricula include developing and implementing a personal development plan for career development; creating and selecting an immediate job goal and developing a career path for a selected occupation; setting and prioritizing goals to improve self-determination; and implementing strategies to address students' academic, work-related, and social-emotional needs. JMG also

collaborates with external agencies to organize summer workshops and engagement activities linking students to employers and business communities. In addition to conducting activities throughout the school year, JMG Specialists follow up with students during the summer months, often engaging them in summertime community service activities, and continue to provide support and guidance to participating students during their first year after completing high school.

Under the TWBL project, JMG was expanded to five schools in the Bangor area in 2016, and all JMG Specialists serving high school students across the state were trained on a competency-based curriculum developed and certified by ACRE. The aim of the ACRE certification was to better equip JMG Specialists for addressing the unique employment-related needs of students with disabilities, thus "enhancing" the basic JMG program to create an ACRE-enhanced, or e-JMG model. The goal of this model is to aid JMG Specialists in conducting customized employment activities to support their students with disabilities in obtaining WBL opportunities to put them on a career path. ACRE-certified trainers provided trainings to three cohorts of JMG Specialists. At the beginning of the project, the evaluation team randomized high school JMG Specialists across the state to either receive the trainings in Year 1 (2017) or Year 2 (2018). Some JMG Specialists were unable to attend the trainings in Year 1 or Year 2, and new JMG Specialists joined the program after Year 2 because of turnover. As a result, a third cohort of JMG Specialists was trained in Year 3 (2019). The first cohort of 28 JMG Specialists was trained in 2017, the second cohort of 29 JMG Specialists was trained in 2018, and the third cohort of 25 JMG Specialists was trained in 2019.

B.2.2. Progressive Employment

The Progressive Employment model is an employment strategy that aims to serve VR consumers by connecting them to WBL experiences that are best aligned with their goals through a focus on building and maintaining relationship with potential employers. This dual customer approach includes WBL opportunities that may lead to job placement, but the emphasis is on flexibility to meet the needs of both VR consumers and businesses, instead of an immediate focus on job placement. For both VR clients and employers, Progressive Employment uses its "Everyone is Ready for Something" approach rather than focusing on job readiness, which is usually the focus of traditional VR services. On the VR clients' side, this approach seeks to connect clients to opportunities that align with their unique and individualized interests and capacities and engage them in real work settings to build up motivation and early work experience. The Progressive Employment model includes various activities depending on the client's needs, such as company tours and job shadowing opportunities, to provide short-term first introductions, mock interviews to strengthen social skills, and paid work experiences to deepen technical skills. On the employer's side, Progressive Employment benefits employers by serving their current and future employment needs at a low

financial risk to the company. One of the many ways Progressive Employment does this is to offer a job seeker short-term work experiences with an employer. This introduces the job seeker to the employer, who is under no obligation to hire the individual. Another fundamental aspect of the Progressive Employment model includes the team approach to enhance the dual customer strategy (Moore et al., 2018a). The model includes multiple, cross-functional communication processes such as engaging VR job placement specialists, employers, and job seekers in working together to establish a joint approach to service delivery. For example, the Progressive Employment model includes *Jobsville,* which are regional meetings between VR and community rehabilitation staff in which possible opportunities for Progressive Employment clients are discussed and labor market intelligence is shared (Moore et al., 2018b). These meetings focus on referrals, challenging cases, and successes and serve to strengthen the dual customer approach and enable VR agencies to determine the best fit for both VR clients and local employers.

In 2015, the Maine DVR designed and implemented a pilot of the Progressive Employment model in two VR offices in Portland and Lewiston for youth and young adult clients only. In 2016, under the TWBL project, the Maine DVR introduced Progressive Employment for transition-age youth with disabilities in Augusta and Bangor, the target sites for this evaluation. Although there were no strict eligibility criteria for participation in the Progressive Employment model, the two factors that guided program selection by Maine DVR included (1) being in the last 2 years of high school and (2) having limited work experiences at the time of VR contact.

Progressive Employment strategies were delivered by (1) VR Counselors, who are employees of the Maine DVR and typically assist people with disabilities in reaching their employment goals; and (2) Employment Specialists, who are employees of Community Rehabilitation Providers (CRPs) contracted by the Maine DVR to provide their clients with employment-related services, like paid work experiences. The Maine DVR, in collaboration with ICI, provided Progressive Employment trainings to VR Counselors and Employment Specialists in August 2017 and 2019 and also provided technical assistance to help them apply the Progressive Employment model and implement the related strategies. New staff that began providing services between those formal trainings received handouts and other resources used in the training. Under the grant, VR Counselors and Employment Specialists were required to participate in all aspects of Progressive Employment, which included monthly community of practice calls, webinars, surveys about their topics of interest, and data collection on the WBL activities. The number of VR Counselors and Employment Specialists who participated in delivering Progressive Employment services varied across years, primarily due to turnover and lags in new appointments. In Year 4, the number of Employment Specialists in Bangor decreased significantly due to one CRP—which had the second largest number of employees—closing its

business because of the COVID-19 pandemic. Exhibit 3 summarizes the number of staff who were delivering Progressive Employment strategies in the two sites over time.

Exhibit 3. Number of Progressive Employment Delivery Staff Over Time

	VR Counselors		Employment Specialists	
	Augusta	Bangor	Augusta	Bangor
Year 1	11	10	5	7
Year 2	4	5	6	7
Year 3	3	4	8	8
Year 4	6	5	8	3
Year 5	5	5	6	4

B.2.3. e-JMG plus Progressive Employment Combined Model

The e-JMG plus Progressive Employment combined model brought together JMG Specialists, who were trained through ACRE, and VR Counselors, who were trained on Progressive Employment, to collaborate in serving students with disabilities. The combined model was implemented in Bangor at five newly recruited high schools—Bangor High School, Old Town High School, Orono High School, Hermon High School, and Hampden Academy. JMG Specialists from the five Bangor high schools and their area manager met monthly and referred students to their VR Counselors. These students could then choose to enter Progressive Employment, thus increasing the likelihood of being enrolled in both programs simultaneously. JMG managers and grant managers also addressed any concerns, successes, challenges, and collaborations between JMG Specialists and VR Counselors and assisted with student enrollment and services. The aim of the collaboration was to actively refer students from JMG into the Progressive Employment program and share knowledge on effective practices to meet individual student needs.

C. Evaluation Design and Data Collection

The AIR evaluation team led the evaluation of the TWBL project, which included two components: (1) an implementation evaluation to assess the project implementation process; identify and respond to strengths and challenges as the project is implemented; and enhance program quality, system sustainability, and replicability; and (2) an impact evaluation to estimate the effectiveness of practices and strategies implemented by the project in improving educational and/or employment outcomes and access to WBL services for program participants. Evaluation activities were conducted over the project period of 5 years and were guided by the logic model (Exhibit 3).

C.1. Implementation Evaluation

The goal of the implementation evaluation was to determine if the project activities were implemented with high fidelity, given the intended outcomes of providing youth with disabilities with effective access to WBL services and improving their overall labor market outcomes. In conjunction with the impact evaluation, the implementation evaluation helped to ascertain the extent to which the observed effects were influenced by the quality of program delivery. The implementation evaluation followed a mixed-methods design in which qualitative data were triangulated with quantitative data on implementation fidelity to identify the mechanisms that may have influenced program uptake and quality. Each data collection activity addressed multiple research questions (RQs), as summarized in Exhibit 4.

Exhibit 4. Implementation Evaluation—Research Questions and Associated Data Collection

Implementation evaluation research question	Data collection and quantitative outcomes, where applicable
RQ1. Have the project activities been implemented with high fidelity as planned and described in the project's logic model?	Annual on-site observations
	Annual document review
	Annual surveys of VR Counselors, Employment Specialists, and JMG Specialists
	Annual KIIs with VR Counselors, Employment Specialists, and JMG Specialists
	Bimonthly KIIs with Maine DVR director, project manager, and JMG leadership
	Annual analyses of program activity data to assess • Number of TWBL participants—total and by site • Number of Progressive Employment, e-JMG, and Progressive Employment + e-JMG participants—total and by site • Number of WBL activities completed—total and by site • Number of participants with at least one TWBL experience—total and by site

Implementation evaluation research question	Data collection and quantitative outcomes, where applicable
RQ2. What are the facilitators and barriers in implementing the interventions of the project?	Annual surveys of VR Counselors, Employment Specialists, and JMG Specialists
	Annual KIIs with VR Counselors, Employment Specialists, and JMG Specialists
	Bimonthly KIIs with Maine DVR director, project manager, and JMG leadership
RQ3. How can the project activities be improved?	Annual surveys of VR Counselors, Employment Specialists, and JMG Specialists
	Annual KIIs with VR Counselors, Employment Specialists, and JMG Specialists
	Bimonthly KIIs with Maine DVR director, project manager, and JMG leadership

Note. DVR = Division of Vocational Rehabilitation; KII = key informant interview; RQ = research question; VR = vocational rehabilitation.

Specifically, the evaluation team collected data from multiple sources to study each RQ, as described below.

Site Visits. The evaluation team conducted on-site observations of ACRE trainings, Progressive Employment trainings, JMG classrooms, Jobsville meetings, and virtual community of practice meetings. Observation data collected from these site visits were used to inform the overall fidelity and quality of implementation activities (RQ1).

1. ***ACRE training observations*.** The evaluation team attended the ACRE trainings of JMG Specialists in Year 1 and Year 2. Prior to the trainings, the evaluation team prepared an observation protocol using the activity agenda as a guide to investigate whether the planned topics were covered under the trainings, and whether the trainers met the quality indicators for an effective training.
2. ***JMG classroom observations*.** In Year 3, the evaluation team visited the JMG classrooms of two of the Bangor schools, Bangor High School and Hampden High School. Prior to the site visit, the evaluation team designed a classroom observation tool, which reflected the overall experience in the JMG class, the various interactions between the JMG Specialist and the VR Counselor as well as the staff and students, and the challenges and needs that stood out.
3. ***Progressive Employment training observations*.** The evaluation team attended the Progressive Employment trainings for VR Counselors and Employment Specialists in Year 1 and the virtual refresher training in Year 4. Using the Progressive Employment train-the-trainer manual as a guide, the team assessed overall training fidelity and determined whether a culture of learning was employed in the implementation of the Progressive Employment training.

4. ***Progressive Employment Jobsville observations*.** The evaluation team attended and observed four Jobsville meetings (two in Augusta and two in Bangor) in Year 2 and Year 3. During these meetings, the VR Counselors and Employment Specialists discussed individual student needs, their challenges and accomplishments, the experiences of their clients, new client referrals, and the exchange of labor market information. The evaluation team assessed the degree of collaboration and information sharing across all staff and noted any challenges discussed by VR Counselors and Employment Specialists.
5. ***Community of Practice observations*.** Members of the evaluation team attended virtual communities of practice with VR Counselors and Employment Specialists, organized by the training and professional development staff from ICI. The evaluation team assessed the frequency of these meetings and the extent to which they provided an opportunity for learning and discussion of Progressive Employment strategies.

Document Review and Project Check-Ins. To examine records of activity schedules and completion of program implementation (RQ1), the evaluation team reviewed necessary program documents, including implementation plans, protocols, and records of key activities like Jobsville meetings and communities of practice. The TWBL grant manager compiled and shared notes from every Jobsville meeting in Augusta and Bangor (held approximately twice each month). Additionally, the AIR team conducted two separate check-in meetings every other month with (1) the JMG leadership team; and (2) the Maine DVR director and the TWBL grant manager. The goal of these meetings was to stay up to date on their practices and partnership, and to provide an opportunity to the leadership team to share their concerns, successes, and challenges with program implementation and practice.

Surveys of Program Implementation Staff. The evaluation team administered surveys to various stakeholders, including JMG Specialists, VR Counselors, and Employment Specialists through an online survey platform to identify the experiences, facilitators, and challenges with respect to program implementation. Data collected through these surveys were analyzed to identify project activities conducted by these stakeholders (RQ1), key implementation facilitators and barriers (RQ2), and the implementation team's recommendations for additional support or resources, as applicable (RQ3). Exhibit 5 shows the number of respondents for each survey.

1. ***JMG Specialist surveys*.** Survey data collected from the JMG Specialists focused on the perceived quality and importance of ACRE training, use of ACRE strategies with JMG students, activities performed in the JMG classroom, frequency and type of work-based learning activities conducted, and collaboration with school VR Counselors. These data were collected annually from Year 1 through Year 4 from all JMG Specialists.

2. ***Progressive Employment surveys*.** Survey data collected from VR Counselors and Employment Specialists focused on their knowledge about the strategies they learned in the Progressive Employment trainings and their planned application for such strategies in the first year of the grant. Follow-up surveys in Years 2 through 4 collected information about their knowledge and application of Progressive Employment strategies and their perceived importance of these strategies. Throughout the grant, we collected surveys from casework supervisors and the DVR grant manager, and the numbers shown in Exhibit 5 include these surveys as well. Note that we did not use their survey data when analyzing responses from VR Counselors and Employment Specialists.

Key Informant Interviews. Over the course of the project, the evaluation team conducted interviews with select key implementation staff as well as JMG students to contextualize the findings from program surveys (informing all three RQs). These interviews were conducted over a web-based, virtual platform. Exhibit 5 includes the number of respondents for each interview type.

1. ***JMG staff interviews*.** Interviews with JMG Specialists and JMG managers in Years 1 and 2 were conducted as a follow-up to the surveys on the ACRE trainings. Specialists shared lessons learned from the ACRE trainings and their level of preparation to support students with disabilities in the JMG classroom. JMG managers shared their perceptions about the ACRE trainings, information on trainings typically received by JMG Specialists, their roles and responsibilities, and other details about delivery of the JMG program. The evaluation team also conducted interviews with the ACRE trainers in Year 1 and Year 2 of the grant to collect information on their observations of, and expectations from, the trainings.
2. ***JMG student interviews*.** In Year 5, we conducted interviews with 10 JMG high school students from nine schools, who were enrolled in their junior or senior year. The students were selected based on convenience sampling approach; specifically, they were identified and recruited for interviews by the JMG staff. JMG Specialists contacted parents of these students and provided them with a passive consent letter, which included information on the study. Six of the 10 students attended schools located in Bangor and received both JMG and Progressive Employment, while the other four students received the JMG intervention only, with one student from the Augusta area and three students from schools in surrounding areas. The evaluation team conducted interviews with these students in Year 5 (February 2021) and collected information about their experiences in the JMG classroom, the impact of the COVID-19 pandemic on JMG participation and services, the competencies covered in the JMG class, and their plans for after high school.
3. ***Progressive Employment interviews*.** The evaluation team interviewed a sample of VR Counselors and Employment Specialists in Years 1, 2, and 4, as a means for these staff to

expand on their survey responses for the trainings that occurred. These interviews focused on lessons learned during the trainings, staff's perceptions of the training content, and their level of preparation to support students with disabilities in achieving their post-school employment goals. In Year 2, the evaluation team conducted follow up interviews to see whether the VR Counselors and Employment Specialists were applying the strategies learned from the previous year and how they continue to support students with disabilities in achieving their goals. The final interviews conducted in Year 5 focused on the implementation of Progressive Employment services and the impact of the COVID-19 pandemic on service delivery and clients' participation in Progressive Employment.

Program Activity Data. The evaluation team collected data on program participation and WBL activities completed under TWBL from (1) surveys administered through SurveyMonkey by the Maine DVR; and (2) JMG's management information system. Surveys administered by the Maine DVR included information about WBL experiences for TWBL participants, entered by the Employment Specialist or VR Counselor after the completion of each WBL activity (although lags may have occurred in data entry). Data from the JMG management information system were extracted annually and provided information on the number of JMG participants by school and grade and barrier type (including a disability barrier).

Exhibit 5. Number of Survey and Interview Respondents by Time

	Year 1	Year 2	Year 3	Year 4	Year 5
JMG Specialist surveys	22 (Cohort 1 only)	45 (Cohorts 1 and 2)	57 (Cohorts 1, 2, and 3)	61 (Cohorts 1, 2, and 3)	-
JMG Specialist and staff interviews	25 (Cohort 1 only) JMG Staff: 2	44 (Cohorts 1 and 2) JMG Staff: 5	-	-	-
JMG student interviews	-	-	-	-	10
Progressive Employment surveys	Pre-training: 35 Post-training: 35	24	22	Pre-training: 23 Post-training: 20 Follow-up: 22	-
Progressive Employment interviews	15	14	-	4	13

For each data collection type, the study team drafted instruments and protocols after close document review to ensure that the questions captured the intended program activities. The team used NVivo for conducting all qualitative analyses of interviews, which helped facilitate data organization and identification of recurring patterns related to the program and

implementation process. We administered surveys through an online survey platform, Vovici Corporation, which is a part of Verint Systems Inc. Quantitative analyses of the survey data included descriptive statistics and analysis of data trends over time. Similarly, we summarized quantitative data on the number of TWBL project participants and WBL activities from the Maine DVR case management system.

