



RUTGERS EDUCATION AND EMPLOYMENT RESEARCH CENTER

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**Credit for Prior Learning for Non-Degree Credentials:
An Example from the Colorado Community College System**

Between 2011 and 2018, the U.S. Department of Labor invested \$2 billion to fund the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant program, which supported colleges across the country to design and implement innovative strategies to improve adult learners' completion of "non-degree credentials," a broad category that includes certificates and technical diplomas that can be completed in two years or less. This brief is one of six in a series providing evidence on the impact of innovative strategies on the completion of non-degree credentials among a sample of adults aged 25-64 who had not earned any prior postsecondary credential. Analysis was conducted with financial support from Lumina Foundation and was coordinated by DVP-PRAXIS LTD. An earlier brief developed through this project (July 2019), based on independent analyses by researchers who had been third-party evaluators on various TAACCCT initiatives, found that non-degree credentials can have significant and positive labor market outcomes for adult learners.

INTRODUCTION

Between 2013 and 2017, the Colorado Community College System (CCCS) implemented the TAACCCT-funded Colorado Helps Advanced Manufacturing Programs (CHAMP). The \$24.9 million consortium grant was intended to facilitate the redesign or creation of certificate and degree programs that respond effectively to the needs of the 21st-century manufacturing sector. At CCCS, one goal of the grant was to redesign the system's credit for prior learning (CPL) model, a policy designed to accelerate students' progress toward a credential. The Education and Employment Research Center (EERC) at Rutgers, the State University of New Jersey, conducted the third-party evaluation of the CHAMP grant. The research presented below results from that work.

This brief looks at CPL during the CHAMP redesign effort. Our analysis focuses on adult—particularly nontraditional—certificate seekers from across all 13 CCCS institutions. Research on CPL, which often examines its use in the achievement of two- and four-year degrees, has consistently found that adult students with CPL credit are more likely to earn a postsecondary degree than are similar students who do not receive CPL.¹ With this brief, we hope to expand on that work by providing some insight into the impact of earning CPL on adult learners seeking shorter-term, non-degree credentials (e.g., certificates).

Non-degree credentials are of growing importance in the marketplace. Increasing numbers of individuals are seeking credentials that are less expensive and can be earned more quickly than traditional postsecondary degrees and that may help them enter or advance in an industry or sector. Non-degree credentials may be particularly important for the over 50 percent of Americans aged 25 to 64 who do not hold a credential beyond high school.ⁱⁱ

CPL, a model through which college credit is granted to individuals who are able to demonstrate certain competencies they have gained outside of the classroom, saves both time and money,ⁱⁱⁱ and therefore could be an important tool for adults seeking non-degree credentials.

This brief considers the following research question:

Does the attainment of Credit for Prior Learning increase the probability that a student with no prior postsecondary credential will earn a less-than-two-year certificate?

The CHAMP analysis found that CPL had a significantly positive impact on the completion rate of all certificate seekers at CCCS colleges. For adult learners between the ages of 25 and 64, CPL also had a positive impact on certificate attainment, although the impact was smaller. This difference was likely due to sample size.

CREDIT FOR PRIOR LEARNING AT CCCS

As noted above, one of the key strategies implemented under the CHAMP grant was the redesign of the model CCCS used for awarding CPL credits. CPL protocols recognize and grant academic credit for skills and knowledge individuals have gained outside the classroom. As such, CPL is not awarded for experience itself but for the college-level learning—the knowledge, skills, and competencies—that students gain as part or as a result of their experience.^{iv}

CCCS colleges have used CPL as an alternative means for awarding academic credits for over 40 years, but historically its use lacked uniformity. Institutions varied in how CPL was administered as well as in the extent to which students were aware of CPL policies and were able to access the CPL process. CCCS used the CHAMP grant to completely overhaul its CPL model. This effort involved making changes to policy and practice, including making the policy clearer and setting standards across the system; increasing systemwide awareness of the policy among students, faculty, and staff; and improving data collection. These policy and process changes were determined by a committee made up of representatives from all 13 CCCS colleges and led by a staff member from the CCCS administration.

Once the new policy was put into place, colleges were tasked with implementing it. Implementation timelines varied by institution, and for many, full implementation did not occur until close to or after the close of the grant. It is therefore important to understand that because this brief looks only at CPL outcomes accomplished within the grant period, it should not be viewed as a complete reflection of the full scope of the work accomplished under the redesign.

In total, during the grant period, 9,611 unique CCCS students received CPL credits. Table 1 presents the age distribution of those unique individuals who earned CPL credit between 2013 and 2017.

TABLE 1

CPL Award Rates by Age within the Colorado Community College System, 2013-2017^v

QUANTITY	YOUNGER THAN 25	AGE 25 TO 64	ALL STUDENTS < AGE 65
STUDENTS NOT AWARDED CPL CREDIT	134,302	104,071	104,071
STUDENTS AWARDED CPL CREDIT	5,511	4,089	4,089
PERCENT AWARDED CPL	3.9	3.8	3.8

Table 1 shows that students in all age groups earned CPL credit, though the CPL award rate was marginally higher among students younger than 25 than it was among the older group. However, though members of both groups took advantage of CPL, the rate at which they did so was quite low: In both groups, fewer than 4 percent of the population earned CPL credit. So despite the fact that this policy has been in place for over 40 years, very few students are accessing it.

