



EDUCATION AND EMPLOYMENT RESEARCH CENTER

Validating 21st Century Skills with Education Design Lab's XCredit Assessment System- Pilot Program Results

Daniel Douglas

NOVEMBER 2023



RUTGERS

School of Management
and Labor Relations



EDUCATION AND EMPLOYMENT RESEARCH CENTER

Validating 21st Century Skills
with Education Design Lab's
XCredit Assessment System-
Pilot Program Results

Daniel Douglas

NOVEMBER 2023

About The Author

Daniel Douglas is a researcher with the Education and Employment Research Center at Rutgers University and a lecturer in Sociology at Trinity College – Hartford, CT.

Acknowledgments

The author would like to thank the people who contributed to this paper. We appreciate the ongoing partnership with Education Design Lab, including the particular support on this project from Nishita Cheda, Tara Laughlin, and Naomi Boyer. At EERC, Michelle Van Noy provided feedback and research support through various phases of the project, Angel Butts of the The Word Angel LLC provided excellent editorial assistance, and Jade Zack provided graphic design. The author is solely responsible for any errors.

Contents

Introduction	1
Methodology	3
Data Collection	3
Sample	3
Data Analysis	
Findings	5
Discussion	10
References	11

Introduction

Recent developments in policy and practice have begun to challenge the primacy of traditional postsecondary programs of study that culminate in degrees and certificates, which have historically been the means by which job seekers document their skills for prospective employers. The belief that additional years of education confer additional skills has remained generally unchallenged from its origin in the late 20th century (e.g., Becker 1975) through the present. Despite this nearly ubiquitous belief, others have theorized that degrees and certificates are weak signals of the skills workers possess – that knowing a person completed a degree does not reliably indicate that the degree holder knows how to complete tasks required in a workplace (Spence, 1973). This theoretical inconsistency between degrees and skills is accompanied by a practical issue. Despite decades of investment in the expansion of postsecondary education, degree completion rates have remained unchanged for at least the last 20 years.

Policymakers have recently turned their attention, and some resources, to non-degree credentials: programs that prepare workers for employment outside of the traditional degree-granting structure (Van Noy, 2023). Still another response looks beyond the schooling system altogether by providing workers with a means to directly verify and document the skills they already have in ways that can be shared with employers. Prior Learning Assessment (PLA), typically housed within postsecondary institutions, has been the traditional approach to this process and has shown promise for those who complete assessments (Klein-Collins et al., 2020; McKay & Douglas, 2020). Digital badging, a newer approach to this process, is notable both because it typically exists outside of higher education institutions and because it is a subject of increasing attention from policymakers and researchers alike (Stefaniak & Carey, 2019).

In 2021, Education Design Lab (EDL) announced a new initiative “aimed at offering new ways of assessing and credentialing the informal learning of transitioning military members, veterans, and unemployed and underemployed job-seeking civilians” (2021). The initiative intends to scale and automate PLA using online assessments. Like digital badges, XCredit assessments make the validation of existing skills more accessible to individuals outside of higher education institutions. While many digital badges focus on narrower technical skills, XCredit assessments focus on broadly applicable 21st Century skills¹ :

- Critical Thinking
- Oral Communication
- Creative Problem-Solving
- Intercultural Fluency

¹ At the time of the survey, XCredit offered validation of skills in the first six of these areas. XCredit currently offers validation in every area except Self-Directed Learning, which is in development.

- Resilience
- Empathy
- Initiative
- Collaboration
- Self-Directed Learning

The Education and Employment Research Center (EERC) is tasked with evaluating the implementation of EDL's XCredit program. This report presents initial findings of participant surveys administered to opportunity seekers who completed at least one XCredit assessment between February and August 2023 as part of one of two pilot programs. The surveys aimed to characterize the demographics, education and employment backgrounds, perceptions, and motivations of students who attempted XCredit assessments as part of two pilot programs.