C.2 Impact Evaluation

The impact evaluation examined the effectiveness of the Maine TWBL project in improving education outcomes, access to WBL experiences, and labor market outcomes among youth with disabilities. The aim of the evaluation was to determine if the project achieved the desired outcomes outlined in the logic model. The impact evaluation included analyses of the impact of the baseline JMG and VR programs that were implemented before e-JMG and Progressive Employment, respectively, and the additional impact of the strategies employed under the TWBL project. The evaluation team followed a rigorous quasi-experimental design, employing different methods to answer each of the research questions listed in Exhibit 6. Because the grant included the implementation of different approaches with different samples, different methods and samples were used for each research question.

Exhibit 6. Impact Evaluation—Summary of Sample and Data Sources

Question	Treatment sample	Control sample	Data source
RQ1. What is the impact of baseline VR services on the employment and earnings of youth with an IPE?	Youth who applied to DVR between 2005 and 2016 and received services through IPE	Youth who applied to DVR between 2005 and 2016 and exited before IPE	RSA-911 data: Treatment indicators (IPE status), service receipt, and client background information
			Maine DOL UI data: Employment and earnings outcomes
RQ2. What is the impact of baseline JMG on high school exit of students with disabilities?	Students with disabilities enrolled in Grades 11 and 12 in JMG schools between school years 2011–2012 and 2015–2016 who received JMG	Students with disabilities enrolled in Grades 11 and 12 in JMG schools between school years 2011–2012 and 2015–2016 who did not receive JMG	JMG administrative data: JMG participation and barrier information
			Maine DOE data: Student demographic and socioeconomic background, academic test scores, IEP status, and exit outcomes
RQ3. How do the post-high school employment and earnings trajectories of baseline JMG and VR clients	Youth with disabilities who applied to VR and received (1) VR services through an IPE but no	Youth with disabilities who applied to VR but received neither VR nor JMG services	RSA-911 data: Treatment indicators (IPE status), service receipt, and client background information

Question	Treatment sample	Control sample	Data source
compare against non-JMG and non-VR clients?	JMG in high school; (2) JMG in high school but no VR services; and (3) VR services and JMG in high school		JMG administrative data: JMG participation and barrier information
			Maine DOL UI data: Employment and earnings outcomes
RQ4. Compared to baseline JMG, what is the impact of e-JMG on high school exit and employment outcomes of students with disabilities?	Students with disabilities enrolled in Grade 12 in JMG schools after e-JMG implementation who received JMG	Students with disabilities enrolled in Grade 12 in JMG schools before e-JMG implementation who received JMG	JMG administrative data: JMG participation, barriers, high school exit, and post-school employment and postsecondary information
RQ5. Compared to usual VR services, what is the impact of Progressive Employment on the employment and earnings of youth with disabilities? Does the collaboration model of e-JMG and Progressive Employment provide any additional benefits?	Youth who applied to DVR after 2015, had an IPE, and received Progressive Employment services under TWBL	Youth who applied to DVR after 2015, had an IPE, and received regular VR services	RSA-911 data: Treatment indicators (Progressive Employment status), service receipt, and client background information
			Maine DOL UI data: Employment and earnings outcomes
RQ6. How did COVID-19 impact VR services and VR exit outcomes?	VR youth who exited the VR system between 2014 and 2019	VR youth who exited the VR system in 2020	RSA-911 data: Case entry and exit dates, service receipt, and client background information
			Maine DOL UI data: Employment and earnings outcomes

Note. DOL = Department of Labor; DVR = Division of Vocational Rehabilitation; IPE = Individualized Plan for Employment; RQ = research question; RSA = Rehabilitation Services Administration; TWBL = transition work-based learning; UI = unemployment insurance; VR = vocational rehabilitation.

Appendix A.1 includes an overarching description of the data sources used for the impact evaluation. The RQ-specific samples, data linkage process, and methodologies are described in the sections that follow.

RQ1. Impact of Baseline JMG (Without ACRE Enhancement) on High School Exit Outcomes of Youth With Disabilities

***Approach*.** We estimated the impact of the baseline JMG program on high school graduation and dropout rates for students with disabilities by comparing the outcomes of students who participated in the JMG program (i.e., the treatment group) with students who did not

participate in the JMG program but came from the same schools and had similar demographic characteristics and test scores (i.e., the comparison group). We used a Mahalanobis distance matching (MDM) algorithm to match JMG students in the last 2 years of high school with non-JMG students in the same years and grades. Matching finds student pairs who are observationally similar except for the fact that one individual participated in the program and the other did not. However, matching does not address selection bias if unobserved differences between students in the treatment and control groups are simultaneously correlated with JMG participation and student schooling outcomes. Therefore, the selection of covariates is critical for ensuring that post-matching differences in outcomes can be reliably attributed to differences in program participation. Specifically, the covariates should, to the extent possible, capture program selection factors.

In choosing covariates for matching, we paid particular attention to factors related to JMG program eligibility. Within schools that offer the JMG program, not all students can self-select into the program unless a JMG Specialist identifies the student as facing multiple barriers to high school completion. These barriers include socioeconomic, environmental, physical, or academic challenges for the student. Because information on barriers to high school completion is available only for treatment JMG recipients (i.e., students in the treatment group), for non-JMG students, we used indicators that served as the best available proxies for similar barriers. Specifically, we used students' (1) free or reduced-price lunch (FRPL) status to control for information related to socioeconomic barriers, (2) limited English proficiency (LEP) status to control for environmental barriers, (3) Individualized Education Program (IEP) or Section 504 plan status to control for physical barriers, and (4) 11th-grade assessment scores to control for academic barriers. This approach ensured that the matching exercise produced the most reliable estimates of JMG program effects. To test the performance of matching, we computed the standardized mean difference (SMD) on all covariates pre- and post-matching. We used 0.25 as the threshold SMD value to assess the similarity of the treatment and comparison groups on each covariate, following Imbens (2015), who showed that differences smaller than 0.25 standard deviations are unlikely to cause significant bias in the estimates. The post-matching SMDs were less than 0.1 on most variables and less than 0.25 on almost all variables, suggesting that the comparison groups formed through MDM were reasonably similar to the treatment groups in terms of observed characteristics. Appendix A.2 includes technical details on the selected matching design and covariates, including the SMDs in these indicators before and after matching.

***Data Sources*.** Data for this analysis were collected from three sources: (1) JMG participation data from the JMG administrative system; (2) student background data and high school exit outcomes from Maine Department of Education student records; and (3) school characteristics from the U.S. Department of Education's Common Core of Data database. Student records

were merged across data sets using student names and addresses. The final analytic sample consisted of 27,300 unique students who started 11th grade between school years 2011–2012 and 2014–2015; of these students, 2,620 enrolled in the JMG program in their last 2 years of high school. We further restricted the sample to 5,863 students with disabilities, 718 of whom participated in JMG and 5,145 were non-JMG students.

RQ2. Impact of Baseline VR Services on Labor Market Outcomes of Youth With Disabilities

***Approach*.** To provide a benchmark for the effects of Progressive Employment on labor market outcomes, we first used baseline data to estimate the effects of standard VR services on the employment and earnings of transition-age youth (clients between ages 14 and 24 at the time of VR application). This analysis compared VR clients with an IPE (the initial step for receiving VR services) to clients who did not have an IPE. Because having an IPE may be correlated with other unobserved characteristics of VR clients, we used an instrumental variable design to estimate the effects of VR services received through IPE on employment and earnings. Specifically, this design relies on an "instrument" that is correlated with treatment (IPE development, in our case) but not directly correlated with the outcome. By using such an instrument, we can extract the potentially random aspect of the likelihood of being treated and estimate its effect on employment outcomes. Our analysis used the proportion of youth with disabilities for whom VR counselors developed an IPE as an instrument for a client's likelihood of receiving VR services through an IPE. Appendix A.3 includes more information on the instrumental variable design and tests of various assumptions supporting the validity of the design.

***Data Sources*.** We accessed individual-level data on all VR applicants who were in the Maine DVR system between January 1, 2005, and August 31, 2017. These data included information on 50,218 cases for VR clients of all ages, among which 14,815 cases were for transition-age youth. For clients aged 14–24 at the time of VR application, the Maine DOL merged the VR client IDs with their wage records using individual Social Security numbers and created a longitudinal record of earnings. The evaluation team merged the DOL wage data with the RSA 911 data using the VR client ID and created a longitudinal record of employment and earnings for eight quarters prior to VR eligibility, all quarters between VR eligibility and VR case closure, and eight quarters post-VR case closure for our 14,815-case sample.

RQ3. Employment Trajectories of JMG and VR Clients After High School Exit

***Approach*.** In addition to the impact of the JMG program on high school exit outcomes, we also estimated the employment trajectories of JMG and VR services on the employment outcomes of students with disabilities. Our analysis was limited to students who had applied to VR

because of a lack of Social Security Number (SSN) information on students' education records, which prevented the matching of labor market outcomes data from the Maine DOL's unemployment insurance files for all students. Matching was possible for VR applicants because, unlike data from the Maine DOE, the RSA data included SSN information. We estimated differential employment trends using linear regression models while controlling for observed differences across individuals as well as differences in counties of residence and application timing. Among a pool of VR applicants, we compared the employment and earnings of four subsamples: (1) those who received VR services through an IPE but no JMG; (2) those who received JMG but not IPE; (3) those who received both JMG and VR services through an IPE; and (4) those who received neither of the two services. Appendix A.4 includes the formal regression specification and details about the outcome and control variables.

***Data Sources*.** This analysis employed a sample of 8,619 individuals who applied to VR between the ages of 17 and 20 and became eligible for VR services between 2005 and 2016. For these 8,619 clients, we linked their RSA-911 data to quarterly employment and earnings data obtained from the Maine DOL unemployment insurance files. The unemployment insurance data enabled us to observe individual employment and earnings for VR clients for up to 4 years after age 17. Of the 8,619 VR applicants, 203 applicants received JMG services but no VR services (as indicated by having an IPE), 297 applicants received both JMG and VR services, 4,043 applicants received VR services but no JMG services, and 4,076 applicants received neither of the two services.

RQ4. Impact of e-JMG (JMG With ACRE Enhancements) on Employment and High School Exit Outcomes

***Approach*.** Compared to baseline JMG, we assessed whether ACRE enhancements to the JMG program may have provided added benefits. We estimated linear regressions with a difference-in-differences specification to explore differences in outcomes among students with and without disabilities before and after ACRE training. Given that ACRE enhancements were specifically targeted to support students with disabilities, this specification helps us test whether the gap between JMG students with and without disabilities narrowed after ACRE enhancements. The regressions control for individual and family characteristics to account for observable differences between students, along with differences in schools and the year of enrollment (through school-year and school fixed effects). Appendix A.5 includes more information about the formal specification and variables used as outcomes and covariates.

***Data Sources*.** Data for this analysis came from the JMG database, through which we identified students who received JMG in Grade 12 between the years 2010–2011 and 2019–2020, leading to a sample of 6,246 students, 33% of whom (*n* = 2,063) had a disability-related barrier. We

focused on JMG receipt in the last year of high school given that e-JMG's curriculum for that year focuses on post-high school opportunities. By using information from the JMG database on students' follow-up meetings with their JMG Specialists, we assessed labor market and postsecondary education outcomes up to 1 year after graduation, in addition to student participation in WBL activities during their participation in JMG.

RQ5. Impact of Progressive Employment (and Combined Model) on VR Services and Labor Market Outcomes

***Approach*.** To estimate the impact of Progressive Employment on labor market outcomes, we used a matching technique, comparing Progressive Employment clients with observationally similar non-Progressive Employment clients. The matching results compare the services, employment, and earnings outcomes of transition-age VR clients with Progressive Employment to VR clients with the same observable background characteristics, but without Progressive Employment.

To determine which variables to include in the matching algorithm, we first ran logit regressions that predicted participation in Progressive Employment using individual-level characteristics. Covariates identified as significantly predictive of Progressive Employment participation included attending high school at eligibility, having a sensory disability, having the highest order of selection priority (being most significantly disabled), and receiving primary support from a friend and family or receiving public support. We used MDM with one-to-two nearest neighbor matching because, with our sample and the selected number of covariates, this matching technique resulted in the lowest standardized mean differences across our covariates. Appendix A.6 includes more information about the technical methods and diagnostics of the matching methods.

***Data Sources*.** Similar to the analysis of RQ3., we used RSA-911 individual-level data on all VR applicants and Maine DOL wage data that included a longitudinal record of employment and earnings for eight quarters prior to VR eligibility, all quarters between VR eligibility and VR case closure, and eight quarters after VR case closure. The Maine DVR included an identifier for clients who were TWBL recipients, along with separate markers for Progressive Employment clients and JMG clients. To ensure that the comparison group was representative of the Progressive Employment group, we restricted the final sample to clients who met the following criteria: (1) were 14 to 18 years old at the time of VR eligibility; (2) resided in Bangor or Augusta; and (3) applied to VR no earlier than January 01, 2015. This starting sample included 932 clients, 180 of whom had participated in Progressive Employment.

RQ6. Impact of COVID-19 on VR Case Outcomes

***Approach*.** To study the impact of COVID-19 on service disruptions and VR case closure outcomes among youth with disabilities, we estimated changes in VR case exit outcomes after the onset of the COVID-19 public health emergency using a difference-in-differences specification. Specifically, we compared employment and earnings outcomes of youth who exited VR between the months of March 2020 and September 2020 with youth who exited VR in the same months in previous years. Appendix A.7 includes more information on the methodology.

***Data Sources*.** We used administrative data from RSA-911 on 8,869 VR-eligible cases that applied for services in Maine between January 01, 2014, and December 31, 2020, and were younger than 30 years of age at the time of their VR application. To assess changes in clients' outcomes at VR exit, we merged the RSA-911 data with quarterly employment and earnings information from the Maine Department of Labor Unemployment Insurance data. Due to reporting lags, the employment data were available for cases that were closed prior to September 2020 only (i.e., the first three quarters of 2020). This resulted in a match for a sample of 4,929 unique VR cases, which serves as the starting sample size for our analysis of the effect of COVID-19 on clients' employment status at VR exit.

D. Implementation Evaluation Findings

D.1. Findings on Implementation Fidelity

The Maine TWBL project expanded its services significantly over the period of the project, meeting its target of 200 new Progressive Employment students. As of June 2021, the project had expanded its services to 355 youth, with 180 youth in Augusta and 175 youth in Bangor. Additionally, the JMG program significantly increased its outreach to students with disabilities after the implementation of the TWBL project. Our analysis of e-JMG indicated that there is an increasing trend in the proportion of JMG students who had a disability. The proportion of JMG students with a disability-related barrier increased by 12 percentage points after the project, from an average of 30% of students having a disability before 2017 to 42% of students having a disability by 2019. The proportion of JMG students with disabilities during the project was larger in the five new JMG schools in Bangor areas, averaging at almost 60% of students where JMG was implemented in collaboration with DVR, compared with non-Bangor schools (40%).

Although most project activities were implemented as planned, the evaluation team noted some implementation gaps in ACRE training delivery, the implementation of ACRE strategies, and collaboration between JMG and Progressive Employment. Exhibit 7 lists the key implementation components for the TWBL project and the extent to which these activities were implemented with fidelity.

Exhibit 7. Implementation Fidelity

Key program implementation components	Implementation fidelity
200+ new students received Progressive Employment services	355 youth received Progressive Employment services
200+ new students received Progressive Employment + e-JMG services	151 youth received Progressive Employment + e-JMG services
JMG program expanded to five new schools in Bangor	Completed with fidelity
ACRE certification for all JMG Specialists	Completed with fidelity
ACRE trainings delivered with high quality	All trainings completed, but the quality of trainings varied across different cohorts
Implementation of ACRE strategies in JMG	JMG Specialists implemented ACRE strategies that were more aligned to their role in serving all students with barriers, but noted challenges with some other strategies
CRPs and VR Counselors trained on Progressive Employment	Completed with fidelity

Key program implementation components	Implementation fidelity
Progressive Employment trainings delivered with high quality	Completed with fidelity
Biweekly Jobsville meetings	Completed with fidelity
Project participants participate in at least two WBL activities	131 clients across the two sites had completed at least two WBL activities
Ongoing technical support to VR Counselors and Employment Specialists	Completed with fidelity
Collaboration between JMG and Progressive Employment	While JMG Specialists in Bangor reported collaborating with VR Counselors at a higher rate than in other cities, they also reported several challenges to effective collaboration
Increased employer engagement and dual customer approach	Completed with fidelity

Note. ACRE = Association of Community Rehabilitation Educators; CRP = Community Rehabilitation Partners; VR = vocational rehabilitation; WBL = work-based learning.