Though the over/under-25 age gap in CPL award rates was marginal, the difference in award rates was more pronounced with respect to gender. Data in Table 2 reveal that male students were two-thirds more likely than female students to have earned credit from CPL during the grant period.

TABLE 2

CPL Award Rates by Gender within the Colorado Community College System, 2013-2017

QUANTITY	FEMALE	MALE	TOTAL
STUDENTS NOT AWARDED CPL CREDIT	132,896	105,477	238,373
STUDENTS AWARDED CPL CREDIT	4,061	5,539	9,600
PERCENT AWARDED CPL	3.0	5.0	3.9

There were also some modest differences in CPL reciprocity across racial and ethnic groups, and between non-resident-alien (international) students and those who were U.S. citizens. International and Hispanic students were the most likely to have received CPL credit compared to other groups of students. Of note, there is some overlap between the race/ethnicity categories and the non-resident alien (International) category.

TABLE 3
CPL Award Rates by Race, Ethnicity, and Residency Status within the Colorado Community College System, 2013-2017

QUANTITY	STUDENTS WHO DID NOT EARN CPL CREDIT	STUDENTS WHO EARNED CPL CREDIT	ALL STUDENTS	PERCENT OF STUDENTS EARNING CPL CREDIT
AMERICAN INDIAN OR ALASKAN NATIVE	2,221	65	2,286	2.8
ASIAN	6,933	250	7,183	3.5
BLACK OR AFRICAN AMERICAN	16,789	606	17,395	3.5
HISPANIC	41,869	1,933	43,802	4.4
MULTIPLE RACES	10,283	378	10,661	3.5
NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER	725	30	755	4.0
NON-RESIDENT ALIEN (INTERNATIONAL)	4,623	286	4,909	5.8
UNKNOWN	9,935	368	10,303	3.6
WHITE	144,995	5,684	150,679	3.8
TOTAL	238,373	9,600	247,973	3.9

STUDY DESIGN

To estimate the impact of CPL on students' academic attainment, the academic outcomes of the CPL recipients must be compared with those of similar students who did not earn any CPL credit. If the only difference between the comparison students and CPL credit recipients is that they did not earn CPL credit, then we can attribute the differences in academic outcomes to CPL. In experiments, the credible counterfactual group is achieved through random assignment, but this is not possible in observational studies. It is possible, however, to build a credible counterfactual sample using careful research design and appropriate statistical methods such as Propensity Score Matching^{vi} (PSM) and Coarsened Exact Matching^{vii} (CEM).^{viii} Both methods take into account the mechanisms through which students receive the treatment—in this case, CPL credit—then construct a counterfactual control sample similar to the treated group except for the treatment status. These steps reduce the possibility of bias arising from selection into treatment. The differences in academic outcomes between the CPL and non-CPL groups can then be explained primarily by the treatment.

The literature suggests that multiple factors are associated with CPL earning, including age, gender, and race. There are also some unmeasurable characteristics that play a role in receipt of CPL, such as finding out about the availability of the program and being able or willing to navigate the process. To build a valid comparison group, the observable factors were included in the matching models, and the study was designed to mitigate the confounding effect of unobservable characteristics.

To ensure that the students in the treatment and comparison groups were truly comparable, comparison-group students were included in the data set only if they were identical to CPL recipients in all of the following ways: They (i) earned academic credit, (ii) in the same subject, (iii) during the same academic year, (iv) at the same college. We excluded students who had previously earned any type of postsecondary credential from the analysis. The dataset used for this analysis was pulled by the Colorado Community College System in fall 2018 from the CCCS student information systems.

RESULTS

We ran both matching models—PSM and CEM—and parametric statistical analyses on two subsets drawn from a larger data set consisting of enrollments at all 13 CCCS colleges between 2013 and 2017: (i) all certificate seekers and (ii) adult (ages 25-64) certificate seekers. The matching models and parametric statistical analyses included controls for whether the student was a returning student or a new student, whether the student was dual enrolled, various demographic categories, the CCCS college in which the student enrolled, and the year in which CPL credit was earned.

The outcome analyzed (dependent variable) was whether the student earned a certificate. Results presented here are from the CEM models.^x After matching, EERC used a logit model to estimate the impact of CPL on student attainment.

All Certificate Seekers

First, EERC researchers estimated the effect of CPL on certificate completion for the full sample of certificate seekers. CPL had a highly significant positive impact the completion rate of certificate seekers, meaning that students who received CPL credits were more likely to complete certificates than were certificate seekers who did not earn any CPL credits.

To translate the statistical outcomes into more readily understandable quantities, we then ran Monte Carlo simulations using Zelig^x to generate estimates of the effect of earning CPL credit on certificate attainment. Among the sample of all certificate seekers, holding all variables in the model at their means, earning CPL credit increased the probability of earning a certificate from 16.2 percent to 25.7 percent, an increase that is both statistically significant and substantively meaningful.

