

Northeastern Junior College

Case Study Report – Data as of May 2013

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INTRODUCTION

In 2011, Colorado received a \$17.3 million Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant from the U.S. Department of Labor. The grant-funded project—the Colorado Online Energy Training Consortium (COETC)—has two principal purposes: 1) enhance the state’s energy-related programming by transforming curricula into more accessible formats using technology and mobile learning labs, and 2) develop and implement a redesign of the state’s developmental education (DE) program. Project goals include expanding access to degree and certificate programs in energy-related fields, increasing retention and completion of certificate and degree programs at the community college level, and developing a trained workforce for the changing job market.

The COETC project involves the thirteen colleges in the Colorado Community College System (CCCS) and two local district colleges, Aims Community College (Aims) and Colorado Mountain College (CMC).

CCCS contracted with Rutgers School of Management and Labor Relations (Rutgers) to be the COETC third-party evaluator. In this role, the Rutgers team created and implemented a multi-faceted research assessment design that includes quantitative and qualitative data collection and analysis.

A major component of Rutgers’ COETC evaluation is a cohort study that compares the educational outcomes for students enrolled in traditional courses to those for students enrolled in COETC-developed and funded courses. In particular, this research focuses on COETC’s second goal as described above. The study’s ultimate objective is to assess the success of DE courses restructured under the guidelines of the Colorado State Task Force on Developmental Education Redesigns (State Task Force) and the success of the redesigned energy courses at the seven participating energy colleges. Specifically, it will evaluate the impact of factors such as demographics, Accuplacer scores, course registrations, student grades, employment status, and wages on rates of retention, program completion, and employment after graduation. The methodology consists of quantitative analyses of student and course data from Fall 2011 through Spring 2014 along with qualitative analyses of student experiences.

Toward the end of the Spring 2013 semester, Rutgers distributed four reports covering the study data collected to date from individual colleges and the consortium as a whole: “Integrated Year End Report,” “Career Coach Caseloads Analysis,” “Redesigned Course Outcomes,” and “Master Course List.” This case study provides an interim report, based on data provided in these reports, on the progress to date of Northeastern Junior College (NJC) under the COETC grant as of May 2013.

The sections that follow 1) outline the overall study methodology and data sources, 2) provide background information on NJC and its student population, 3) summarize the goals and primary elements of NJC’s COETC program, 4) describe the redesigned energy and DE courses

(math and English/reading) and present data on enrollment and outcomes, 5) assess the success of the career coaching program instituted by NJC as part of its COETC program, and 6) conclude with recommendations for NJC specifically and for the consortium colleges in general with regard to their COETC-funded programs.

METHODOLOGY/DATA SOURCES

Quantitative Analysis

During the first project year, Rutgers worked closely with CCCS to refine the quarterly reports required from each of the system's participating colleges. Rutgers has used data from these reports to track progress and to provide the foundation for other data collection. In collaboration with CCCS, the district colleges, and college career coaches, Rutgers developed and revised an Electronic Student Case File (ESCF) to capture data relating to the COETC career coaches' work with grant-eligible students. (The ESCF records demographic and academic information and tracks the issues and goals coaches and students work on and any referrals made.) In addition, Rutgers designed a pre-course survey to collect information on student expectations about course work and career goals. The colleges administered this survey to students in traditional and redesigned DE courses in Fall 2012.

The Rutgers team has also been working closely with CCCS and the district colleges to access the Banner student system (and CMC's data system) to track student progress and achievement and to collect and analyze data for the cohort study.

Qualitative Analysis

Rutgers' qualitative evaluation focuses on COETC process issues and the experiences of project team members and participating students, faculty, and staff at the 15 colleges in the COETC consortium.

Evaluation methods have included document reviews and content analysis of text answers on the quarterly reports, the ESCFs, surveys (e.g., pre-course survey results), and materials and websites developed by the State Task Force, CCCS, and/or individual colleges. Rutgers team members have conducted phone and in-person interviews with project leads, faculty involved in the restructuring and/or teaching of DE and energy courses, instructional designers, data coordinators, senior college administrators, and, whenever possible, students. They conducted on-site interviews at NJC on April 8, 2013. The team members have analyzed transcriptions of phone and in-person interviews to identify program achievements to date, best practices, and critical issues for follow-up. Some of the responses from these interviews are quoted in this report.

Rutgers team members have also participated in conference calls with project leads and career coaches and joined in webinars. In addition, they have observed and participated in forums sponsored by CCCS, such as sessions on DE redesigns.