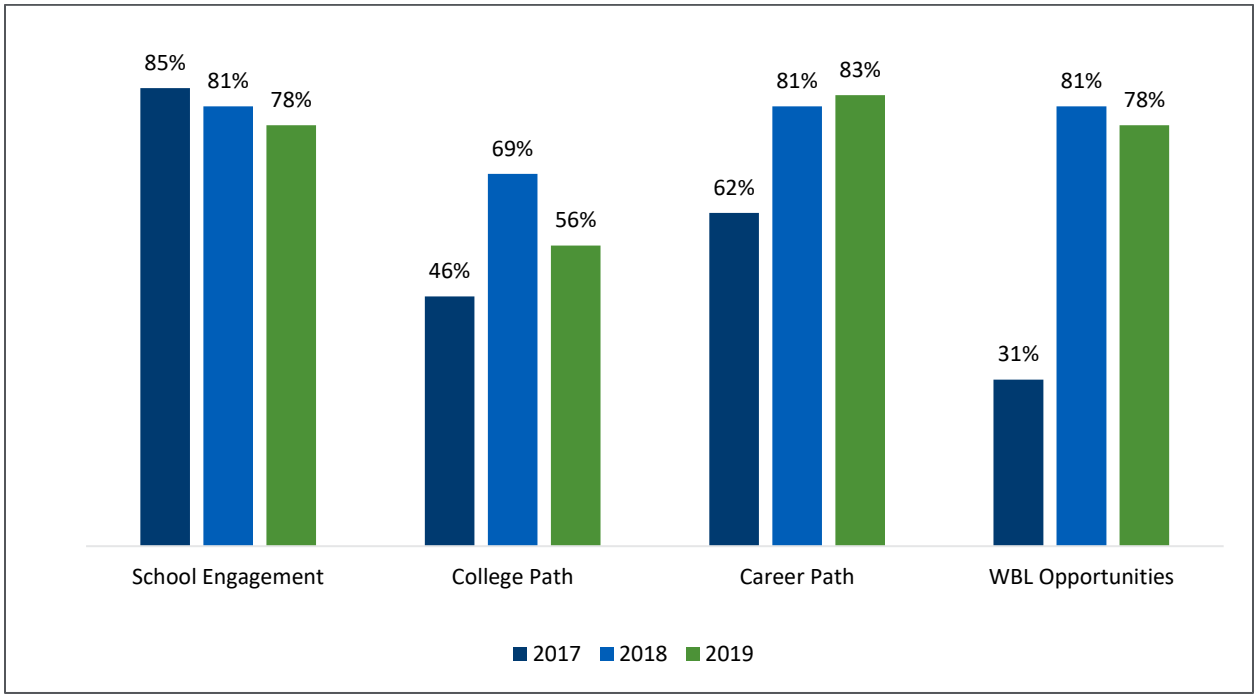
JMG expansion and e-JMG implementation. Findings on implementation fidelity from site observations, interviews and surveys conducted with JMG Specialists over multiple years include the following:

- ***ACRE training quality and usefulness*—**ACRE trainings were perceived to be useful and delivered with high quality in Years 2 and 3, but not in Year 1. In interviews and surveys of JMG Specialists after the first ACRE training (Cohort 1), JMG Specialists expressed a lack of clarity about the purpose of the training and how it fits into their role. They were unclear about JMG's expectations for them to apply the ACRE training strategies. The specialists felt unprepared to serve students with severe disabilities, and they were concerned about the focus on students with disabilities in the classroom versus their efforts at inclusiveness. During the second and third year of the training, however, the quality, relevance, and usefulness of the content presented during the ACRE training improved significantly. Eighty percent of the JMG specialists reported the training quality as "good" or "excellent" in Year 2 compared with 19% in Year 1; and 64% reported the training was "useful" or "very useful" in Year 2 compared with 12% in Year 1.
- ***Reported use of ACRE strategies*—**JMG Specialists reported increased use of the ACRE strategies that were most closely aligned with their current roles. In Year 2, JMG Specialists who were trained in Year 1 reported that some of the ACRE strategies did not align with their role, and many specialists asked for guidance, examples, and more practice with some ACRE strategies. However, they did report greater use of ACRE strategies after the training, with the highest increase in the use of informational interviews with employers (67% after

ACRE compared with 38% before ACRE) and vocational themes (90% after ACRE compared with 62% before ACRE). Despite the reported increase in the use of these four strategies, a minority (33% or less) of the specialists reported using the strategies regularly. Additionally, these strategies were not new to them and seemed to overlap with the JMG curriculum that they had already been practicing.

- ***Reported use of WBL activities—***JMG Specialists reported incorporating most of the WBL activities into the curriculum for their students with and without disabilities. Specialists trained in Cohorts 2 and 3 reported greater support from JMG in assisting them with obtaining WBL opportunities for their students (see Exhibit 8). More than 85% of JMG Specialists stated that they conducted all WBL activities except for person-centered business plans, apprenticeships, career mentorship, and internships. More than 40% of the specialists reported never having used person-centered business plans, apprenticeships, and internships.
- ***JMG activities reported by students—***While all JMG students reported practicing work-related activities in the JMG classroom, most reported that they had not received any WBL experiences under JMG. All 10 JMG students interviewed in Year 5 said the JMG curriculum taught them about applying for jobs, including creating cover letters, preparing résumés, and learning about the job interview process. Seven students indicated that they learned about taxes and finances, and five students indicated that they did personality assessments, which were then used to explore potential jobs. Four students who were involved in both the JMG and Progressive Employment interventions said that they learned about college opportunities and assistance for college applications. However, when asked about their participation in WBL activities, such as informational interviews or community service, six students—including four who were in their second year of the program—said that they had not participated in any WBL activities.

Exhibit 8. Percentage of JMG Specialists Who Reported That JMG Has Been Somewhat Useful, Useful, or Very Useful in Supporting Students on Specific Components, by ACRE-Training Year



Note. *N* = 47; 2017 *N* = 13; 2018 *N* = 16; 2019 *N* = 18.

Progressive Employment implementation. Findings on implementation fidelity from interviews and surveys conducted with VR Counselors and Employment Specialists over multiple years include the following:

- ***Progressive Employment trainings quality*—**VR Counselors and Employment Specialists generally report that Progressive Employment trainings are high quality and useful, although responses varied across Bangor and Augusta (despite them having received the same trainings). After the first Progressive Employment training in Year 1, VR Counselors and Employment Specialists reported an increased level of comfort with implementing Progressive Employment strategies, particularly collaborating with other VR Counselors and Employment Specialists. VR Counselors and Employment Specialists reported that they understood the Progressive Employment strategies well. After the Year 4 virtual refresher training, 80% of attendees from Augusta and 75% of attendees from Bangor reported that they found the trainings to be extremely or somewhat useful; 7% of attendees from Augusta and 25% from Bangor were neutral, while 13% of attendees from Augusta and none from Bangor reported that the trainings were not very useful.
- ***Jobsville meetings*—**During the course of Progressive Employment implementation, biweekly Jobsville meetings occurred almost regularly, promoting a collaborative

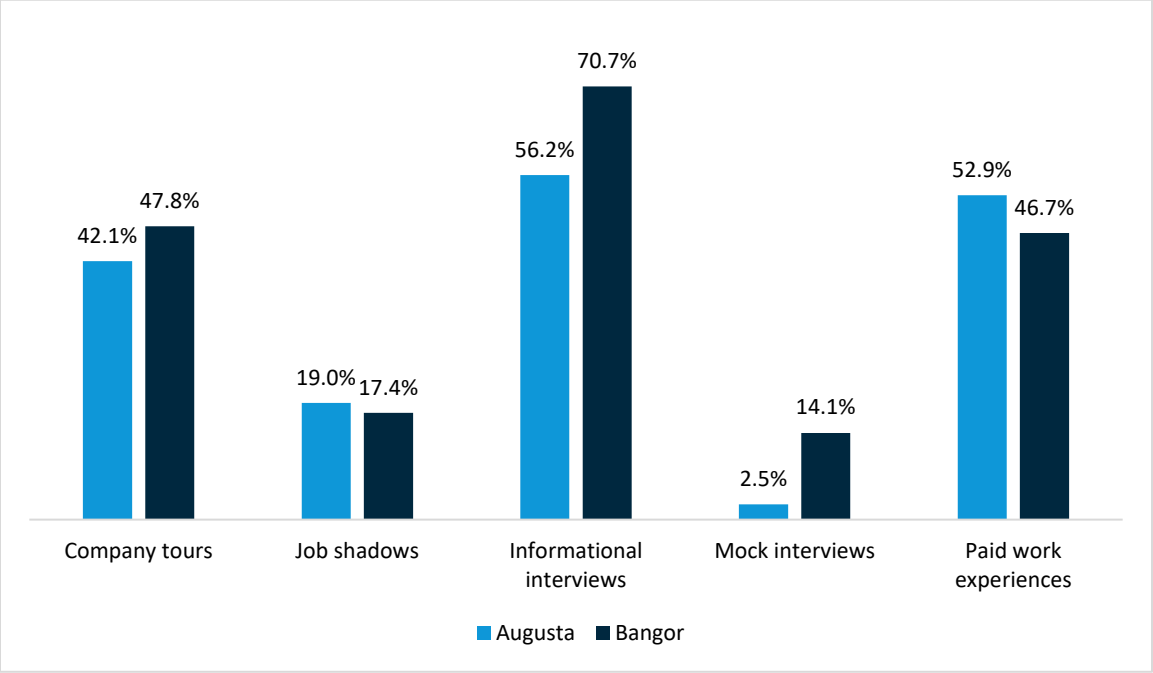
atmosphere between Employment Specialists and VR Counselors, especially in Bangor (based on site observations by the evaluation team). In Year 3 surveys of VR Counselors and Employment Specialists, 90% of respondents in Bangor and 46% of respondents in Augusta rated the quality of Jobsville meetings as "good" or "excellent"; 90% of Bangor respondents and 46% of Augusta respondents reported that they found the Jobsville meetings useful, and 73% of respondents from both sites indicated that they participated in Jobsville meetings twice a month. Additionally, the quality rating of Jobsville meetings decreased over time, with much higher proportions of respondents rating the quality as "good" to "excellent" in Year 2 surveys (in 2018) compared to Year 3 surveys (in 2019) and Year 4 surveys (in 2020).

- ***Collaboration among VR Counselors and Employment Specialists*—**The project saw increased collaboration over time. In Year 3 surveys, 77% of respondents reported collaborating with other Employment Specialists and 91% reported collaborating with other VR Counselors. All respondents to the Year 4 survey in Augusta and Bangor responded that they often or always collaborate with other Employment Specialists and VR Counselors.
- ***Employer engagement*—**Most VR Counselors and Employment Specialists reported that they visited businesses in person and found that businesses were receptive to working with their clients. A few VR Counselors and Employment Specialists indicated that it can be difficult for some businesses to understand how Progressive Employment benefits the business, and that it is a teaching experience for clients and not a head-hunting service.
- ***WBL activities***—All Employment Specialists and VR Counselors reported that they conducted WBL activities with TWBL participants, including practice interviews (78%), short-term work experiences (87%), and on-the-job training opportunities (43%). Across all activities, respondents from Augusta reported higher rates of implementation compared with respondents from Bangor.

Across the two sites, clients in Augusta were more likely to have completed WBL experiences than those in Bangor. Data extracted from SurveyMonkey in May 2021 suggested that 121 out of 180 Progressive Employment youth in Augusta (67%) and 92 out of 175 youth in Bangor (53%) had at least one recorded WBL activity. The likelihood of WBL activities being reported was lower for clients who enrolled in later years, suggesting that less time elapsed since they started engaging in services, as their cases were mostly open. This discrepancy may also suggest lags in data entry. In addition, 131 clients across the two sites had completed at least two WBL activities. Informational interviews and paid work experiences were the most common forms of WBL activity in both Bangor and Augusta (see Exhibit 9). In Augusta, 56% of participants completed informational interviews and 53% of the participants completed paid work experiences. In contrast, in Bangor, 71% of participants completed informational interviews and

47% of the participants received a paid work experience and company tour each. Across both sites, mock interviews were the least prevalent activity.

Exhibit 9. Progressive Employment Activities by WBL Type



Note. WBL = work-based learning. N=213.

***Progressive Employment plus e-JMG collaborative model*.** Although JMG Specialists have not traditionally worked with VR counselors in a systematic way, almost all of the JMG Specialists from the Bangor area schools reported working with the school VR Counselors (four out of five schools), compared with 44% (23 out of 52 who responded) of the JMG Specialists from non-Bangor areas. In Bangor, JMG Specialists were also more likely to refer students to VR Counselors. The higher engagement between JMG Specialists and VR Counselors in Bangor was by design. To ensure high-quality implementation and fidelity with program design, Maine DVR also attempted to limit contamination in non-Bangor areas. Some of the VR Counselors in Bangor described working directly with JMG Specialists to help students who may be eligible for VR services initiate the Progressive Employment referral process. As part of this referral process, in addition to the interaction between VR Counselors and JMG Specialists, VR Counselors also interact with the Employment Specialists. But JMG leadership and JMG Specialists reported that they did not have the opportunity to directly communicate with the Employment Specialists. Employment Specialists reported that they would often get questions from their students about where they were in the Progressive Employment process and what they should do next, but the JMG Specialists could not always provide that information because

of communication gaps which led to challenges in their collaboration with Progressive Employment.

D.2. Findings on Facilitators and Barriers in Implementing the Interventions

Key Implementation Facilitators:

- VR Counselors and Employment Specialists reported that some of the facilitators to implementing the Progressive Employment intervention included more options offered to and more flexibility with employers due to the wide range of work experiences. This has led to increased positive engagement with employers.
- The virtual Progressive Employment refresher training in Year 4 was a facilitator to implementing the intervention. VR Counselors and Employment Specialists reported that, with increased knowledge of the concepts and strategies of Progressive Employment, they would be able to better serve their clients.
- VR Counselors and Employment Specialists received online resources and handouts and supports to help identify WBL activities and also attended Jobsville meetings, community of practice calls, webinars, and other trainings related to Progressive Employment. These resources helped them to continuously expand their knowledge and apply what they learned with their Progressive Employment clients.
- JMG Specialists reported that the ACRE training solidified many of the strategies and concepts that the specialists were already using in the classroom. As an organization, JMG has a strong and stable organizational culture that resonates with the specialists and is reinforced through the ACRE trainings. The training enabled JMG specialists to enhance their work with students with disabilities and, potentially, all JMG students.
- Other than the ACRE training, JMG Specialists reported that JMG regularly offers other avenues through which specialists can learn and apply concepts that help them build relationships with their students and meet them where they are at, connect with the communities, and develop a reliable network of students, parents, and employers.
- All 10 JMG students who were interviewed in Year 5 reported that JMG played a facilitating role in giving them the confidence for and helping them to achieve their academic and career goals. Eight students agreed that participation in JMG classes helped them with their other classes. Four of these students indicated that JMG has helped them to become better organized and focused in all classes, while three of these students said that JMG has a study hall component that allows them to work on other classwork if they complete their JMG work.

Key Implementation Challenges:

- In Year 1, the JMG Specialists expressed the need for more guidance and support from ACRE, JMG, and Maine DVR. They also noted that lack of clarity on their role in the project was a major barrier to implementing the strategies of the project. Interview comments suggested that, during the ACRE training, JMG Specialists would have benefited from more opportunities to practice and observe different concepts; more time for in-depth questions and answers sessions; and concrete linkages between the ACRE training content, their current teaching practices, and the JMG classroom. Regarding arranging communications, some specialists expressed a lack of experience and confidence in facilitating a conversation between an employer and a student and stated that they believed that securing job accommodations for students is not part of their responsibilities.
- JMG Specialists and VR Counselors or Employment Specialists repeatedly mentioned the extensive challenges that students face with finding transportation to get to their jobs, particularly in rural areas.
- JMG Specialists noted several other challenges in delivering the JMG program to their students with disabilities. While 11% of the JMG Specialists said that their students are not interested in the curriculum, 67% of the JMG Specialists reported other challenges, including lack of student engagement, difficulty finding appropriate job opportunities and getting transportation to these activities, lack of time to provide one-on-one support, and difficulty in differentiating instruction for students with disabilities. Given that JMG classrooms include both students with and without disabilities, differentiating instruction for those with disabilities was a challenge. JMG Specialists reported offering the same caliber of support to students with and without disabilities.
- Engaging parents and managing their expectations was reported as a significant barrier to implementing Progressive Employment strategies, especially with respect to addressing parents' apprehension about their child losing their Supplemental Security Insurance (SSI) or Social Security Disability Insurance (SSDI) benefits if they were to engage in some of the WBL activities. Employment Specialists and VR Counselors reported that many clients and their parents did not find Progressive Employment strategies relevant, and they were sometimes more interested in obtaining an immediate job instead of spending time on exploring work opportunities and WBL activities. Staff turnover among Employment Specialists was also a challenge, especially in Years 2 and 3.
- The JMG leadership team noted challenges with the implementation of the combined e-JMG and Progressive Employment model. During the bimonthly interviews, JMG leadership expressed a need for more systematic communication between JMG and Progressive Employment.