Methodology

Data Collection

The EERC team created two Qualtrics surveys that corresponded to two XCredit programs. The first – named the military pilot – sought to engage opportunity seekers from EDL’s military partner organizations. The second – named the internal mobility pilot – focused on supporting employed individuals seeking career growth opportunities. Both instruments had common items that measured participants’ demographic traits, educational backgrounds, and certain employment traits². Both instruments also shared survey items that measured the participants’ demographic traits, their user experiences with the XCredit platform, and reasons for participation in the pilot program. Respondents immediately received an anonymous survey link after completion of an assessment, and participants were offered a \$10 gift card as compensation for participation in either survey.

Data collection began in February 2023 and concluded in mid-August 2023. Collection of surveys was complicated by three important factors. The first was generally low uptake of the assessments and the voluntary post-assessment survey.

The second complicating factor occurred in early June 2023, when the anonymous survey link appeared on at least one public internet forum. This led to a mass of survey takers who had not completed XCredit assessments and who were outside of the intended sampling frame of the survey. As a result, the evaluation team created new surveys with new links and implemented a manual verification process. The EERC team shared lists of email addresses from completed surveys; the EDL team used these lists to identify valid participants. This process may have eliminated some valid participants and reduced the final sample size.

The final factor was the gradual rollout of assessments in different competency areas. Assessments in the Critical Thinking competency area were released first and thus were available throughout the entire pilot period. Three additional competency areas were released later: Empathy & Initiative was made available in November 2022, Oral Communication and Creative Problem Solving were released late February 2023. The other three areas (Intercultural Fluency, Resilience and Collaboration) were made available later in the pilot period. This gradual release of content makes sense in the context of a pilot program but affects the validity of data collected on types of assessments completed by participants.

Sample

The sampling frame for the study is participants in XCredit assessments. The study sample is XCredit attempters who participated in the pilot program within the study period and responded to a voluntary survey following completion of their first assessment. In the study period 122 people completed XCredit assessments as part of

² The internal mobility pilot initially intended to engage the Lab’s employer partners with a focus on incumbent workers at these employers.

the pilot program.³ Of these participants, 52 completed the voluntary survey, a response rate of 43 percent. It is possible that survey respondents differ systematically from the larger group of survey respondents, so we interpret survey results with that in mind.

Data Analysis

Data were imported from Qualtrics and processed using Stata statistical software. We provide a descriptive analysis of participants, comparing our results to other existing data when possible (Loeb et al. 2017). For categorical variables, we use frequency tables; for continuous variables, we use descriptive statistics (e.g., means and standard deviations).

³ During the same period, many other people completed XCredit assessments, but only 122 were part of the pilot program, which was based on collaborations with EDL's military partners.

Findings

The demographics of respondents were diverse. Table 1 describes the demographic traits of XCredit attempters who completed the voluntary survey. Respondents varied substantially in terms of age, ranging from 24 (the minimum value, not presented in the table) to over 50, with the majority (61%) being over 30. Nine respondents (17%) did not indicate their year of birth. Most respondents (60%) were male, and about two-thirds (67%) were white. Black respondents (14%) were the largest group of non-white respondents. About one in six respondents (17%) identified as Hispanic or Latino of any race. The majority of respondents (56%) were married, and a substantial proportion were divorced or separated (21%). About half of respondents (52%) reported having at least one child in their household. Thus, the respondent sample could be characterized as mostly male independent adults, with or without children, who generally represent the racial/ethnic makeup of the US population (c.f., US Census Bureau, 2022).

Table 1. Demographic Traits of XCredit Attempters

Trait	Frequency	Percentage
<i>Age</i>		
21–30	11	21.2
31–40	13	25.0
41–50	9	17.3
50+	10	19.2
No response	9	17.3
<i>Sex</i>		
Male	31	59.6
Female	20	38.5
Transgender	1	1.9
<i>Race</i>		
White	35	67.3
Black	7	13.5
Asian	2	3.9
American Indian/Alaskan Native	1	1.9
More than one race	3	5.8
No response given	4	7.7
<i>Ethnicity</i>		
Hispanic	9	17.3
Not Hispanic	40	76.9
Prefer not to say	3	5.8
<i>Marital Status</i>		
Single	12	23.1