COLLEGE DESCRIPTION AND OVERVIEW OF STUDENT POPULATION

NJC is Colorado's largest residential two-year college. Located in Sterling, NJC serves the northeastern corner of the state. The service area is marked by plains and is largely agricultural, with extensive cattle and wheat operations. Sterling also hosts the largest institution run by the Colorado Department of Corrections. NJC offers over 80 programs of study, including its nationally known Wind Energy Technician program, which had a 96-percent job placement rate during the 2011-2012 academic year.

In 2012, 3,113 students attended NJC, nearly half (49 percent) of them full-time. The student body is overwhelmingly white (70.67 percent) and primarily female (59.3 percent). NJC's average student age of 30 years is one of the oldest in the CCCS system. However, students age 18 to 20 still make up the largest demographic cohort.

COETC GOALS AND PRIMARY PROGRAM ELEMENTS

The goal of NJC's COETC project was to transform a number of existing wind energy courses to online or hybrid formats and to update training equipment to reflect current wind industry technology. For example, NJC planned to purchase new wind turbine hydraulic and nacelle trainers. For the redesign, two courses needed to be changed from in-person classroom instruction to online instruction. Other courses requiring lab time were converted to hybrid form. The latter required integrating online components into weekend labs to maximize use of training equipment.

As part of the project, NJC is also redesigning DE courses. Across the CCCS colleges, 28 percent of students place into at least one remedial course. At NJC, the percentage is 19.45.¹ Nonetheless, the college was interested in helping this cohort of students complete their DE courses as quickly as possible. To that end, NJC planned to focus on modularizing math courses to allow students to proceed at their own pace.

The DE redesign at NJC has occurred in two phases. The first phase took place prior to and concurrent with the State Task Force redesigns. The second is occurring subsequent to the State Task Force curriculum changes. This report focuses solely on the first phase.

¹ See CCCS (May 2013), *Academic Year 2011-12 Remedial Enrollment and Course Completion Rates* [<http://www.cccs.edu/Docs/Research/AY2012RemedialReport.pdf>].

NJC'S REDESIGNED DE PROGRAM

NJC's DE redesign goal is to increase retention and speed completion of required remedial courses. It approached this goal initially by redesigning math courses using compression (acceleration) and modularization. As of May 2013, NJC had not redesigned its reading or English classes. We will provide more information on NJC's English and reading redesign after the school receives and begins to implement recommendations from the State Task Force.

Math Redesign

As noted, for its math redesign NJC has focused on compression and modularization. As of May 2013, it had redesigned two developmental classes: Math 045 and 096. The redesigns emphasize acceleration through a modularization that allows students to progress at their own pace. Unlike many CCCS colleges, NJC did not eliminate Math 030 as part of the redesign because it has "so many students that need 30 level work." Instead, the college modularized the course and combined it with Math 060 to create Math 045.

Math Redesign Innovative Models and Practices

Combining Limited Self-Pacing with Lecture Instruction. Students in Math 045 work through the course modules at their own speed. They also attend class with an instructor who helps them pass each unit. Some students choose to work through the modules concurrent with the lecture class. Having this kind of support available avoids some of the problems other colleges have reported. In particular it helps alleviate the student fears of falling behind that sometimes crop up in modular courses that do not have instructional or lab support.

Diagnostic Math Accuplacer Test. To assist with its math modularization and acceleration design, NJC uses Accuplacer tests to diagnose student strengths and weaknesses. With the test scores as a guide, instructors can tailor their class lectures to fit student needs.

Math Redesign Challenges

Issues with Accuplacer Exams. Students are often unaware of the importance of Accuplacer exams with regard to their being placed in DE courses concurrent with college-level courses that have no prerequisites. NJC generally offers the Accuplacer exam immediately following the campus tour and general orientation. Frequently, students are not told of the test's importance and, as a result, many do not take it seriously. This means many students are placed inaccurately in DE classes. This problem is compounded by NJC's rural service area. Students must make arrangements to visit the campus once to receive study material for the test and then again to sit for the exam. To mitigate this difficulty, NJC allows students to take the Accuplacer at a college closer to their home. The test fees can vary, however, from school to school, and NJC is

particularly sensitive to the financial hardship this may cause. In addition, many NJC students have disabilities that may affect their capacity to take a computerized exam.

More Intense Demands of Course Compression and Acceleration. Many entering NJC students lack the foundational skills needed to succeed in college-level courses. Thus, course compression or acceleration may not always be the most effective teaching technique for these students.