Impact of COVID-19

In Years 4 and 5, JMG and Progressive Employment services were provided virtually with the onset of the COVID-19 pandemic. JMG Specialists, VR Counselors, and Employment Specialists shared their experience with the implementation of virtual services through interviews conducted by the evaluation team:

- In Year 4, with the COVID-19 pandemic, 90% of JMG Specialists reported that it was more challenging to implement the JMG program in a virtual environment. Barriers to implementation in a virtual environment included making the transition to online platforms, especially given that each district had different methods for online learning; students with disabilities being even more disconnected from the learning; and issues related to how schools will open and stay open. VR Counselors and Employment Specialists also noted that not all of their clients own the necessary electronic devices to maintain contact, and businesses did not want extra people working in their environment and making it difficult to set up work-based learning experiences. Toward the end of Year 5, however, JMG leadership expressed pride in the JMG Specialists for being able to finish the school year with good momentum and learning lessons that will be carried into the next year.
- JMG students were also asked about the impact of the COVID-19 pandemic on their participation in JMG, and most of the students (*n* = 7 out of 10) felt that the pandemic had put restrictions on typical activities, including having fewer guest speakers, and less opportunities for work-based learning activities. Five students felt that COVID-19 had no impact on their career goals, and while, overall, students felt that the JMG program was a top priority, eight students felt that the pandemic did not change their perspective of the program.
- VR Counselors and Employment Specialists reported providing fewer services in 2020, which means that their clients had fewer work experiences (e.g., job shadows and job tours). Five VR Counselors indicated that it was more difficult to provide services to their clients because they were not allowed in the schools and teachers were too overwhelmed to coordinate with them. Virtual services had other challenges according to the VR Counselors and Employment Specialists. Some felt that they were not effective overall compared with in-person services; some felt that virtual services did not work for clients with a poor internet connection or no internet connection; and others felt that virtual services were less engaging for students because they were "zoomed out" from spending so much time on computers for school.
- Virtual services also had some benefits, as four VR Counselors and three Employment Specialists felt that virtual services are more efficient for businesses, because businesses have more flexibility to do an informational interview without having to factor in a job tour,

and businesses can do multiple interviews because multiple clients can participate in one call. VR Counselors and Employment Specialists felt that virtual services were efficient for them as well; they indicated that they do not have to spend time traveling from different meeting locations and can fit more meetings into their day. In terms of providing services to their clients, four VR Counselors and two Employment Specialists expressed that a greater number of their clients can take part in more virtual interviews and meetings because the clients do not have to travel or coordinate on a location.

- Client engagement was another critical challenge during COVID-19, with some clients preferring to delay participation in the program until the pandemic is better managed. VR Counselors and Employment Specialists indicated that the participation of their clients was inhibited by their clients' concerns or their families' concerns about COVID-19. In addition, clients felt overwhelmed or unmotivated, and clients were not willing to wear personal protective equipment (PPE) such as masks.
- Business engagement also decreased during the COVID-19 public health emergency, as it was more difficult and less effective to do recruitment by phone and email rather than in person. Businesses were less receptive to offering work experiences because, according to six VR Counselors and three Employment Specialists, many were taking COVID-19 precautions, including reducing the number of people in their workplaces. Some businesses had larger concerns, including whether they would even stay open and had reduced the number of staff who were available to help clients. However, five VR Counselors and two Employment Specialists indicated that some industries were more receptive and open to working with their clients, such as grocery stores, which needed more essential workers, and outdoor businesses, such as horse ranches, which had less restrictions related to COVID-19.

D.3. Recommendations for Improvement in Project Activities

Throughout the project period, the evaluation team repeatedly engaged with implementation staff to understand the need for additional resources or support to help the implementation team to effectively implement project activities. Key findings on recommendations for improving project activities included the following:

- The first cohort of JMG Specialists who were trained on ACRE strategies reported that having more background information about the grant and planned activities prior to the training would have been useful to help them effectively learn about applying these strategies. These suggestions were considered before the remaining trainings, and subsequent cohorts of trainees (as well as observation data from the trainings) found higher levels of training quality over time.

- Given that JMG follows a specific, predetermined curriculum, JMG Specialists suggested customizing the ACRE training to the context of JMG, which intends to serve youth with all types of barriers in addition to youth with disabilities. Specifically, many JMG students are likely to be behind their grade level and they need academic and social-emotional support to stay engaged in school. Three of the 10 JMG students who were interviewed expressed the need for more in-depth information about financial management, while two other students wanted to learn more about different findings and applying for job opportunities.
- VR Counselors and Employment Specialists reported a need for online resources, further supports in the community of practice area (which was notably improved by the grant leadership), and resources to access transportation services.
- Turnover was a significant issue observed in the early years, following which project staff consistently reported the need for more Employment Specialists and job coaches/job developers. They also noted the need for additional trainings on other topics related to employment and coaching or mentoring. New VR Counselors and Employment Specialists who were expected to deliver Progressive Employment strategies also reported needing refresher trainings.
- JMG Specialists implementing the combined Progressive Employment + e-JMG model reported a need for support from VR Counselors and other school staff. They suggested using tools for disseminating information, such as a newsletter or an online repository with all the handouts from the ACRE training, which could keep them informed of project activities and of their expected role in supporting the project.
- JMG Specialists reported a need for continuous engagement with Employment Specialists, for example, through regular standing meetings, to enable an exchange of updates across the key project players.

E. Impact Evaluation Findings

E.1. Impact of Baseline JMG (Without ACRE Enhancement) on High School Exit Outcomes of Youth With Disabilities

Exhibit 10 summarizes various characteristics of JMG and non-JMG students with disabilities. As shown in Exhibit 10, in general, JMG students were more likely to be female, have an FRPL status, be enrolled in schools with lower teacher Full-Time Equivalents (FTEs), and have lower math, science, and English language arts (ELA) scores. However, as shown, JMG students were also more likely to graduate high school (85%) compared with non-JMG students (72%).

Exhibit 10. Characteristics of JMG and non-JMG Students

	Mean – JMG Students With Disabilities	Mean – Non-JMG Students With Disabilities
White Non-Hispanic (proportion)	0.92	0.92
Female (proportion)	0.46	0.35
Age	17.51	17.56
Free lunch = yes (proportion)	0.70	0.64
LEP = yes (proportion)	0.04	0.03
Total no. of students enrolled in school	677.55	794.93
School proportion of White students (proportion)	0.90	0.90
School teacher FTEs	52.59	59.95
Math proficiency score	1.36	1.52
Science proficiency score	1.40	1.60
ELA proficiency score	1.44	1.63
Received JMG in Grade 9 (proportion)	0.12	0.03
Received JMG in Grade 10 (proportion)	0.29	0.04
Received JMG in Grade 11 (proportion)	0.71	0.00
Received JMG in Grade 12 (proportion)	0.54	0.00
Graduated (proportion)	0.85	0.72
Dropped out (proportion)	0.08	0.16
No. of observations	**718**	**5,145**

Note. ELA = English language arts; FTE = full-time equivalent; LEP = limited English proficiency.

Average treatment effects estimated through Mahalanobis distance matching indicate that JMG participation in the last 2 years of high school substantially improved graduation rates for

students who have historically been at higher risk of dropping out (including students with disabilities, students receiving FRPL, and students with LEP). Specifically, for students with disabilities, we found that participating in JMG led to an increase of 11 percentage points in the likelihood of graduating and a similar decrease in the likelihood of dropping out among students with disabilities. In addition, we found larger effects for students who participated in the program in the final grade of high school, which is when students are most likely to drop out of high school without graduating. Specifically, we found that participating in JMG in the 12th grade improved the likelihood of graduating by 19 percentage points for students with disabilities. Exhibit 11 shows impact estimates with standard errors for graduating and dropping out among JMG participants in Grade 11 or 12 and in Grade 12 alone.

Exhibit 11. Impact of JMG Program on High School Exit Outcomes

	(1) Graduation		(2) Dropout	
	Grade 11 or 12	Grade 12	Grade 11 or 12	Grade 12
JMG participation	0.112***	0.194***	-0.073***	-0.122***
	(0.025)	(0.030)	(0.020)	(0.024)
No. of observations	**5,681**	**5,681**	**5,681**	**5,681**

Note. Standard errors in parentheses. Coefficients show the relationship between JMG participation and – (1) probability of graduating; and (2) probability of dropping out. *$p < .10$. **$p < .05$. ***$p < .01$.

E.2. Impact of Baseline VR Services on Labor Market Outcomes of Youth With Disabilities

Exhibit 12 summarizes characteristics of youth with disabilities with and without an IPE. In general, IPE and non-IPE youth are comparable in basic demographics and employment outcomes before VR services. Notably, IPE recipients are less likely to be on SSI, Medicaid, and Medicare than non-IPE youth. The distributions of primary disability types between the two groups are also different. It is important to note that our analysis covers multiple cohorts of VR service recipients between 2005 and 2016. Given the long period and changing service demand patterns over time, Maine DVR was not able to serve all eligible clients in every year. For example, in some years, Maine DVR implemented a waitlist where individuals who had most severe disabilities were deemed priority cases, while those with less severe barriers were added to a waitlist. Additionally, with the implementation of WIOA and Pre-ETS after 2015, Maine, like other states, purposefully increased services to youth in order to fulfil the 15% fiscal requirement. Accordingly, our analysis controls for demographic characteristics, disability types and source, and individual's pre-VR employment and earnings.

Exhibit 12. Descriptive Statistics for Individual Explanatory Variables

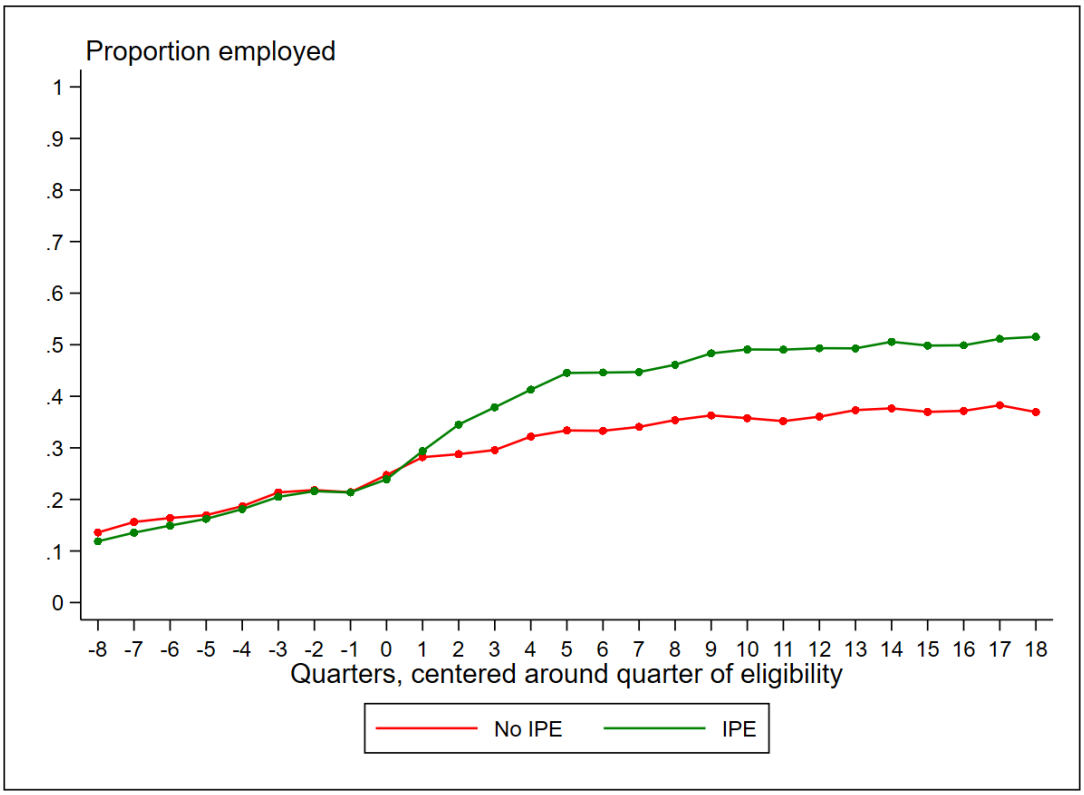
	Mean–IPE Youth	Mean–Non-IPE Youth
Basic demographics		
White (proportion)	0.965	0.951
Female (proportion)	0.368	0.376
Age at application (in years)	18.153	18.301
Less than high school at VR application (proportion)	0.772	0.776
Program participation at application		
Supplemental Security Income (proportion)	0.144	0.161
Social Security Disability Insurance (proportion)	0.080	0.086
Temporary Assistance to Needy Families (proportion)	0.018	0.024
Health insurance coverage		
Medicaid (proportion)	0.574	0.638
Medicare (proportion)	0.059	0.066
Primary disability type at application		
Visual/hearing impairments (proportion)	0.031	0.014
Communicative impairments (proportion)	0.025	0.014
Orthopedic/neurological impairments (proportion)	0.031	0.033
Other physical impairments (proportion)	0.017	0.022
Cognitive impairments (proportion)	0.613	0.568
Psychosocial impairments (proportion)	0.235	0.301
Other mental impairments (proportion)	0.047	0.048
Employment type at application		
Employed (proportion)	0.106	0.100
Student or trainee (proportion)	0.675	0.632
Unemployed or other (proportion)	0.219	0.267
No. of observations	**4,080**	**5,254**

Note. IPE = Individualized Plan for Employment; VR = vocational rehabilitation.

Exhibit 13 shows the descriptive trends in employment rates among IPE and non-IPE youth, indicating larger employment rates for youth who received VR services through an IPE, after VR eligibility. The difference in outcome after VR services is supported by formal instrumental variable regressions. Our findings suggest that, on average, having an IPE increased the average

quarterly employment rate among youth by 15.4 percentage points (a 35.4% increase from baseline) and average quarterly earnings by $1,442 (an 84.5% increase from baseline) over eight quarters after VR case closure. The impact was positive and significant in every quarter up to eight quarters after VR case closure, suggesting that the VR program led to a sustainable increase in employment and earnings. Formal estimates are shown in Exhibit 14.

Exhibit 13. Quarter-by-Quarter Change in Employment by IPE Receipt



Note. *N* = 9,334. IPE = Individualized Plan for Employment.

Exhibit 14. Impact of VR Services on Labor Market Outcomes

Variables	Eight-quarter average after VR case closure	
	(1) Employment rate	(2) Quarterly earnings
Whether IPE was implemented	0.154**	1,442***
	(0.0697)	(391.6)
No. of observations	**9,334**	**9,334**

Note. Standard errors in parentheses. IPE = Individualized Plan for Employment; VR = vocational rehabilitation. Coefficients show the relationship between IPE implementation and – (1) probability of employment; and (2) quarterly earnings. *$p < .10$. **$p < .05$. ***$p < .01$.

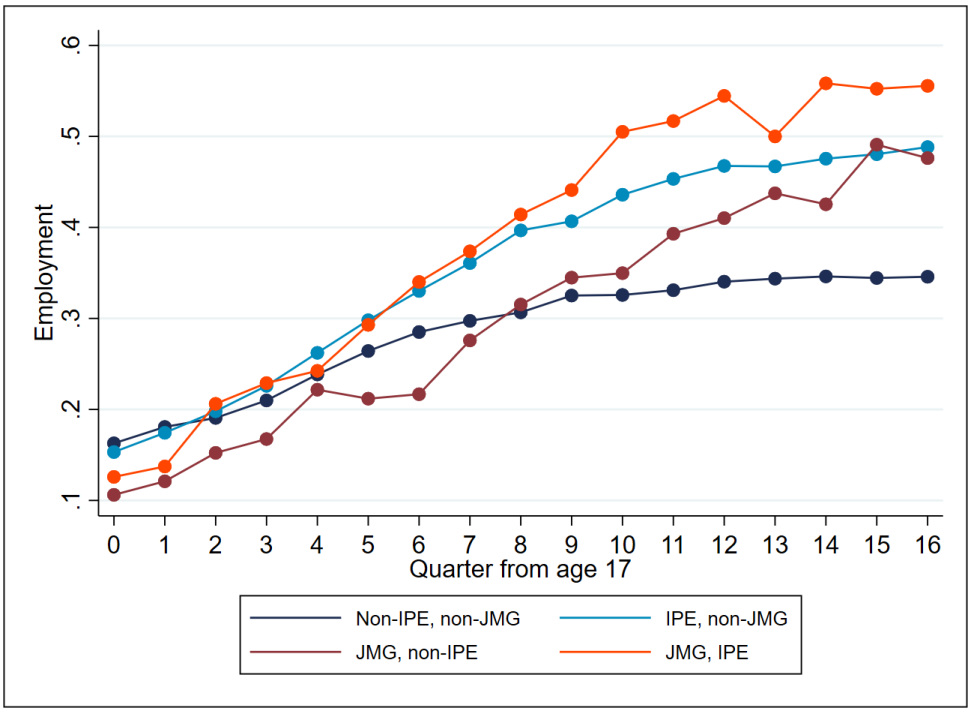
E.3. Employment Trajectories Among Baseline JMG and VR Clients After High School Exit

We found significantly higher employment and earnings growth for youth who received both JMG and VR services, and either of the two services, compared with youth who received no services. Exhibit 15 shows the employment trajectories for different subgroups of service recipients within the VR applicant pool. The descriptive findings are supported by formal regression estimates, which are shown in Exhibit 16. Our findings indicate that, compared with youth who received no services,

- Youth who received only JMG services started with lower employment rates as they transitioned into adulthood (at ages 18–19), which is likely reflective of the fact that JMG participants face more barriers to employment. However, by ages 20–21, employment rates among youth in this group were almost 7 percentage points higher than the employment rates among youth who received no services.
- Youth who received only VR services but no JMG services had employment rates that were 12 percentage points higher.
- By ages 20–21, youth who received both VR and JMG services had employment rates that were 19 percentage points higher than their counterparts who did not receive these services.