Married	29	55.8
Divorced/Separated	11	21.1
<i>Children in Household</i>		
No children	25	48.1
One child	13	25.0
More than one child	14	26.9

Respondents had high levels of education. Table 2 reports the educational and employment backgrounds of respondents. Looking at respondents' reports of their parents' educational attainment, we see that respondents' families are broadly similar to the educational attainment of the US population (c.f., NCES, 2022). But survey respondents themselves were markedly more educated than the US population, with nearly two-thirds (64%) having completed a bachelor's degree or more. Over three-quarters of respondents (77%) were employed at the time of the survey.⁴ Among employed respondents, 75 percent indicated working 40 hours or more per week. Thus, the respondent sample could be characterized as highly educated, mostly full-time workers.

Table 2. Education and Employment Traits of XCredit Attempters

Trait	Frequency	Percentage
<i>Parents' Educational Attainment</i>		
No postsecondary credential completed	19	37
Certificate	5	10
Associate degree	9	18
Bachelor's degree or more	18	35
<i>Respondent's Educational Attainment</i>		
No postsecondary credential completed	11	21
Certificate	5	10
Associate degree	3	6
Bachelor's degree or more	33	64
<i>Employment Status</i>		
Not employed	12	23
Employed	40	77
<i>Hours Worked*</i>		
Less than 30 hours per week	4	10
30–39 hours per week	6	15
40 or more hours per week	30	75

*Only applies to employed respondents

4 The parameters of one of the two instruments, the internal mobility survey, required that respondents be employed, so this statistic is partially an artifact of that parameter.

Critical thinking was a common competency area. Table 3 describes the XCredit assessments completed by respondents, as well the outcome of those assessments and respondents’ plans for taking more XCredit assessments. The great majority of the respondents (83%) completed assessments in the Critical Thinking (CT) competency area.⁵ Of those who completed a CT assessment, the great majority (84%) completed the “Gathering and assessing relevant information” assessment. Four of these respondents did not indicate which assessment they completed. Among survey respondents who completed an assessment, 73 percent successfully passed. This proportion can be compared with all pilot participants, among whom 57 percent successfully passed their first assessment. Over 90 percent of survey respondents indicated that they would either probably (35%) or definitely (58%) take another assessment; indeed, three respondents (6%) had already done so at the time of the survey.

Table 3. Assessments Taken, Outcomes, and Future Plans

Trait	Frequency	Percentage
Competency Area		
Critical thinking	43	83
Another competency area	8	15
No response given	1	2
Assessment Taken (within Critical Thinking)		
Identifying patterns	2	5
Gathering and assessing relevant information	36	84
Questioning assumptions	1	2
No response given	4	9
Assessment Passed		
Yes	38	73
No	13	25
No response given	1	2
Plan to Take Another Assessment		
Probably not	1	2
Probably yes	18	35
Definitely yes	30	58
Already did	3	6

⁵ As mentioned earlier, when the pilot started, participants could only complete assessments in the Critical Thinking competency area. It was also the first option available for participants to select. Thus, this statistic may be an artifact of the time at which survey responses were collected, and of the XCredit assessment structure.

Experiences with XCredit were positive, though more information on scoring would be well received. Table 4 describes respondents' subjective experience with taking an XCredit assessment. They were asked to rate their agreement with seven statements on a scale of 1 (strongly disagree) to 5 (strongly agree), where a score of 5 indicates a good experience with assessment. The table provides the average and standard deviation of all responses. The average responses to six of seven questions were all between 4 (agree) and 5 (strongly agree): respondents felt the process of signing up for and completing an assessment was straightforward and that resources and support were available. The one statement with a lower average score (3.7) indicates that at least a few respondents felt it was unclear how the assessments were evaluated.