NJC still admits students who test at the Math 030 level. With regard to the modularized and combined Math 030/060 course, concerns exist that some students do not receive the support they need. Even though faculty members are available to help, the course is not highly structured, which makes it more difficult for some students to master foundational skills or pace themselves effectively. Where acceleration is available, many students do not actually complete the course faster. Going forward, NJC is also concerned about the new State Task Force DE mandates eliminating the 030 level and replacing it with “soft-landing options.” As one instructor stated during the site visit,

...and then it poses some real philosophical questions at the community college level, we’re an open entry institution, are we going to have to change what our philosophy is on that and what our entrance requirements are on that. So you’re absolutely right. That’s why we’ve kept the 30 class because we have still so many students that need 30 level work.

Redesigned Course Outcomes

To help determine the ongoing effects and outcomes of courses redesigned under the COETC grant, NJC’s project leads reported to the Rutgers team on their redesigned courses and the modality used by developmental education. This information appears below.

NJC redesigned two DE math courses and offered four sections from Fall 2012 through Spring 2013. Slightly more than 50 percent of the course sections were in Spring 2013. Table 1 displays the course rollout by term along with the number and percentage of total students served by the course each term.

Table 1. Students Enrolled in DE Redesigned Courses by Term		
Term and Year	Percentage of Total Redesigned DE Population	Number of Students (Redesigned DE population)
Fall 2012	42.5	31
Spring 2013	57.5	42
Total	100	73

In terms of overall student retention, 52 students (71.2 percent) who registered for redesigned DE courses persisted in the course, while nine (12.3 percent) dropped during the add/drop period and 12 (16.4 percent) withdrew after the term started.

Table 2 presents the course offerings by subject. At NJC, every student served by a redesigned DE course was enrolled in math.

Table 2. NJC Students Enrolled in DE Redesigned Courses by Subject		
Subject	Percentage of Total Redesigned DE Population (All terms)	Number of Students (Redesigned DE Population)
Math	100	73
Total	100.0	73

Tables 3 shows NJC’s redesigned math courses by title, the number of students enrolled in each course, and the percentage of the total redesigned DE population enrolled in each course.

Table 3. NJC students enrolled in DE redesigned courses by Course Title		
Course Title	Percentage of Total Redesigned DE population (All terms)	Number of Students (Redesigned DE Population)
Combined Intro/Inter Algebra	53.4	39
Compress Pre Alg w/Basic Math	46.6	34
Total	100.0	73

Table 4 presents the mean grade for each individual course for all students who sat in these courses from the grant’s beginning through spring 2013. In the months ahead, Rutgers will compare section means to departmental means and include the results in later reports.

Table 4. Mean Grades achieved by NJC Students in Each DE Redesigned Course	
Course Title	Course Mean Grade (All Terms and Redesigned Sections Combined)
Combined Intro/Inter Algebra	1.8000
Compress Pre Alg w/Basic Math	2.2963

NJC'S ENERGY REDESIGN

The major goal of NJC's Wind Energy Technician faculty under the grant was to update the associate degree of applied science (AAS) program to better serve student needs and to make NJC wind technician graduates even more competitive in the rapidly developing field. NJC offers a full AAS degree, which is increasingly the industry standard for entry. The college also offers a summer certificate program that helps retrain workers with experience in mechanical and electrical fields to meet wind industry standards.

Historically, NJC has been very successful at attracting students to the program with little marketing. In fact, the strong demand for admission has on occasion forced NJC to wait list students. While applicants come from across the nation, the majority of wind technician students come from Colorado. For the summer program, NJC does some recruiting of incumbent workers and veterans.

The COETC grant emphasizes the transformation of face-to-face energy classes to online and hybrid formats to better reach rural students who may not be able to access campus-based education. In the redesign, NJC faculty have worked to transform some courses into hybrids that combine some online coursework with scheduled lab time, which often takes place over an intensive weekend. Being a wind technician, however, involves tasks such as climbing up turbines and doing maintenance 300 feet above the ground. The hands-on nature of the training and the work has made it difficult for NJC to convert many courses.

In the past, NJC's wind technician program required a summer internship. These internships resulted in a very high rate of post-graduation employment. However, given the limited and highly competitive slots available and ongoing industry concerns about liability coverage, this requirement was eliminated. Students now have an elective option for the summer between the first and second year of the program.

As part of its redesign, NJC developed WTG 100, "Introduction to the Wind Industry," an exclusively online course it offered in Fall 2012. Only one student enrolled, however, and we have no further evidence on the use of this online course. NJC also offers a "Fundamentals of DC/AC" as a hybrid course. Future reports will cover all energy course redesigns under the grant.