We found a similar pattern in annual earnings. Compared with youth who received no services, youth who received only JMG services started out with lower earnings but, by ages 20–21, earned $922 more; youth who received only VR services earned $964 more; and youth who received both services earned $2,451 more.

Exhibit 15. Employment Trajectories by JMG Participation Status



Note. Y-axis shows proportion of individuals who were employed. *N* = 8,619.

Exhibit 16. JMG and VR Services—Outcomes Over Time

Variables	(1) Annual employment			(2) Annual earnings		
	Ages 18–19	Ages 19–20	Ages 20–21	Ages 18–19	Ages 19–20	Ages 20–21
JMG only; no VR	-0.038*	0.016	0.067**	-181.650	-289.541	922.520*
	(0.022)	(0.028)	(0.032)	(287.672)	(422.444)	(548.343)
VR only; no JMG	0.046***	0.101***	0.123***	-78.551	372.179***	964.318***
	(0.008)	(0.009)	(0.010)	(99.248)	(139.474)	(169.348)
JMG + VR	0.053**	0.150***	0.187***	42.699	1,482.689***	2,451.353***
	(0.023)	(0.025)	(0.027)	(236.506)	(426.465)	(524.706)
No. of observations	**8,618**	**8,616**	**8,280**	**8,618**	**8,616**	**8,280**
***R*-squared**	**0.180**	**0.417**	**0.113**	**0.122**	**0.115**	**0.103**

Note. Standard errors in parentheses. VR = vocational rehabilitation. Coefficients show the change in outcomes relative to group of youth who received neither VR nor JMG services. Outcomes considered are – (1) probability of employment, and (2) annual earnings. *$p < .10$. **$p < .05$. ***$p < .01$.

E.4. Impact of e-JMG (JMG With ACRE Enhancements) on Employment and High School Exit Outcomes

ACRE-enhanced JMG had no significant impact on education and employment gaps among students with and without disabilities. Exhibit 17 shows no significant interruption in trends in outcomes after the implementation of ACRE trainings for students who received JMG in Grade 12. Note that our analysis only covers three additional cohorts of students who were in their final year of high school. Therefore, these results should be interpreted as short-term impacts only. However, the proportion of students who participated in WBL activities increased significantly post ACRE enhancement for students with and without disabilities, from an average of 33% before 2017 to 76% after 2017.

Exhibit 17. Education and Employment Outcomes of Students With and Without Disabilities After Receiving JMG

Note. HS = high school; SWD = students with disabilities; WBL = work-based learning.

Formal estimates from difference-in-differences specification support these findings and are shown in Exhibit 18. Specifically, we found that the likelihood of receiving work-related competencies increased by 34 percentage points after ACRE enhancement, with an additional 6

percentage point increase for students with disabilities. There was no significant change in any other outcomes, however, for students with or without disabilities.

Exhibit 18. Impact of e-JMG Relative to Baseline JMG

Variables	(1) Graduated with HS diploma	(2) Work-related competency	(3) Employed within a year	(4) College or vocational training
Disability barrier	0.00	-0.01	-0.09***	-0.07***
	(0.01)	(0.02)	(0.02)	(0.02)
Enrolled after ACRE enhancement	0.01	0.34***	-0.03	-0.04
	(0.01)	(0.05)	(0.03)	(0.03)
Disability barrier & Enrolled after ACRE enhancement	-0.00	0.06*	0.03	0.01
	(0.01)	(0.03)	(0.04)	(0.04)
No. of observations	**5,367**	**4,732**	**5,367**	**5,367**
***R*-squared**	**0.05**	**0.26**	**0.06**	**0.17**

Note. Standard errors in parentheses. ACRE = Association of Community Rehabilitation Educators; HS = high school. Coefficients show the relationship between independent variables and – (1) probability of graduating with high school diploma; (2) probability of receiving work-related competency; (3) probability of being employed within a year of high school graduation; and (4) probability of being enrolled in college or vocational training within a year of high school graduation. *$p < .10$. **$p < .05$. ***$p < .01$.

E.5. Impact of Progressive Employment (and Combined Progressive Employment plus e-JMG Model) on VR Services and Labor Market Outcomes

Compared with non-Progressive Employment youth, Progressive Employment youth were more likely to be enrolled in high school at the time of application, less likely to be female, more likely to have mental disabilities, and more likely to be most significantly disabled. Exhibit 19 shows differences in client background characteristics by Progressive Employment participation status. We restricted the analysis to a sample of youth ages 20 and under who had an IPE and applied for VR services in Augusta and Bangor.

Exhibit 19. Characteristics of Progressive Employment and non-Progressive Employment Youth with an IPE

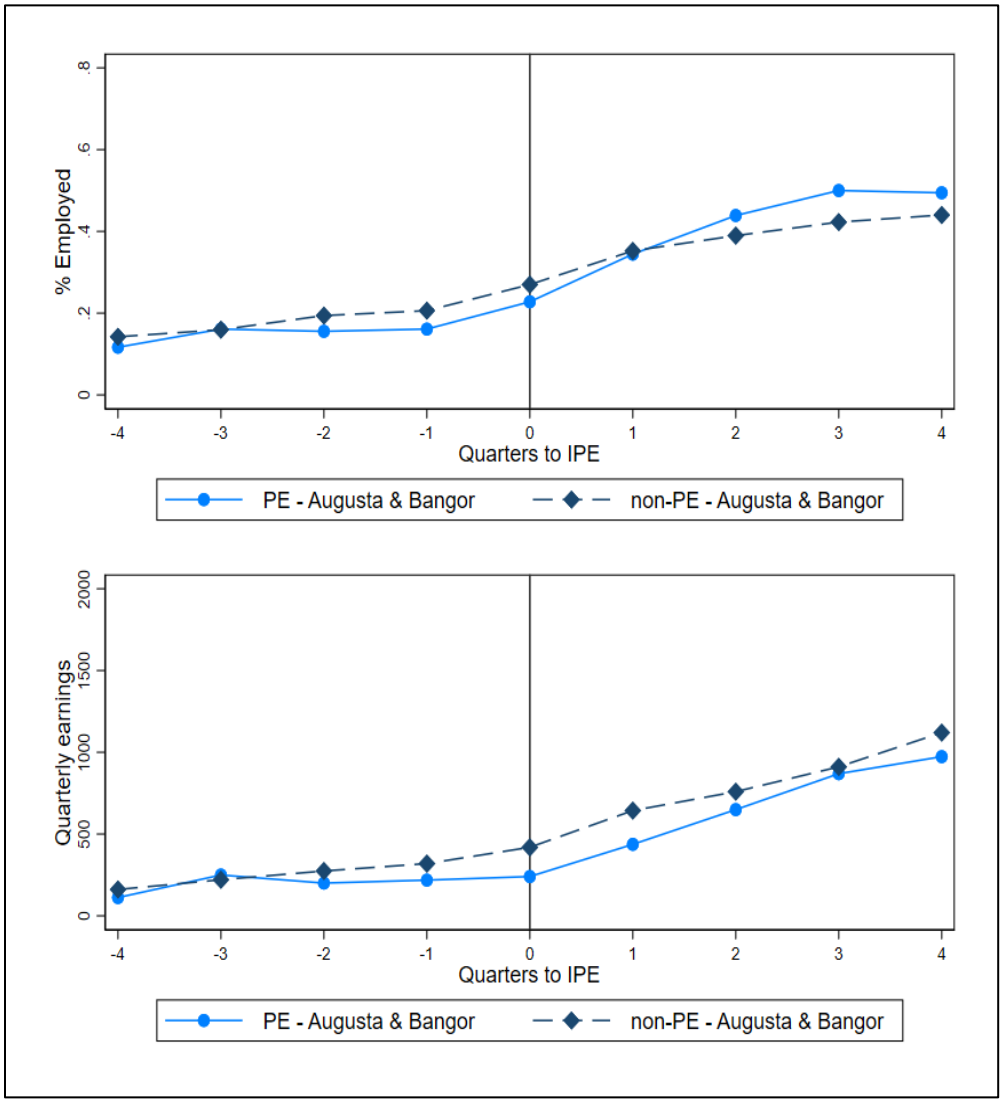
	Total sample	Progressive Employment	Non-Progressive Employment
White	96.4%	96.7%	96.3%
Female	40.0%	35.6%	41.1%
Age at application (in years)	16.98	16.77	17.03
Enrolled in high school at IPE	81.8%	95.0%	78.6%
SSI at application	11.9%	10.0%	12.4%
SSDI at application	7.4%	6.7%	7.6%
Other support at application	3.4%	1.7%	3.9%
Medicaid at application	71.1%	69.4%	71.5%
Private insurance at application	25.2%	26.7%	24.9%
Other insurance at application	0.9%	0.6%	0.9%
Sensory disabilities	8.0%	3.9%	9.0%
Physical disabilities	3.0%	2.2%	3.2%
Mental disabilities	88.9%	93.9%	87.8%
Multiple Disabilities	65.1%	67.2%	64.6%
OOS 1: Most significantly disabled	51.3%	56.7%	50.0%
OOS 2: Significantly disabled	46.6%	43.3%	47.3%
OOS 3: Disabled	2.1%	0.0%	2.7%
Primary support: Family and friends	35.5%	8.3%	42.0%
Primary support: Public support	6.4%	1.7%	7.6%
Primary support: Self	0.3%	0.0%	0.4%
Primary support: Others	57.7%	90.0%	50.0%
Augusta	57.6%	51.1%	59.2%
Bangor	42.4%	48.9%	40.8%
No. of observations	**932**	**180**	**752**

Note. IPE = Individualized Plan for Employment; OOS = order of significance; PE = Progressive Employment; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

Employment trends over time suggest that transition-age youth with Progressive Employment had slightly better employment rates after having an IPE, compared with youth without the

program (Exhibit 20). However, we found no difference in quarterly earnings for youth with and without Progressive Employment (Exhibit 20). The descriptive trends are supported by formal matching results. Average treatment effects estimated from Mahalanobis distance matching suggest that Progressive Employment increased the likelihood of being employed in the fourth quarter after IPE was implemented by 8.5 percentage points but had no significant impact on quarterly earnings (Exhibit 21).

Exhibit 20. Employment and Earnings for Transition-Age Youth With and Without Progressive Employment in Augusta and Bangor



Note. IPE = Individualized Plan for Employment; PE = Progressive Employment.

The impact of Progressive Employment on employment and quarterly earnings was much higher for Bangor clients compared to Augusta clients. Specifically, Progressive Employment

participation increased the likelihood of employment by 13.5 percentage points for transition-age youth with disabilities in Bangor, and by 2.9 percentage points in Augusta, compared with matched nonparticipants. The estimate for Augusta was not statistically significant. Similar to descriptive trends, we found no statistically significant impact on quarterly earnings in either Bangor or Augusta. Additionally, while Progressive Employment increased the likelihood of employment on average, we also found heterogeneous program effects across subgroups. The effects of Progressive Employment were more pronounced for youth who were enrolled in high school when they became eligible for VR, youth who were enrolled in SSI and SSDI, and youth who were most significantly disabled.

Exhibit 21. Impact of Progressive Employment Compared With Basic VR Services

	(1) Employed at Q4			(2) Earnings at Q4		
	Both sites	Bangor	Augusta	Both sites	Bangor	Augusta
Progressive Employment participation	0.085*	0.135**	0.029	101.372	129.810	74.293
	(0.049)	(0.066)	(0.070)	(200.971)	(188.998)	(307.156)
No. of observations	932	395	537	932	395	537

Note. Standard errors in parentheses. Coefficients show the relationship between participation in Progressive Employment and – (1) probability of being employed fourth quarter after IPE; and (2) quarterly earnings amount fourth quarter after IPE. *$p < .10$. **$p < .05$. ***$p < .01$.

In addition to Progressive Employment's impact on labor market outcomes, we estimated the program's impact on the number of services purchased for the VR client, by service type. Note that this excludes services provided in house, as we were unable to observe the number of such services in the RSA-911 data. Additionally, the data on purchased services were more reliable because the Maine DVR keeps a record of the service date and voucher number for each payment. Our findings suggest that Progressive Employment participants received, on average, 5.3 more career services compared with non-Progressive Employment clients with an IPE. Career services include job placement assistance, job search assistance, and on-the-job supports. Exhibit 22 shows the average effects of Progressive Employment participation on the number of purchased services, by service type.

Exhibit 22. Impact of Progressive Employment on Number of Purchased Services

Variables	(1) Assessment & Diagnostics	(2) Academic training	(3) Vocational training	(4) Career services
Progressive Employment	-0.117	-0.183	-0.112	5.355***
	(0.295)	(0.139)	(0.071)	(1.791)
No. of observations	**932**	**932**	**932**	**932**

Note. Standard errors in parentheses. Coefficients show the relationship between participation in Progressive Employment and receiving – (1) assessment and diagnostics services purchased by Maine DVR; (2) academic training services purchased by Maine DVR; (3) vocational training services purchased by Maine DVR; and (4) career services purchased by Maine DVR. *$p < .10$. **$p < .05$. ***$p < .01$.

The higher impacts of Progressive Employment in Bangor may be attributed to two factors. First, the results may be indicative of higher impacts from the implementation of the combined e-JMG and Progressive Employment program in Bangor. Second, the results may suggest that the Progressive Employment model was implemented with higher quality in Bangor compared with Augusta. To test the first hypothesis, we estimated the additional impact of JMG participation among clients who received Progressive Employment. Forty-three percent of Progressive Employment clients in Bangor and 17% of Progressive Employment clients in Augusta were also enrolled in e-JMG. However, we found that, although JMG participation had a positive impact on employment outcomes on average, there was no significant additional impact on employment or earnings among Progressive Employment clients specifically. Estimates shown in Exhibit 23 suggest that participation in JMG under TWBL improved employment likelihood by 15 percentage points for all VR youth in the sample, but had no significant impact was seen among youth who received Progressive Employment. Similar to Progressive Employment results, we found no impact of JMG on individual earnings.

Three caveats should be noted when interpreting these results: (1) These results measure outcomes in the short-term only, namely, in the fourth quarter after IPE was implemented. (2) The comparison group received traditional VR services through an IPE. (3) The sample size was very small, especially for the JMG analysis, suggesting that the analysis may be underpowered to detect small effects.