Table 4. User Experiences with Assessments

Statement	Mean	Standard Deviation	# Responses
The orientation materials (video and guide) were helpful resources	4.2	0.7	51
Learning to navigate the XCredit platform was easy for me	4.2	0.7	52
Signing up for XCredit was easy	4.4	0.6	52
The steps required to complete an assessment were clear	4.3	0.8	52
I understood how the assessment was scored	3.7	1.2	52
The vocabulary in the assessment was easy to understand	4.4	0.6	52
It was easy to find all the information and support I needed	4.1	1.0	52

Note: 1=Strongly Disagree, 5= Strongly Agree

Verifying skills was seen as a key benefit. Table 5 describes respondents' perceptions of the benefits of completing XCredit assessments. These were measured by asking respondents to indicate which benefit(s) they hoped to gain from participating in XCredit. The great majority (87%) felt that "verifying my skills" was a benefit, and two-thirds agreed that XCredit assessments would "enhance my resume." About half of respondents indicated that XCredit assessments would help them "share skills directly with employers" and "find relevant job opportunities." Less than a quarter of respondents felt that "sharing my skills on social media" would be a benefit of XCredit assessments.

Table 5. Perceived Benefits of Assessments

Statement	Percentage
Verifying my skills	87
Enhancing my resume	67
Sharing my skills on social media	23
Sharing my skills directly with employers	52
Finding relevant job opportunities	54
Something else	6

Career change and advancement were common motivators. Table 6 reports respondents’ reasons for participating in the XCredit pilot. Reflecting the high rate of employment among respondents (see Table 2), the most commonly reported reasons were “to explore a possible job/career change” (56%), and “to advance in my current line of work” (48%). Just over a third (37%) of respondents indicated that they participated to “change to a new line of work.” Smaller proportions reported participating to “get out of low-wage work” (24%) or “to keep doing my current job” (17%).

Table 6. Reasons for Pilot Participation

Statement	Percentage
To get out of low-wage work	24
To keep doing my current job	17
To advance in my current line of work	48
To change to a new line of work	37
To explore a possible job/career change	56
Something else	19

Discussion

This report sought to provide characteristics of opportunity seekers who completed XCredit assessments. We found that participating assessment completers were mostly male independent adults, with or without children—a population that is generally representative of the racial/ethnic makeup of the US population. In terms of education and employment, respondents were relatively highly educated and mostly full-time workers. The timing of the survey (while assessments were still being built into the XCredit system) made it so that most completed assessments were in the Critical Thinking competency area. Most survey respondents passed their first assessment and indicated interest in completing more. User experiences were generally positive, though there was some indication that the scoring of assessments could be clearer. Respondents' most common reason for participating in XCredit was to explore a possible job or career change.

Survey data collection for the pilot was slow throughout the six-month period, partly due to cautionary measures taken by partner organizations. While XCredit is eventually intended to be an open-access assessment system, the pilot program was intended for specific populations connected to EDL's military and workforce board partners. The survey effort was delayed when the link to the anonymous survey became widely available on the internet, leading to a lengthy process of validating participants' eligibility for the study. As a result, the survey sample size was small (N=52), representing a fraction (43%) of pilot participants in this period. Further, respondents appear far more educated and well connected to the labor market than XCredit's theoretical target population. It is important to note that this is consistent with existing research on college-based noncredit programs, which has shown that individuals from among the noncredit population who opt in to survey research may be more educated and highly employed than is typical of the noncredit population as a whole (Douglas, Hughes, & Van Noy, 2023). This more educated survey sample may also explain their higher success rates on first assessments (73%) than that of all pilot program participants (57%).

These findings present a tentative portrait of XCredit assessment completers and their experiences. Further monitoring of participants in this program will be important as XCredit scales up with additional military, community, and employer partners.