Adult Certificate Seekers

The second analysis looked at adult learners between the ages of 25 and 64, our target population of interest. Table 4 shows the raw attainment rates (prior to statistical matching) for CPL versus non-CPL recipients for this group. Two important differences between the CPL group and the non-CPL group stand out. First, CPL students have a 10-percentage-point advantage in terms of credential attainment compared to the non-CPL students. Second, the number of credential earners—55 students—in the CPL sample is quite small in relation to the number of credential earners who did not receive CPL credit.

TABLE 4

Differences in Credential Attainment Rates, CPL Versus non-CPL, Aged 25 to 64

CPL STATUS	NUMBER EARNED A CREDENTIAL (N=452)	PERCENT EARNED CREDENTIAL
NO CPL AWARDED	397	15.9
RECEIVED CPL	55	25.9

Using the same statistical models that we ran on the full sample of credential seekers, our analysis of the age-limited group found that CPL had a positive impact on non-traditional certificate seekers' probability of attainment, and this difference, despite the small sample size, approached statistical significance. The Monte Carlo simulations showed that when we held the values of all variables at their means, earning CPL credit increased the probability of earning a certificate nearly two percentage points, from 18.1 percent to 19.8 percent, for the average student between the ages of 25 and 64.

These results show that earning CPL has a positive effect on certificate attainment. While the magnitude of the effect appears to be smaller for our population of interest, adult learners, we believe this may simply be a result of the small sample size.

CONCLUSION

Our analysis shows that CPL has a strongly positive effect for certificate seekers generally, and a more modest effect when the analysis is restricted to nontraditional students aged 25 to 64. These results demonstrate that CPL can play an important role in the completion of non-degree credentials for non-traditional students. Unfortunately, less than 4 percent of the nontraditional CCCS student population received CPL during the CHAMP-grant period. This rate of CPL use, which is similar to those of other institutions around the country, resulted in a very small sample size to work with, particularly in our age-limited analysis.

The key takeaway here is that, while EERC's findings suggest that CPL has great value when it comes to the completion of certificates, very few people are benefiting from it. Attention should be paid to this lack of use, and therefore to the implementation of the new CPL policy at CCCS institutions. The Consortium worked hard to change its CPL policy and practices under its TAACCCT grant. In the years to come, as more data become available, research should be done to better understand the impact of that work.

- ⁱ Klein-Collins, R. (2010, March). *Fueling the race to postsecondary success: A 48-institution study of prior learning assessment and adult student outcomes*. Chicago, IL: Council for Adult and Experiential Learning. Retrieved from <http://www.cael.org/pla/publication/fueling-the-race-to-postsecondary-success>; Hayward, M. S., & Williams, M. R. (2015). Adult learner graduation rates at four U.S. community colleges by prior learning assessment status and method. *Community College Journal of Research and Practice*, 39(1), 44-54. doi: 10.1080/10668926.2013.789992; McKay, H., Cohn, B., & Kuang, L. (2016). Prior learning assessment redesign: Using evidence to support change. *The Journal of Continuing Higher Education*, 64(3), 196-201. doi: 10.1080/07377363.2016.1229506; Klein-Collins, R., & Hudson, S. (2017, September). *What happens when learning "counts"? Measuring the benefits of prior learning assessment for the adult learner--A CAEL self-study of the academic outcomes of Learning Counts students*. Chicago, IL: Council for Adult and Experiential Learning. Retrieved from <https://www.cael.org/adult-learning/publication/when-learning-counts>.
- ⁱⁱ Lumina Foundation. (n.d.). Tracking America's progress toward 2025. Retrieved from the *A stronger nation* website at <http://strongernation.luminafoundation.org/report/2019/#nation>.
- ⁱⁱⁱ *ibid*
- ^{iv} Council for Adult and Experiential Learning. (2013). *Competency-based education (CAEL Forum & News)*. Chicago, IL: Author. Retrieved from <https://www.cael.org/cbe/publication/competency-based-education-cael-forum-and-news>
- ^v Eleven of these students were older than 64 and therefore are not represented in the tables that follow.
- ^{vi} Rosenbaum, P. R., & Rubin, D. B. (1983, April). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1), 41-55. doi: 10.1093/biomet/70.1.41
- ^{vii} Iacus, S., King, G., & Porro, G. (2012). Causal inference without balance checking: Coarsened exact matching. *Political Analysis*, 20(1), 1-24. doi:10.1093/pan/mpr013
- ^{viii} EERC researchers ran separate statistical analyses on 96 different data sets.
- ^{ix} Because CEM consistently produced samples with better matches between the treatment and comparison groups, this brief presents results based only on the CEM matching. Results from PSM were substantively similar.
- ^x Imai, K., King, G., & Lau, O. W. (2008). Toward a common framework for statistical analysis and development. *Journal of Computational and Graphical Statistics*, 17(4), 892-913. doi: 10.1198/106186008X384898