Exhibit 23. Additional Impact of e-JMG Under TWBL

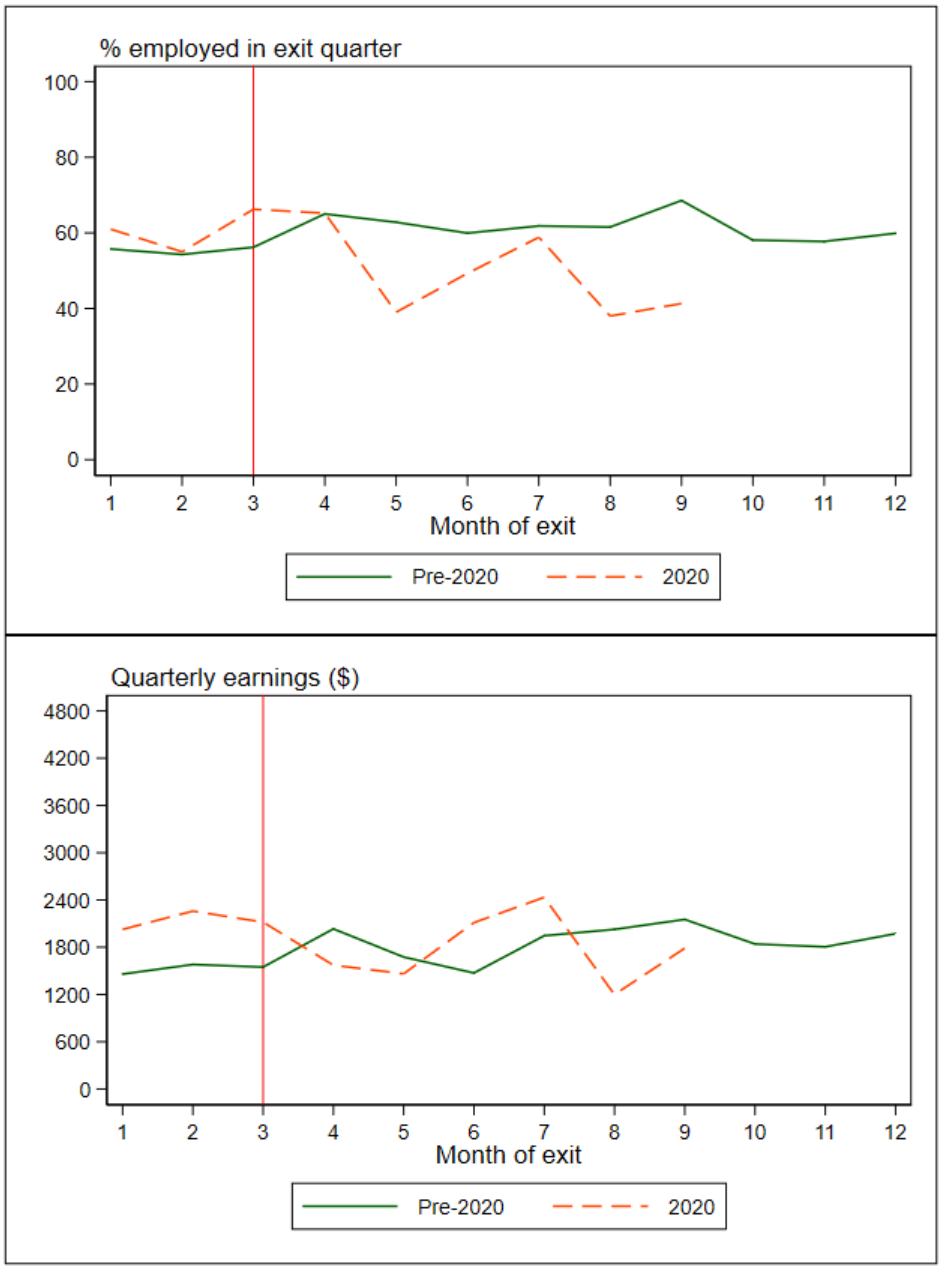
Variables	(1) Employed at Q4		(2) Earnings at Q4	
	All sample	Progressive Employment clients	All sample	Progressive Employment clients
e-JMG participation	0.147**	0.001	214.195	-135.240
	(0.057)	(0.091)	(242.817)	(262.785)
No. of observations	**932**	**180**	**932**	**180**

Note. Standard errors in parentheses. Coefficients show the relationship between JMG participation – (1) probability of being employed fourth quarter after IPE; and (2) quarterly earnings amount fourth quarter after IPE. *$p < .10$. **$p < .05$. ***$p < .01$.

E.6. Impact of COVID-19 on VR Case Outcomes

We found that VR youth (younger than age 30) who exited the system between March 2020 and September 2020 had significantly lower employment rates at exit compared with youth who exited the system during the same months in previous years. Exhibit 24 shows pre-COVID-19 trends in exit outcomes for the months of interest. The exhibit compares monthly trends for cases closed in 2014–2019 (pre-2020 cohorts) and cases closed in 2020 (2020 cohort). The rate of employment in the quarter of VR exit for the pre-2020 cohort was relatively stable over the 12-month period at slightly over 60%. While the 2020 exit cohort had slightly higher employment rates at exit in the first 3 months, we see a sharp decline from April onwards, reaching as low as 40% by September 2020. Although the trends in quarterly earnings were relatively similar, we do see a slight increase in earnings for youth who exited in June and July of 2020, before falling steeply for those who exited in August and September of 2020.

Exhibit 24. Employment and Earnings of Youth With Disabilities at VR Exit by Month-Year



Our formal estimates suggest that employment rates were relatively stable at VR exit for the 2014–2019 exit cohorts, however, employment rates were significantly lower for the 2020 exit cohort. As shown in Exhibit 25, compared with 2019, we do not find any significant deviation in employment trends in the prior years. However, the 2020 exit cohort was 12 percentage points less likely to be employed in the quarter of VR exit ($p < 0.01$). The employment change translates to a 20% fall in the likelihood of employment at VR exit. The pre-2020 trends in quarterly earnings are relatively less stable, with earnings for pre-2019 cohorts not being significantly different from those of the 2019 cohort. Although estimates show that the 2020

exit cohort that was exposed to the COVID-19 pandemic shock had $382 lower quarterly earnings compared with the 2019 exit cohort—the lowest since 2014—the difference is not statistically significant at conventional levels of significance. Note that earnings analysis incorporates earnings for both the employed and unemployed (zero earnings).

Exhibit 25. Regression Coefficients—Labor Market Outcomes at VR Exit

Variables	(1) Employment status at quarter of VR closure	(2) Quarterly earnings at quarter of VR closure
2015 March–September	-0.04	126.07
	(0.05)	(312.06)
2016 March–September	-0.01	105.71
	(0.04)	(205.43)
2017 March–September	0.01	184.97
	(0.04)	(213.62)
2018 March–September	0.04	421.82*
	(0.04)	(229.48)
2020 March–September	-0.12***	-387.10
	(0.05)	(267.00)
No. of observations	**4,929**	**4,929**
***R*-squared**	**0.05**	**0.11**

Note. Standard errors in parentheses. VR = vocational rehabilitation. Coefficients show the change in outcomes relative to cohort of VR clients who exited in 2019 March–September. Outcomes considered are – (1) probability of being employed in the quarter of VR exit; and (2) quarterly earnings amount in the quarter of VR exit. *p < .10. **p < .05. ***p < .01.

F. Evaluation Conclusions

F.1. Key Findings

Findings from the implementation and impact evaluations suggest that the TWBL grant was successful in improving access to WBL services for youth with disabilities across the two sites, and in improving employment outcomes in Bangor in particular. High implementation fidelity and regular engagement across project partners likely led to these successful project outcomes. Although project implementation relied on a complex interplay between different strategies and programs, we identified the following key findings, which are triangulated from the implementation and impact evaluations:

- **JMG participation improved high school graduation outcomes—**Our findings show that participation in the JMG program leads to significant improvements in high school graduation outcomes for students with disabilities. Thus, expanding the program to schools that were new to the program was beneficial because the program is effective. Although we were unable to identify the impact of JMG on employment outcomes, a comparison of employment trends after high school among VR applicants suggests that VR applicants who received JMG in high school had significantly higher levels of, and higher growth in, quarterly employment rates and earnings by age 21 compared with VR applicants who did not receive JMG.
- **No additional improvement to outcomes from e-JMG were seen, but e-JMG did lead to greater inclusion of students with disabilities—**Although we found that the baseline JMG program had a positive impact on outcomes, we did not find that the ACRE-enhanced JMG program had any additional benefits. Findings from the implementation evaluation suggest that JMG Specialists did not significantly alter their practices after receiving ACRE trainings. Most specialists reported practicing vocational themes and employer information interviews, but these strategies were not new to them and seemed to overlap with the JMG curriculum that they had already been practicing. We did find, however, that implementation of e-JMG increased the representation of students with disabilities among JMG-served students.
- **Improved outcomes through Progressive Employment implementation—**Our findings suggest that Maine DVR services had a large and significant impact on employment outcomes among youth with disabilities even prior to the implementation of this grant. Additionally, compared with those who received these baseline services, we found that Progressive Employment increased youth with disabilities' access to career services and improved their employment outcomes within four quarters of VR service start, but it had no significant effects on client earnings during this period. However, these findings were concentrated in Bangor; we did not find Progressive Employment to have a significant

impact on employment outcomes in Augusta, despite Augusta clients having participated in more WBL activities. Findings from the implementation evaluation suggest that Employment Specialists and VR Counselors in Augusta consistently reported lower ratings on perceived usefulness and quality of Jobsville meetings, which was the key forum for collaboration across Employment Specialists and VR Counselors. It was also noted early on in Year 2 that, although Employment Specialists in Augusta were open to collaborating with each other, the collaboration process and information exchange was slower compared with Bangor. The Employment Specialists in Augusta were operating from a "culture of independence," whereas in Bangor, the Employment Specialists had stronger partnerships and a sense of collaboration.

- **No additional benefits from e-JMG were observed for Progressive Employment clients—** Our findings suggest that receiving the e-JMG program did not lead to additional employment benefits for Progressive Employment clients, although e-JMG did improve employment outcomes for clients who received traditional VR services. Together with other findings, our evaluation suggests that the higher benefits observed in Bangor were likely due to higher implementation quality rather than the implementation of the combined Progressive Employment plus e-JMG model.

F.2. Limitations

Our evaluation has three main limitations. First, the impact evaluation used a quasi-experimental design, such that program participants were compared to observationally similar non- participants. Given that participation in transition services was not randomized, there is a risk of selection-bias. Our analysis attempted to minimize this risk by using rigorous quasi-experimental designs without having to control for the process used to implement services. All methods used in this evaluation relied on assumptions about the validity of the study design, such as the covariates used in matching, or the validity of the instrumental variable. The evaluation team conducted several diagnostics and placebo tests to ensure the robustness of the results presented in this report, as shown in the Appendix.

The second limitation of the impact evaluation relates to the infeasibility of studying long-term outcomes at the time of our analyses. Some of the services were only fully implemented recently, and not much time has elapsed to measure the longer term effects on postsecondary education or employment outcomes. For example, the ACRE training for the e-JMG curriculum took place in 2017 or 2018, allowing a maximum of 3 years of data from the first cohort and far less data from more recent cohorts. Similarly, Progressive Employment started in 2016 in Augusta and Bangor with a small sample. Among 180 youth who received Progressive Employment and formed the treatment sample for our analysis, 41% still had an open VR case at the end of December 2020. Given the positive effects of VR services on outcomes after VR

exit, including open VR cases in the analysis might have underestimated some of the labor market impacts.

Third, we were unable to access reliable employment data for students enrolled in high school because the Maine Department of Education data did not record SSNs. Because of this lack of SSN information on students' education records, we were unable to match Maine Department of Education data with labor market outcomes data from the Maine Department of Labor's unemployment insurance files. This precluded us from conducting a robust analysis of JMG's impact on employment outcomes. To navigate this challenge, we linked JMG records with VR records and analyzed different employment trends for VR applicants who did and did not receive JMG.

Finally, the COVID-19 pandemic created major challenges in the implementation of planned data collection activities in 2020, including Jobsville and JMG classroom observations by the evaluation team. Additionally, the Progressive Employment refresher training was held virtually rather than in person. While the evaluation team conducted key informant interviews in Year 4 and Year 5 over the phone, the pandemic impacted the types of questions asked and the responses given by all who were interviewed including the JMG students, VR Counselors, Employment Specialists, JMG leadership, and the grant leadership.

F.3. Policy Implications

The RSA-funded Maine TWBL project created a package of WBL services for transition-age youth with disabilities to improve their labor market outcomes. Over the last 5 years, the Maine DVR has worked closely with its partners to expand and enhance services provided through two interventions: JMG and Progressive Employment, as well as their combined strategies. These programs were based on best practices for offering transition services to youth with disabilities, emphasizing cross-agency collaboration, service coordination, engagement with employers, and connecting youth to employment experiences that matched their interests and capacities. Our findings from the evaluation point to some key implications for policies and programs focusing on youth with disabilities.

Cross-agency infrastructure and collaboration. During the first year of implementation, the Maine DVR and its partners devoted resources and time to enhance the cross-agency infrastructure, including engaging the Maine Departments of Education and Labor as well as local education agencies. This facilitated the timely exchange of information, including data on education and labor market outcomes,

Coordination across service providers. Encouraging and ensuring effective coordination and collaboration across service providers, including VR counselors and Employment Specialists, can lead to improved outcomes for youth with disabilities. Our evaluation suggests that

uninterrupted information sharing across these key players plays a critical role in identifying opportunities that meet students where they are and are thus aligned with their individualized interests and goals.

Continuous Training and Technical Assistance. High-quality trainings and refreshers offered on a regular basis are needed to ensure fidelity and consistency in service provision. Future demonstrations must also plan for service provider turnover, include regular refresher trainings, and provide repositories with tools and resources to bring new staff on board without having to wait for the setup of additional trainings. VR Counselors and Employment Specialists under TWBL noted the benefits of receiving continuous trainings or technical assistance, especially on employer engagement and strategies to engage youth with disabilities.

Employer engagement strategies. Our evaluation indicates that improved employer engagement could be a positive factor that corelates with improved employment outcomes for students with disabilities. VR counselors and Employment Specialists reported that employers generally have reservations about hiring persons with disabilities, but Progressive Employment provided a wide range of work experiences and accompanying resources, which offered more flexibility for employers.

Building upon existing interventions. Prior to the grant, JMG had been successfully used in Maine for decades. The program has a wide variety of affiliated schools, well-trained specialists, and stakeholders who are willing to participate in and support the expansion of the intervention. Our evaluation findings suggest that when working with existing programs, any proposed enhancements should consider the baseline curriculum and proactively identify ways to align the enhancements with the existing program framework.

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Appendices

Appendix A.1. Data Sources for Impact Evaluation

Case Service Report—RSA 911 Data. The RSA-911 database contains (1) participants' demographic information, disability type, employment and education levels, status of public benefit receipt, and other socioeconomic barriers at the start and end of VR services; (2) information on services provided to individuals with disabilities through the project, including, but not limited to, types of service, duration of program participation, and/or location of service; (3) enrollment in training for and attainment of job-related credentials; (4) employment-related outcomes, including, but not limited to employment status, average hours worked per week, and quarterly earnings at the start and end of VR services and updated through the fourth quarter after VR exit; and (5) receipt of public benefits and source of benefits (including employer-provided benefit status) at case start and case closure. The evaluation team accessed the RSA-911 data on VR applicants who received services from the Maine DVR between January 01, 2005, and December 31, 2020. The Maine DVR included an identifier for clients who were TWBL recipients, including separate markers for Progressive Employment clients, and Progressive Employment plus e-JMG clients.

JMG administrative data. The evaluation team was granted full access to the JMG database, which included information about JMG student demographics, JMG barriers, and competencies (as reported by the JMG Specialists), and information about further education and employment from follow-up meetings with the JMG Specialist. The evaluation team collected data on all JMG students who were enrolled in the program between the 2010–2011 school year and the 2019–2020 school year.

Education records from the Maine DOE. The evaluation team obtained student administrative data from the Maine DOE for the 2004–2005 and 2014–2015 school years. These data included detailed demographic and socioeconomic indicators; disability status; 11th-grade mathematics, science, and ELA scores; and graduation and dropout indicators for students enrolled in Grades 9–12.

Wage and employment records from the Maine DOL. The evaluation team accessed unemployment insurance data from the Maine DOL for individuals under age 30 years who were eligible for VR services between January 1, 2005, and January 14, 2021. These data included information about quarterly employment and earnings from eight quarters prior to VR eligibility through eight quarters after eligibility as well as up to eight quarters after VR case

closure. These data allowed the evaluation team to examine labor market effects over time up to 2 years from key VR milestones.

Appendix A.2. Impact of Baseline JMG (Without ACRE Enhancement) on High School Exit Outcomes of Youth With Disabilities

To ensure that the treatment and comparison groups were similar at the beginning of the program and that the changes observed at the end of the program were the result of program participation, we created a comparison group using a matching approach. Matching allows for the identification of comparison students who are observationally similar; to do so, information present in the data is used to find student pairs who are identical except for the fact that one student participated in the program and the other did not.