In terms of overall student retention, three students (75 percent) who registered for redesigned energy courses persisted in the courses while 1 student (25 percent) dropped out after the semester started.

As noted above, there are two major barriers to transforming a significant amount of wind technician course content to online delivery: 1) the hands-on subject matter, and 2) industry pressure. The nature of a wind technician's job requires technical and safety training to be done

in person on site. Fundamentally, students must climb towers to figure out whether they can climb towers. The industry has high standards. It wants students to have AAS degrees and has resisted training programs that are done exclusively or extensively online. As the field becomes increasingly competitive, migrating more of the program to the online venue may actually be detrimental for student employability.

NJC'S CAREER COACHING PROGRAM

Under the COETC grant, the career coach position is meant to facilitate student access to careers in the energy sector and to assist students with any academic and non-academic issues that inhibit their progress or ability to complete a course of study. The coaching functions were envisioned to include career counseling and referrals, academic advising related to career choices, and counseling and referrals for a wide range of social and financial support services. To conform to the COETC's intent, eligibility for career coach services requires students to be participating in a redesigned DE course or a TAACCCT-supported energy course/program, to have Trade Adjustment Assistance (TAA) eligibility (or be TAA-like), to be unemployed, and/or to be eligible for other U.S. Department of Labor programs.

NJC's first career coach was assigned to do career coaching part-time and to coach women's volley ball part-time. The coach and others struggled immediately with the undefined nature of her role. There was a misunderstanding about what students should be referred to her and what services she should provide.

Historically, wind technician faculty have been the students' primary advisers. Over time, however, the career coach began to provide career services to students in the redesigned wind energy program. Her duties included delivering the wind energy capstone course, which is designed to assist students with their transition to the job market. The capstone was originally delivered by a staff member funded on another grant. The class focuses on helping students "connect with the workforce and their career" by providing guidance on creating resumes and cover letters and preparing students for job interviews.

The coach also attempted to establish a partnership with the local workforce Center to encourage reciprocal referrals. In doing this, she intended to build on work done by another staff member funded by an adult education program grant.

In Spring 2013, NJC's career coach left her career coaching position to become the college's full-time volleyball coach. NJC then assigned a new part-time career coach, someone who had previously worked in student services.

Electronic Student Case File (ESCF)

As mentioned above, ESCFs help career coaches track student progress with goals. Rutgers hopes that NJC's ESCF data will help it better understand student challenges and best

intervention practices, as well as the impact of coaching services on student retention and completion rates.

The career coach creates an ESCF for each student when they first meet and then inputs additional information from subsequent visits and interactions. Of the students registered by the career coach, 66 (98 percent) had active ESCFs as of May 23, 2013 and one student (two percent) did not.²

NJC's Career Coaching Target Performance

Like the coaches at many colleges, NJC's career coaches have experienced trouble with the ESCF system. Specifically, they had concerns about who is eligible for services and what the target population should be at NJC. In addition, they were somewhat confused as to what information they should record and when they should record it.

Under COETC, NJC set a goal of 115 students to be served by the career coach. As of September 30, 2013, the coach had registered 188 or 163 percent of the target number.³

Career Coaching Eligibility Distribution

After reviewing active ESCF files and cross-referencing these with students enrolled in all redesigned courses, as certified by the project lead, Rutgers has identified the student eligibility for career coaching for 98 percent of all registered students. Table 5 shows the eligibilities of the students using the career coach along with the breakdown of how many students fall into each eligibility category.

Of this total, 2.7 percent of students have been recorded as TAA-eligible and 36.7 percent as TAA-like. An additional 26.6 percent have enrolled in redesigned DE courses and 6.9 percent have enrolled in redesigned energy courses offered from Spring 2012 through Spring 2013. A small percentage of students were recorded as TAA-like. They also were enrolled in one or more redesigned DE or energy courses.

² Rutgers defines an active ESCF file as a "response in progress" in which student information has been entered into the ESCF but not submitted to the record. Career coaches can return to and update information in active ESCFs. An ESCF that has been closed or submitted to the system by the career coach is considered inactive.

³ We note here that students registered by the career coach may not have an active ESCF file. In order for the student to be considered registered, the career coach has to fill in basic information such as ID number and name but does not have to initiate an ESCF file. Alternatively, a student in this count may have been served by the career coach and the student's ESCF submitted. Such ESCFs are considered inactive.