References

- Becker, G. S. (1975). Human capital: A theoretical and empirical analysis, with special reference to education. National Bureau of Economic Research. <https://www.nber.org/books-and-chapters/human-capital-theoretical-and-empirical-analysis-special-reference-education-second-edition>
- Douglas, D., Hughes, K., & Van Noy, M. (2023). *Noncredit students at two community colleges: Who are they and what are their experiences?* Education and Employment Research Center. Piscataway, NJ: Rutgers School of Management and Labor Relations. <https://smlr.rutgers.edu/sites/default/files/Documents/Centers/EERC/Noncredit%20Students%20at%20Two%20Community%20Colleges%20Final%20-%20EERC%20-%20August%202023.pdf>
- Education Design Lab. (2021, July 21). *Education Design Lab launches collaborative to give job-seekers credit for lived experience*. <https://eddesignlab.org/news-events/xcredit>
- Klein-Collins, R., Taylor, J., Bishop, C., Bransberger, P., Lane, P., & Liebrandt, S. (2020, December). *The PLA boost: Results from a 72-institution targeted study of prior learning assessment and adult student outcomes* [revised]. Boulder, CO: Western Interstate Consortium of Higher Education. <https://www.wiche.edu/wp-content/uploads/2020/10/PLA-Boost-Report-CAEL-WICHE-Revised-Dec-2020.pdf>
- Loeb, S., Dynarski, S., McFarland, D., Morris, P., Reardon, S., & Reber, S. (2017, March). *Descriptive analysis in education: A guide for researchers*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. <https://files.eric.ed.gov/fulltext/ED573325.pdf>
- McKay, H., & Douglas, D. (2020). *Credit for prior learning in the community college: A case from Colorado*. Boulder, CO: Western Interstate Consortium of Higher Education. <https://www.wiche.edu/key-initiatives/recognition-of-learning/community-colleges/>
- National Center for Education Statistics. (2022). Educational attainment of young adults. *Condition of Education*. U.S. Department of Education, Institute of Education Sciences. Retrieved June 16, 2023, from <https://nces.ed.gov/programs/coe/indicator/caa>.
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics* 87(3): 355–374. <https://www.jstor.org/stable/1882010>
- Stefaniak, J., & Carey, K. (2019, 30 December). Instilling purpose and value in the implementation of digital badges in higher education. *International Journal of Educational Technology in Higher Education* 16(44). <https://doi.org/10.1186/s41239-019-0175-9>
- United States Census Bureau. (2022). *Quick facts: United States 2022*. <https://www.census.gov/quickfacts/fact/table/US/PST045222>

Van Noy, M. (2023). *Making sense of quality in the non-degree credential (NDC) marketplace: Implications for policymakers and practitioners* [Issue Brief]. Education and Employment Research Center. Piscataway, NJ: Rutgers School of Management and Labor Relations. <https://smlr.rutgers.edu/sites/default/files/Documents/Centers/EERC/Making%20Sense%20of%20Quality%20in%20the%20NDC%20Marketplace%20-%20EERC%20-%208.2023.pdf>

About

The Education and Employment Research Center

Rutgers' Education and Employment Research Center (EERC) is housed within the School of Management and Labor Relations. EERC conducts research and evaluation on programs and policies at the intersection of education and employment. Our work strives to improve policy and practice so that institutions may provide educational programs and pathways that ensure individuals obtain the education needed for success in the workplace, and employers have a skilled workforce to meet their human resource needs. For more information on our mission and current research, visit smlr.rutgers.edu/eerc.

EERC Areas of Focus

Community College Innovation



Student Choices and Pathways



STEM and Technician Education



Noncredit Education and Non-Degree Credentials



Education and Labor Market Connections



Rutgers' School of Management and Labor Relations

Rutgers' School of Management and Labor Relations (SMLR) is the leading source of expertise on the world of work, building effective and sustainable organizations, and the changing employment relationship. The school is comprised of two departments—one focused on all aspects of strategic human resource management and the other dedicated to the social science specialties related to labor studies and employment relations. In addition, SMLR provides many continuing education and certificate programs taught by world-class researchers and expert practitioners. For more information, visit smlr.rutgers.edu.

Education Design Lab

The Education Design Lab (the Lab for short) is a national, nonprofit innovation engine that co- designs, validates, and scales education-to-workforce models through a human-centered design process focused on understanding learner experiences, addressing equity gaps in higher education, and accelerating economic mobility for new majority learners. The process helps higher education leaders consider the needs of employers, using curriculum and program design as a gateway to make skills more visible to students and employers alike.

Rutgers Education and Employment Research Center

Janice H. Levin Building

94 Rockefeller Road

Piscataway, New Jersey 0885

smlr.rutgers.edu/eerc | Email: eerc@smlr.rutgers.edu



RUTGERS

School of Management
and Labor Relations