To create a comparison group of students who did not participate in JMG but who attended schools equivalent to students who participated in JMG and had similar characteristics to JMG participants, we used the Mahalanobis distance matching (MDM) method. The MDM metric is a measure of distance on covariates X between two units (i and j), computed as follows:

$$M(X_i, X_j) = \sqrt{(X_i - X_j)' S^{-1} (X_i - X_j)} \quad (1)$$

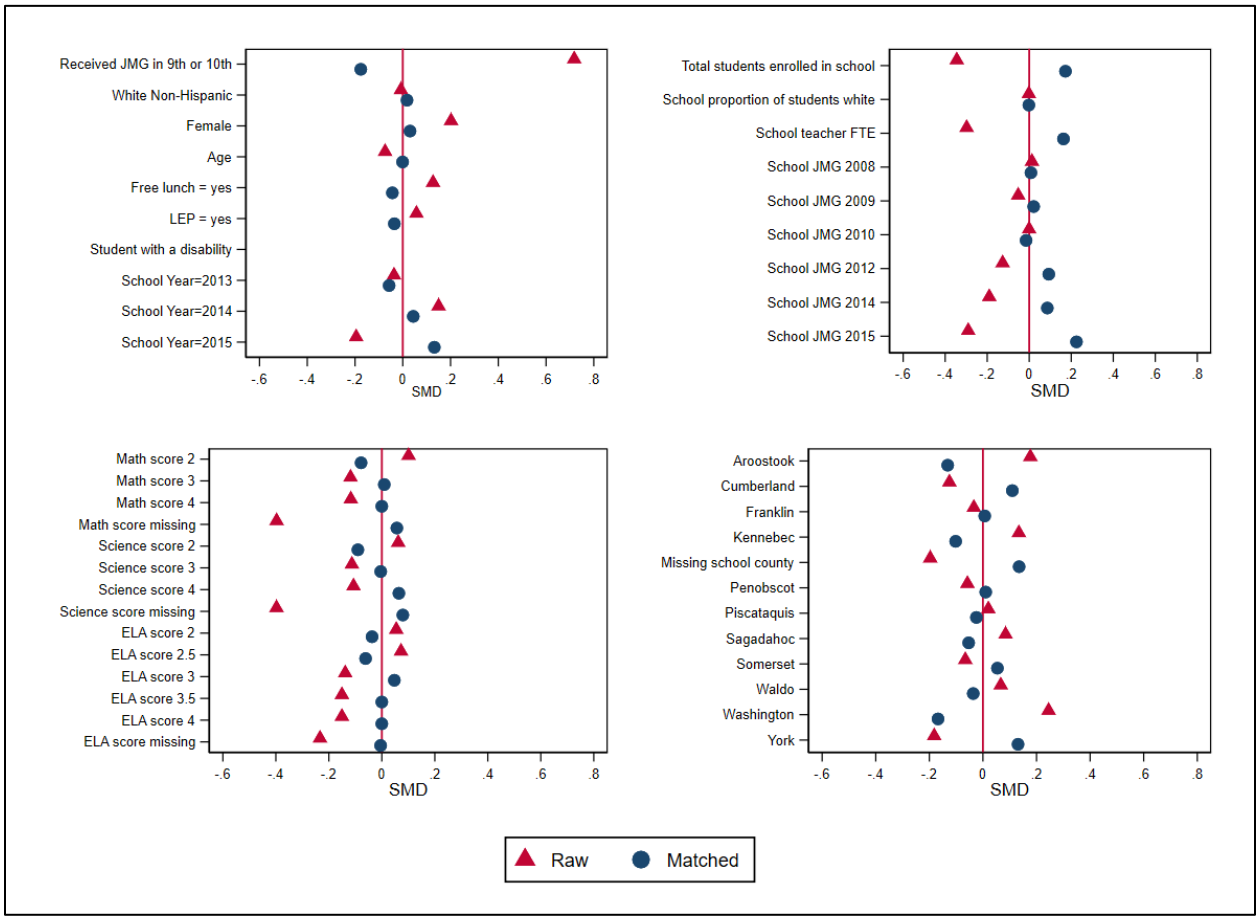
where S is the sample covariance matrix of X. Once the distance metric is computed, the comparison group is selected based on how close potential matches should be. We compared the performance of the commonly used propensity score matching with MDM and found that MDM performed better in terms of reduced standardized mean differences (SMDs) after matching. We tested two matching procedures as measures of closeness: nearest-neighbor matching, which selects a match based on the closest distance, and kernel matching, in which observations are weighted, such that multiple units in the control group are matched to a treated unit, with weights defined by their distance from the treated unit. We compared the standardized means and variances for each covariate for the matched and unmatched samples between the two matching procedures (Caliendo & Kopeinig, 2008) and found that Mahalanobis Distance nearest-neighbor matching produced the lowest standardized bias after matching, with variance ratios closer to 1. Matching diagnostics on standardized mean differences are presented in Exhibit A1.

To determine which variable to match students on, we first ran regressions predicting student enrollment in JMG based on several student- and school-level variables to identify variables that significantly predicted treatment. We then used these variables as covariates in the vector $\boldsymbol{X}$ in Equation 2. Covariates identified as significantly predictive of treatment included student race, gender, age, FRPL status, and LEP status, disability status, as well as the racial composition of the school, the total number of students in the school, total number of teacher FTEs,

students' Grade 11 assessment scores, students' school county, and the timing of the school's JMG implementation.

Matching addresses selection bias only on observable characteristics. If unobserved differences are correlated with JMG participation and student schooling outcomes, the matching estimator will be biased. Given the characteristics of the JMG program, unobserved differences do not pose a serious threat to the validity of our estimates, as long as we control for the criteria used for JMG selection. Specifically, within schools that offer JMG, students cannot self-select into the program unless a JMG Specialist identifies the student as facing multiple barriers to high school completion. These barriers mostly indicate the student's socioeconomic, environmental, physical, or academic-related challenges. Because information on JMG-identified barriers is available only for treatment students (i.e., JMG recipients), we must select a matched comparison group using indicators that serve as the best available proxies for similar barriers for non-JMG students. This approach ensures that the matching exercise produces the most reliable estimates of the effects of the JMG program. The control variables described earlier include information that can serve as indicators of student barriers. Specifically, a socioeconomic barrier is captured by FRPL status, an environmental barrier is captured by LEP status, a physical barrier is captured by a student's Individualized Education Program or Section 504 status, and an academic barrier is controlled for using a student's 11th-grade assessment scores. Further, because treatment or control students may have received JMG in earlier grades, we controlled for previous JMG receipt in all matching models and performed a robustness check by restricting the sample to students who did not receive the JMG program in previous grades.

Exhibit A1. Standardized Mean Differences: Students With Disabilities; Treatment Received in Grade 11 or Grade 12



Appendix A.3. Impact of Baseline VR Services on Labor Market Outcomes of Youth With Disabilities

To estimate the impact of VR services on labor market outcomes for VR-eligible transition-age youth, we begin with a labor supply model according to the following form:

$$y_i = \boldsymbol{X}_i\boldsymbol{\beta} + \gamma IPE_i + \nu_i \qquad (2)$$

where y_i is the labor market outcome of applicant i; the vector $\boldsymbol{X}_i$ denotes individual-level observable factors that affect labor market outcomes, such as demographic and socioeconomic factors, educational attainment, health insurance and public benefits, disability type and severity, and pre-VR employment and earnings; IPE_i is a binary variable indicating whether an IPE was implemented for applicant i; and ν_i is an error term. Our primary measures of y_i include average quarterly rate of employment and average quarterly earnings, both during VR service and after VR case closure.

Although VR agencies categorize clients by disability severity (e.g., disabled, significantly disabled, and most significantly disabled), and although we could control for clients with multiple disabilities, these variables may imperfectly reflect underlying disability severity. Moreover, no information allows us to directly control for heterogeneity in individuals' motivation or ability to achieve better labor market outcomes. To reflect these unobserved components in our model, we consider the following specification:

$$y_i = \boldsymbol{X}_i\boldsymbol{\beta} + \gamma IPE_i + s_i + u_i + \epsilon_i \quad (3)$$

where s_i denotes the effect of the severity of disability on labor market outcomes; u_i denotes the effect of unobserved motivation on labor market outcomes; and ϵ_i is the true idiosyncratic error term uncorrelated with the IPE award, s_i and u_i.

We used two approaches in our estimation procedure to deal with the omitted variable bias problem. First, we controlled for pretreatment labor market outcomes in $\boldsymbol{X}_i$, together with a comprehensive set of controls for each applicant at the time of VR service application, including demographics (gender, race, veteran status, and age); participation in welfare programs (SSI, SSDI, Temporary Assistance to Needy Families [TANF], state or local programs, or other); source of health insurance coverage (Medicaid, Medicare, public, or private insurance); primary source of support (family and friends, public, self, or other); and whether the applicant had previously applied for VR services. In addition to individual-level characteristics, we controlled for the application year, quarter, and county fixed effects to account for time- and place-specific factors that may affect both IPE receipt and employment outcomes among VR youth. To the extent that a pre-program dip in labor market outcomes could be a concern, we controlled for both (1) pre-program labor market outcomes for eight quarters and (2) employment status and earnings at VR application in our main specifications. If unobserved factors that affect both labor market outcomes and program participation are time invariant, these pre-treatment controls would adequately address the endogeneity of program participation (Andersson et al., 2016; Heckman et al., 1999; Imbens & Wooldridge, 2009; Meyer, 1995).

Second, we exploited the variation in VR Counselors' propensity to develop IPEs for VR clients and constructed annual measures of counselor-specific propensity as an instrument for IPE receipt. The likelihood of IPE development for a VR-eligible client depends on the VR Counselor's perception of the severity of an individual's disability, and their assessment of whether an IPE would likely benefit the client. Upon determination of eligibility, VR Counselors prioritize IPE development for clients whom they deem severely disabled and who they believe will benefit the most from VR services (in line with federal law, where VR agencies prioritize those who have the most significant needs, and cannot develop an IPE for clients on waitlist). Individuals with serious limitations in multiple functional capacity areas that limit their

employment prospects have the highest priority. Individuals with lower priority order may not receive an IPE immediately and may either wait until an IPE is developed or drop out of the VR system without receiving systematic VR services. In our sample, more than 90% of the VR-eligible transition-age youth who did not receive an IPE closed their cases because they refused services or no longer responded to VR Counselors' inquiries. We expect exogenous variation in VR Counselors' propensity to assign IPEs in a given year, primarily because the counselor-specific rate of IPEs is not correlated with client-specific unobserved employment propensity. Case assignment to VR Counselors is determined by their existing caseload, office assignment, and other client-level factors, including a client's age and disability-related information. Crucial to our identification strategy, once a client's age and disability-related information are controlled for, case assignment does not depend on the client's unobserved ability, skills, or underlying motivation.

By using the VR Counselors' annual propensity for IPE development as an instrument for IPE receipt, we extract the variation arising from the counselor-specific prioritization of IPEs to individuals whom they consider more severely disabled or who would benefit the most from VR services. For each applicant i assigned to counselor j in calendar year t, we compute the propensity that counselor j develops an IPE for an eligible applicant in year t except for applicant i:

$$Propensity_{ijt} = \frac{n_{IPE_{jt}} - 1(IPE_{it} = 1)}{n_{total_{jt}} - 1} \quad (4)$$

Three identifying assumptions are needed to interpret the instrumental variable estimates as the causal effects of the VR program. First, the assignment of applicants to VR Counselors must be exogenous conditional on observables. To verify the conditional exogenous assignment of VR Counselors, we reached out to the Maine DVR staff. They suggested that the initial assignment to VR Counselors is determined mostly based on the client's age group (youth versus adult), and the client's disability-related characteristics, which we control for in our regression specification. In short, the assignment of a VR Counselor to an applicant is random, conditional on age and disability-related characteristics. To further alleviate any concern of potential instrument endogeneity, in all specifications, we included application year- and quarter-specific fixed effects to capture common annual or seasonal shocks to counselors' IPE award decisions, such as federal or state legislation that may affect overall IPE designation chances and seasonal budgetary concerns. We also included county-specific fixed effects in our model to control for other differences across local VR offices. In addition, we follow guidance from Bhuller and colleagues (2020) to test for random assignment, conditional on age and disability-related characteristics, by examining what individual observables could predict our measure of counselor propensity to assign IPEs. Because Maine DVR staff told us that

counselors may specialize based on age and disability-related characteristics, we expect the age and disability-related variables to have strong predictive power of counselor propensity, but not other individual controls, such as demographics and past work history. Results from Exhibit A2 show that age and disability-related variables are indeed the strongest predictors of counselor propensity. Out of the 27 non-age- and non-disability-related variables, only one other variable (Medicare recipient at VR application) is a statistically significant predictor of counselor propensity ($p < 0.05$), and two other variables (indicator of public support as primary source of support and repeater status) are marginally significant predictors of counselor propensity ($p < 0.1$). These results provide evidence of the random assignment of VR Counselors, conditional on age and disability-related characteristics.

Exhibit A2. Testing for Conditional Random Assignment of Counselors to VR Clients

	(1)	(2)
	IPE implemented	Counselor propensity
Non-age and non-disability-related variables		
White	0.0709***	0.990
	(0.0250)	(0.684)
Female	-0.00829	0.373
	(0.0108)	(0.277)
Veteran	-0.126*	-2.723
	(0.0762)	(1.910)
Education level: missing	0.535***	1.236
	(0.0890)	(3.619)
Education level: less than high school	-0.239***	-4.053
	(0.0741)	(2.620)
Education level: high school graduate	-0.137*	-3.267
	(0.0722)	(2.548)
Education level: some college	-0.0922	-3.265
	(0.0752)	(2.667)
Student has IEP	0.191***	0.440
	(0.0216)	(0.889)
Student qualified for Section 504	0.0705	2.195
	(0.0851)	(2.765)
Employment status at application: student	0.0527	1.098

	(1)	(2)
	IPE implemented	Counselor propensity
	(0.0330)	(0.965)
Employment status at application: unemployed	-0.00437	-0.0740
	(0.0347)	(1.017)
SSI recipient at application	-0.0121	-0.502
	(0.0220)	(0.591)
SSDI recipient at application	-0.00347	0.0249
	(0.0222)	(0.618)
TANF recipient at application	-0.00818	1.179
	(0.0362)	(0.997)
General state or local assistance at application	0.00764	-0.287
	(0.0499)	(1.512)
Other public support at application	0.00108	-0.360
	(0.0321)	(0.872)
Primary support at application: public	-0.0472**	-1.041*
	(0.0213)	(0.620)
Primary support at application: self	-0.106**	-1.942
	(0.0413)	(1.291)
Primary support at application: other	-0.104***	-1.069
	(0.0258)	(0.858)
Weekly earnings at application (in 2018 dollars)	0.000561**	0.0126
	(0.000265)	(0.00817)
Weekly hours worked at application	-0.00225	-0.0808
	(0.00271)	(0.0839)
Medicaid recipient at application	-0.00561	-0.663
	(0.0156)	(0.494)
Medicare recipient at application	0.00919	-2.256**
	(0.0232)	(1.016)
Other public health insurance at application	0.0585	-0.329
	(0.0581)	(1.249)
Private health insurance at application	0.0571***	0.195
	(0.0161)	(0.490)

	(1)	(2)
	IPE implemented	Counselor propensity
Repeater	0.0794***	0.854*
	(0.0159)	(0.447)
Average quarterly employment rate over eight quarters before VR eligibility determination	0.0480*	0.637
	(0.0265)	(0.728)
Average quarterly earnings over eight quarters before VR eligibility determination (in 2018 dollars)	-8.55e-06	-0.000119
	(7.18e-06)	(0.000190)
Age and disability related variables		
Age at application = 15	-0.139	-6.376**
	(0.0921)	(2.527)
Age at application = 16	-0.112	-7.313***
	(0.102)	(2.643)
Age at application = 17	-0.154	-8.257***
	(0.103)	(2.619)
Age at application = 18	-0.227**	-8.598***
	(0.102)	(2.659)
Age at application = 19	-0.268***	-9.356***
	(0.103)	(2.692)
Age at application = 20	-0.178*	-8.850***
	(0.106)	(2.668)
Age at application = 21	-0.169	-8.651***
	(0.107)	(2.684)
Age at application = 22	-0.171	-7.019***
	(0.108)	(2.696)
Age at application = 23	-0.165	-9.329***
	(0.107)	(2.714)
Age at application = 24	-0.119	-9.052***
	(0.106)	(2.737)
Multiple disabilities	-0.00611	-1.023**
	(0.0111)	(0.422)