Table 5. NJC Summary of Student Eligibility for Career Coaching				
	May 2013		September 2013	
Eligibility Criteria	Percentage of Total Students	Number of Students	Percentage of Total Students	Number of Students
TAA-Eligible	16.4	11	2.7	5
TAA-Like	14.9	10	36.7	69
DE Redesigned	19.4	13	26.6	50
Energy Redesigned Course	14.9	10	6.9	13
TAA + DE Redesigned	14.9	10	4.8	9
TAA + Energy Redesigned Course	3	2	1.1	2
TAA + Redesigned Contextualized	1.5	1		
Energy Redesigned Program of Study			15.4	29
TAA + Energy Redesigned Program of Study			4.3	8
Unknown	14.9	10	1.6	3
Total	100.0	67	100.0	188

SUMMARY OF LESSONS LEARNED AND INNOVATIVE STRATEGIES

NJC has several staff members who have filled functional positions under other grants. As grants covering a certain institutionalized assignment near their conclusion, NJC assigns other staff to overlap and then take over assignments under different funding. This preserves institutional memory and fosters continuity of process and procedures. For example, the career coach was assigned to the capstone course, which was previously designed and delivered by a staff member on a different grant.

SUMMARY OF CHALLENGES

Energy Program

Increasing Competition

There are a growing number of schools offering wind technician programs and producing graduates to compete with NJC's students. Maintaining NJC's competitiveness is expensive in the long term. New technology is needed, and students have to have access to labs for hands-on

experience. The secretive and proprietary nature of the field's changing technology has limited information about the latest innovations. To keep current, instructors have found it helpful to stay in contact with NJC graduates, who share information about changes in the industry that can inform the curriculum. As an instructor noted, these former students have "done a very good job of... telling us where we could go find information and where information is available to be able to bring it to these kids (current students)."

Resistance to Online Format

There is strong pedagogically related resistance to shifting more of NJC's wind energy program to online or hybrid formats. While increasing the number of online classes offered is a key goal of the overall grant, the wind energy program is not a good candidate for extensive online education. Given safety concerns and industry pressure, moving the program further online might reduce its competitiveness. The program has, however, looked to implementing greater hybridization to accommodate student schedules and achieve more efficient course delivery.

Developmental Education

As an open enrollment institution, NJC is concerned that new State Task Force DE mandates that eliminate the 030 course level and 'soft-landing options' may not serve the target student population well. As one faculty member stated,

It's a crisis because even with the – even with the developmental education Task Force coming in with all of these recommendations – and schools are going to have options, but within these recommendations, we're going to have to pick which one fits us best. And what they want us to do is compress it, accelerate it, but that's – the problem is that students aren't – they're not getting it. They're missing those foundational skills. So what will we do with them then?

In the DE math program, some worry about transforming math content to online formats. For example, NJC's 030/060 course was delivered in a computer lab through a totally modularized system. In this environment, faculty worried that students were not always getting the support they needed. As reasons, they observed that some students are reluctant to ask for help even if they need it, while others are not able to gauge their skill level or their problems accurately. In response, NJC moved Math 045 into a more structured environment that allows self-pacing while providing greater access to faculty and tutors. Even after this change, though, some faculty voiced doubts about giving up the traditional classroom structure.

Career Coach Position

The major issue in relation to the career coach's role is there is not a strong understanding across NJC's administrative apparatus regarding this position. As one administrator pointed out, the unfamiliarity with the role comes down to a lack of communication: "I'm not very

familiar with what [the career coach's] role is and how she is able to connect with the students because I haven't had much discussion ... about that." This is a barrier to the career coach being effectively assimilated into the existing support structure at NJC.

Project Implementation Issues

NJC's COETC project team has not always clearly understood the career coach's role or the expectations for the grant as a whole. We note here, however, that staff and faculty have found the CCCS meetings and webinars to be helpful in this regard.

RECOMMENDATIONS FOR NJC

- Increasing the networking among NJC staff and faculty to achieve maximum resource leverage across current grants is fundamental to keeping the college competitive. Additionally, reporting out the success of integrated grants may help generate new funds to sustain and build NJC's programs.
- To enhance the career coach's effectiveness, NJC should consider establishing orientation meetings between faculty and the career coach that focus on effective referrals for eligible students. As part of this effort, NJC could encourage partnerships with the workforce center. It could also advertise the services provided by the career coach more widely within and outside of the school.

RECOMMENDATIONS FOR CONSORTIUM COLLEGES

- Careful assessments of the impact of online course delivery on program competitiveness might be useful for other energy schools redesigning their curriculum. Areas like wind and solar energy will likely see increasing competition from similar programs across the country. To ensure the long-term viability of their programs and maximize employment outcomes for graduates, CCCS should weigh increased access via online delivery against effective educational outcomes and workforce positioning.