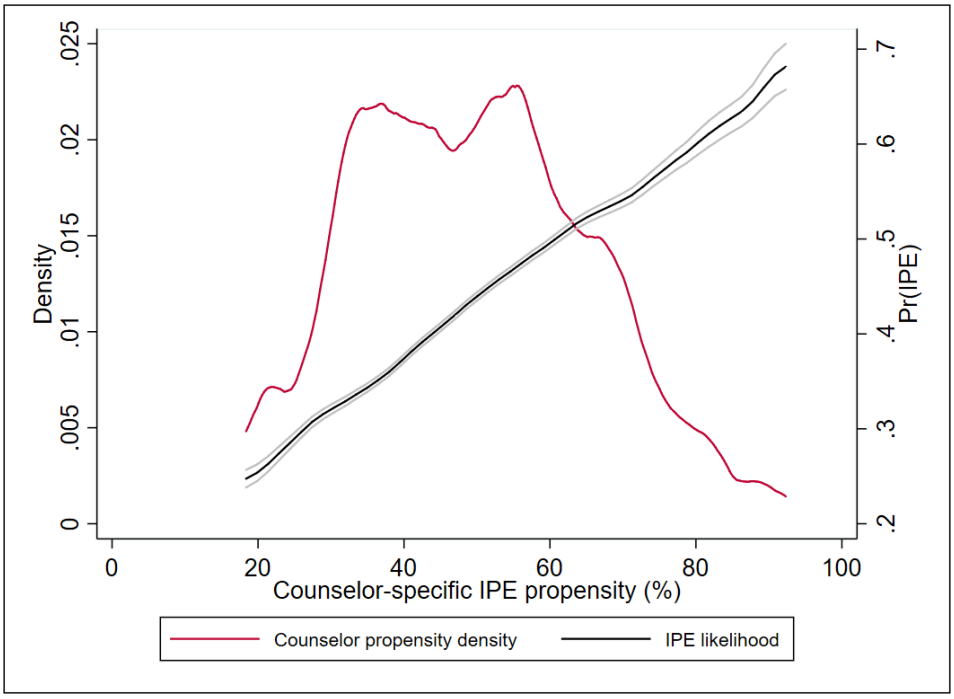
	(1)	(2)
	IPE implemented	Counselor propensity
Order of significance: significantly disabled	-0.0679***	-3.716***
	(0.0164)	(0.715)
Order of significance: most significantly disabled	-0.103***	-3.020**
	(0.0363)	(1.525)
Disability type: communicative impairments	-0.0735	-11.14***
	(0.0518)	(2.517)
Disability type: orthopedic/neurological impairments	-0.161***	-11.05***
	(0.0496)	(2.602)
Disability type: other physical impairments	-0.186***	-9.678***
	(0.0553)	(2.618)
Disability type: cognitive impairments	-0.143***	-10.59***
	(0.0417)	(2.432)
Disability type: psychosocial impairments	-0.159***	-10.27***
	(0.0425)	(2.423)
Disability type: other mental impairments	-0.139***	-9.916***
	(0.0494)	(2.623)
Disability source: anxiety disorders	-0.0519	-3.696***
	(0.0318)	(1.316)
Disability source: ADHD	-0.0938***	-2.253*
	(0.0240)	(1.176)
Disability source: autism	-0.0117	-3.446***
	(0.0273)	(1.229)
Disability source: depressive and other mood disorders	-0.114***	-3.170**
	(0.0276)	(1.320)
Disability source: mental retardation	0.0165	-2.650**
	(0.0312)	(1.296)
Disability source: specific learning disabilities	-0.0276	-2.207*
	(0.0252)	(1.248)
Disability source: various injuries	-0.0202	-0.684
	(0.0299)	(1.315)
Disability source: other diseases	-0.0491	-2.640*

	(1)	(2)
	IPE implemented	Counselor propensity
	(0.0388)	(1.453)
Disability source: other mental illnesses	-0.0960***	-2.914**
	(0.0314)	(1.263)
No. of observations	**9,334**	**9,334**
***R*-squared**	**0.084**	**0.419**

Note: Standard errors in parentheses. ADHD = attention deficit/hyperactivity disorder; IEP = Individualized Education Program; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income; TANF = Temporary Assistance for Needy Families. *$p < .10$ **$p < .05$ ***$p < .01$

The second identifying assumption is instrument relevance. We show that the instrument is a robust predictor of IPE receipt for transition-age youth in our final sample. We observe meaningful variation in the constructed IPE propensity variable, with the first and 99th percentile values of 0.184 and 0.923, respectively. Exhibit A3 presents visual evidence for the first stage. The dashed line traces out the kernel density of the instrument. The solid black line plots the probability density of receiving the IPE against VR Counselor IPE propensity. The plot confirms that IPE receipt increases monotonically with respect to the instrument, and the relationship is close to linear.

Exhibit A3. First Stage: IPE Probability and VR Counselor Propensity



Note. IPE = Individualized Plan for Employment; Pr = Probability; VR = vocational rehabilitation.

Third, with heterogeneous effects across individuals, we assume monotonicity of the instrument for interpretation (Angrist et al., 1996; Imbens & Angrist, 1994). In our setting, monotonicity means that VR youth who received an IPE under a counselor with a lower IPE propensity also would receive it under a counselor with a higher IPE propensity. This assumption affords the two-stage least squares (2SLS) estimate as an interpretation of a weighted average of local treatment effects (that is, the average causal effect among VR youth who could have received a different IPE decision had they been assigned to a different counselor). Following Bhuller and colleagues (2020), we performed tests to corroborate the monotonicity assumption. If the monotonicity assumption holds, then the instrument should be a robust predictor of IPE receipt for any subsample. We used the propensity constructed from the full sample and estimated its effect on IPE receipt for various subsamples (for example, age, gender, education). The results show that a higher counselor IPE propensity increases the chance of IPE receipt for all subsamples, consistent with the monotonicity assumption. Except for one subsample (where the disability source was unknown), estimates are large and statistically significant (see Exhibit A4).

Exhibit A4. Tests on Instrument Monotonicity

	Estimate	*N*	Dependent variable mean
By gender			
Male	0.00467***	7,005	0.496
Female	0.00560***	4,218	0.496
By age			
Ages 14–18	0.00505***	7,961	0.508
Ages 19–24	0.00402***	3,262	0.466
By student status at application			
Student	0.00497***	7,308	0.513
Nonstudent	0.00466***	3,915	0.464
By educational attainment at application			
Below high school or missing	0.00498***	8,693	0.494
High school or above	0.00494***	2,530	0.502
By repeater status at application			
Repeater	0.00360***	1,687	0.53
First timer	0.00522***	9,536	0.49

	Estimate	*N*	Dependent variable mean
Whether receiving SSI or SSDI at application			
SSI/SSDI	0.00388***	2,531	0.495
Non-SSI/SSDI	0.00518***	8,692	0.496
Whether private health insurance at application			
Public health insurance	0.00467***	8,169	0.468
Private health insurance	0.00581***	3,054	0.57
Primary disability type at application			
Visual/hearing impairments	0.00442**	243	0.663
Communicative impairments	0.00844***	276	0.67
Orthopedic/neurological impairments	0.00652***	371	0.48
Other physical impairments	0.00665**	238	0.475
Cognitive impairments	0.00465***	6,480	0.508
Psychosocial impairments	0.00497***	3,047	0.444
Other mental impairments	0.00542***	568	0.502
Disability source at application			
Unknown	0.00265*	823	0.525
Anxiety disorders	0.00434***	759	0.484
Attention-deficit/hyperactivity disorder	0.00564***	1,637	0.447
Autism	0.00395***	1,172	0.618
Depressive and other mood disorders	0.00564***	1,218	0.392
Intellectual disabilities	0.00412***	1,069	0.543
Specific learning disabilities	0.00590***	2,976	0.505
Various injuries (including birth injury or congenital condition)	0.00476***	616	0.55
Other diseases	0.00579***	371	0.461
Other mental illnesses	0.00416**	582	0.416

Note. Standard errors in parentheses. SSDI = Social Security Disability Income; SSI = Supplemental Security Income. *$p < 0.10$. **$p < 0.05$. ***$p < 0.01$.

Appendix A.4. Employment Trajectories of JMG and VR Clients After High School Exit

To study whether participation in JMG and VR services is correlated with participants' labor market outcomes, we began with a simple regression framework where we regressed

employment rates and earnings at each age level (ages 18–19, 19–20, and 20–21) on JMG and VR services receipt, while controlling for individual demographic characteristics and receipt of public benefits, as specified below:

$$Y_i = \alpha_0 + \alpha_1 Cohort_i + \alpha_2 X_i + \alpha_3 Service_i' + \epsilon_i \quad (5)$$

Here, Y_i is the labor market outcome—employment and earnings—observed at three time points: ages 18–19, ages 19–20, and ages 20–21, each studied in a separate regression. $Cohort_i$ is a vector of dummy variables for the years of VR application, which controls for potential unobservable differences in clients who become eligible for VR services in different years or time-varying policy differences. X_i is a vector of individual characteristics, including disability type and severity; demographic and background characteristics; individual's resident county fixed effects; and SSI, SSDI, Medicaid, and TANF (Temporary Assistance for Needy Families) participation, all of which have been shown to be correlated with individual labor market performances. $Service_i'$ is the primary vector of interest, which includes four dummy variables: (1) youth who receive no services, (2) youth who receive JMG services only, (3) youth who receive VR services only, and (4) youth who receive both JMG and VR services.

Appendix A.5. Impact of e-JMG (JMG With ACRE Enhancements) on Employment and High School Exit Outcomes

To answer the research questions, we first investigated the trends and changes in the profile of JMG students, after which we assessed outcomes related to high school graduation and early labor market entry. For the profiles, we included disability status to assess whether recent JMG adjustments changed any of the opportunities for students with a disability. Disability is determined by whether the student had any of the following physical or psychological barriers noted in their administrative data: (1) special education certified; (2) emotional disorder that impairs education or career goals; (3) has disability; and (4) health problems that impair education or career goals. Other variables included in the profile were basic demographics of the student (e.g., sex, race and ethnicity), household and parental background (e.g., living situation, parent's education) and socioeconomic information (e.g., receiving government support).

We estimated two sets of regressions to explore differences in (1) students with disabilities and students without disabilities before and after ACRE trainings; and (2) students with disabilities and students without disabilities in Bangor and non-Bangor districts after the start of the TWBL grant. The first specification exploits the variation in the timing of ACRE trainings, where Cohort 1 of specialists received trainings in Year 1 and Cohort 2 were trained in Year 2.

For the first question, we estimate the following specification:

$$Y_{its} = \alpha_0 + \beta_1 Disability_i + \beta_2 Post2017_t + \beta_3 (Disability_i * PostEJMG_t) + Z_i\beta_4 + T + S + \epsilon_{its} \quad (6)$$

Y_{its} is the outcome for student *i* enrolled in Grade 12 in school *s* in year *t*; $Disability_i$ = 1 if student has disability, 0 otherwise; $PostEJMG_t$ =1 if student was enrolled in JMG after e-JMG started; Z_i= vector with individual and family characteristics, such as gender, race/ethnicity, household size, living situation, mother's education, father's education, household receives welfare, other social assistance; *T* and *S* are year- and school-fixed effects, respectively. The coefficient of interest is β_3, which shows whether the difference in outcomes among students with disabilities and students without disabilities changed after 2017.

For the second question, we restricted the sample to the 2017–2018 and 2019–2020 school years (when new Bangor schools were operational) and estimate the following specification:

$$Y_{its} = \alpha_0 + \beta_1 Disability_i + \beta_2 Bangor_i + \beta_3 (Disability_i * Bangor_i) + Z_i\beta_4 + T + S + \epsilon_{its} \quad (7)$$

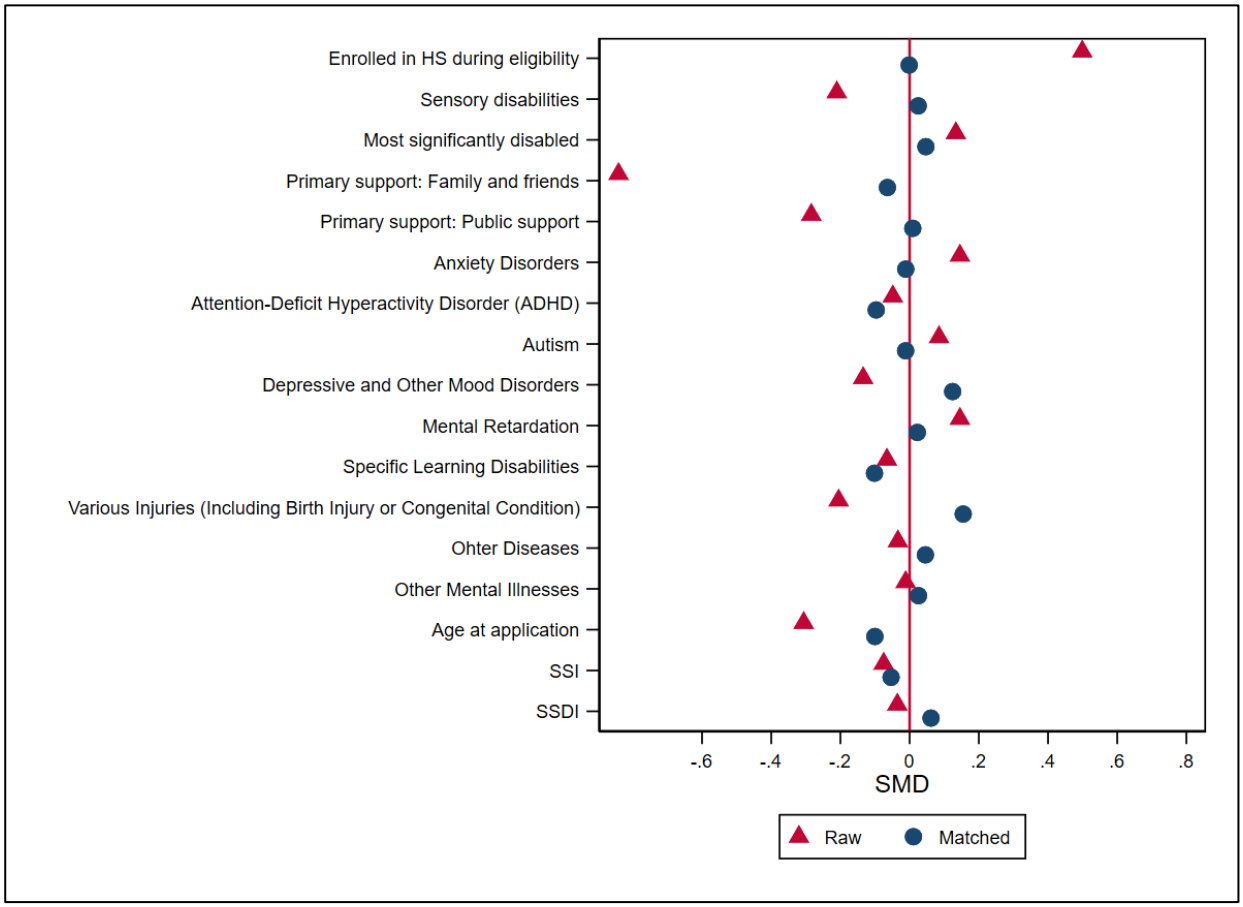
Here again, the coefficient of interest is β_3, which shows the difference in outcomes among students with disabilities and students without disabilities in Bangor versus non-Bangor schools.

Appendix A.6. Impact of Progressive Employment (and Combined Model) on VR Services and Labor Market Outcomes

We employed a Mahalanobis distance matching (MDM) approach to create a comparison group for Progressive Employment participants based on a vector of clients' observable characteristics. As discussed in Section A.1., MDM allows for a more robust comparison between two groups without making assumptions on the functional form of the model (Ho et al., 2007). To determine which variables to include in the matching regression, we first ran logit regressions predicting participation in Progressive Employment using individual-level characteristics similar to the covariates included in vector *X*. Covariates identified as significantly predictive of Progressive Employment treatment were attending high school at eligibility, having a sensory disability, being most significantly disabled, and receiving primary support from friends and family or public support. Exhibit A5 shows the standardized mean difference for the covariates on matched and unmatched samples as a visual to indicate matching quality. The exhibit shows that the standardized difference for the matched covariates reduces and gets close to zero, creating a comparison group that is more similar to the Progressive Employment sample. For our analysis, we used MDM with one-to-two nearest neighbor matching, because with our sample and the selected number of covariates, this matching technique had the lowest standardized difference across our covariates (Stuart, 2010; Rosenbaum, 2020).

Lastly, we acknowledge that matching addresses selection bias only on observable characteristics included in the model. Any unobserved differences that are correlated with Progressive Employment participation and employment outcomes can still introduce bias in our estimations. For this analysis, we believe that selection bias due to unobservable characteristics is a limited threat to the validity of the results because we restrict our unmatched Progressive Employment treatment and comparison groups to the approximate eligibility criteria of Progressive Employment. This creates two comparable subsamples prior to matching.

Exhibit A5. Matching Quality of Mahalanobis Distance Matching With Nearest Neighbor (2)



Appendix A.7. Impact of COVID-19 on VR Case Outcomes

We estimate the effects of COVID-19 on VR clients' outcomes using an event study design following:

$$Y_{imy} = \alpha + \sum_{y=2015}^{2020} (\beta_y \times Post_m) + \gamma_i + \phi_m + \psi_y + \epsilon_{imy} \quad (8)$$

In Equation 8, Y_{imy} is the outcome at closure for individual *i* who exited VR in month *m* of year *y*. We consider two labor market outcomes: (1) quarterly employment at closure; and (2) quarterly earnings at closure. $Post_m$ is a binary variable that equals 1 for the months between March and September. We were interested in comparing outcomes during these months across multiple years from 2015 to 2020. Hence, β_{2020} is the parameter of interest, indicating the change in outcomes for the 2020 exit cohort, relative cases that exited VR during the same months in other years. The specification fully controls for individual characteristics (γ_i) including age, education levels at the time of VR application, disability type, disability source, and public benefits status at the start of VR services, which includes receipt of TANF, SSI, or SSDI income. Month fixed effects (ϕ_m) are added to account for seasonal fluctuations. Standard errors are clustered by county cohort because virus spread and related social distancing measures are likely dependent on individuals' geographic locations.

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