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To cite this article: Jonathan Lollar, Carol Leah Mueller & Wes Anthony (2023) Students in Correctional Education: Developmental Education's Forgotten Population, Journal of College Reading and Learning, 53:3, 170-191, DOI: [10.1080/10790195.2023.2204315](https://doi.org/10.1080/10790195.2023.2204315)

To link to this article: <https://doi.org/10.1080/10790195.2023.2204315>



Published online: 01 May 2023.



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Students in Correctional Education: Developmental Education's Forgotten Population

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ABSTRACT

The Office of Correctional Education was created through an Act of Congress in 1991 to oversee and coordinate prison education programs as a way to reduce recidivism (Carl D. Perkins Vocational and Applied Technology Education Act, 1990). However, correctional education completion rates are extremely low. Therefore, we used secondary data from the Program for the International Assessment of Adult Competencies survey to show that students in prison would benefit from developmental and student supports. Survey data represented 1,319 prisoners and 8,670 from the household population. We used descriptive analysis, chi-square tests, and Welch's t-tests to analyze survey data. We conclude that those in the prison sample had a greater potential need for student support programs than the household sample and would benefit from increased developmental and student supports.

KEYWORDS

Correctional education;
developmental education;
incarcerated population;
PIAAC; prisons

Correctional education programs exist in 91% of state prisons, 87% of private prisons, 60% of local jails, and all federal prisons (Harlow, 2003). Vocational programs and career certifications are commonly offered, though some programs offer postsecondary degrees. Incarceration presents students with unique obstacles that may influence their progress toward vocational stages, certifications, or postsecondary degree obtainment (Ahmed et al., 2019; Tolbert, 2012). Because these students face unique obstacles in addition to the typical hurdles that a student faces, there is an obligation to ensure their needs are identified and met with proper support. In fact, the College Reading and Learning Association (n.d.)—an international organization for developmental educators and learning assistance professionals—has stated that postsecondary learners possess the right to instruction with best practices as well as access to support services and learning resources (Greenbaum & Angus, 2018). This declaration, along with the rights of those in prison to receive an

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This article has been corrected with minor changes. These changes do not impact the academic content of the article.

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education (Vorhaus, 2014), means that developmental educators and learning assistance professionals have reason to serve this population.

Part of meeting the needs of students is identifying characteristics about the population and appropriate sources for support. This study aims to highlight characteristics of many who pursue education while incarcerated and show they would benefit from student support programs, and perhaps need those supports more than those in the household population—i.e., those in the general population and not currently incarcerated. By doing so, we hope that professionals in developmental education (DE) will begin to place time, resources, and research into students who are incarcerated and help them achieve educational goals. By collaborating with correctional institutions, DE professionals can provide support (face-to-face, online, or through phone and mail correspondence) to students in ways that reflect the DE professional's expertise. Thus, this study relied on analyzing data collected from the Program for the International Assessment of Adult Competencies (PIAAC).

Problem Statement

Around 463,000 people in prisons will be eligible for financial aid when the ban on prisoners' receiving financial aid ends in 2023 (Dennon, 2021). This creates an increased sense of urgency for research on student support for those in prison. Of those in long term (state and federal) facilities, only 9% complete a postsecondary degree in prison: 7% earn a vocational degree/certificate from a college or trade school, and 2% finish an associate degree; while around 4% complete some sort of pre-associate education program (Oakford et al., 2019; Rampey et al., 2016). Approximately 36% of individuals serving time in federal and state prisons have not achieved a high school diploma or equivalency, while only around 19% of people in the general household population fail to achieve this mark (diZerega, 2016).

DE and other student supports are readily available for 2-year and 4-year public postsecondary students, but how often are these supports offered for students in the prison system? Organizations such as the Vera Institute for Justice (Delaney et al., 2019), Alliance for Higher Education in Prison and the Prison University Project (Erzen et al., 2019), and the Prison-College-Pipeline (n.d.) have all cited DE instruction and support as vital for the reform and success of prison education programs. In addition to prison transfers, work releases, and funding, a lack of wider DE or student support offerings may be a factor in the low success rates for students in correctional education.

Literature Review

Correctional Education

Correctional education refers to educational programs for criminal offenders in a correctional institution. These are defined as prisons, jails, reformatories, work farms, detention centers, halfway houses, or community-based rehabilitation centers (Carl D. Perkins Vocational and Applied Technology Education Act, 1990). Programs are often administered through accredited community college partnerships to give students access to degrees or certifications. The following subsections outline the creation of correctional education and instructional methods used.

Legislation

In 1991, Congress enacted legislation that established the Office of Correctional Education and declared education as invaluable to reducing recidivism and easing reentry (Carl D. Perkins Vocational and Applied Technology Education Act, 1990). Assistance is largely given by coordinating correctional directors and educators at the state level, providing annual progress reports to Congress, and collecting data. The Act also dictated that all states in the U.S. must provide to the Office of Correctional Education the number of people who complete a vocational certification, complete a high school equivalency or GED program, or obtain a postsecondary degree. States must also provide to the Office of Correctional Education information regarding the correlation of educational programs with job placement, job retention, and recidivism. The Second Chance Pell initiative (Oakford et al., 2019) allowed 67 colleges and universities to partner with prisons to provide Pell Grant funded education. Furthermore, policymakers struck down the 20-year ban on federal aid for students in prisons, making federal financial aid (in addition to Pell) available to those in prison starting in 2023 (Dennon, 2021).

Instruction Offerings

Prisons are disproportionately populated by underrepresented groups who share the experiences of being racial minorities, coming from low socioeconomic backgrounds, and having lower education attainment (Western & Pettit, 2010). As Franklin-Davis and Gosha (2021) addressed, the solution must include investing in programs that provide soft skills, such as study skills and communication skills, to help students cope with the barriers underrepresented people face trying to succeed in the workforce, especially when these behaviors are rarely formally taught. Vocational—often including soft-skills instruction—is commonly offered by correctional institutions and highly utilized in states like North Carolina and Texas, with the latter focusing on vocational programs that match labor market data (U.S. Department of Education [USDE], 2009).

In addition to vocational offerings, academic programs (e.g., adult education, GED, associates degrees, etc.) are also present in correctional education. In fact, adult education and literacy instruction were the largest groups of education programs offered in prisons across the country, and states such as New Mexico focus most instruction on academic achievements (USDE, 2009). Though on-site instruction is common, nearly half of the respondents to an Institute for Higher Education Policy survey noted that their program utilized distance learning for their academic programs (Gorgol & Sponsler, 2011).

Developmental Education

DE assists students not only with academic weaknesses, but with the soft skills needed for academic success. Students who have not previously been successful, had been left underprepared by their previous education, or are first-generation students, can benefit from DE courses (Arendale, 2002; Boylan & White, 1987). DE in the United States began at Harvard in the 1600s. Students then could not attend college without a sufficient level of Latin and Greek, making postsecondary for the elite, white males who could afford tutoring (Arendale, 2002; Boylan & White, 1987). Precollege preparatory programs began being offered in the early and mid-1800s for wealthy white males in addition to private tutors (Arendale, 2002). From around the 1860s to the 1940s, federal legislation became more focused on postsecondary education and spurred the growth of junior/community colleges. Additionally, what was then referred to as *remedial* education became intertwined within college curriculums, as institutions took control over preparing potential students for college-level coursework. World War II created an influx of students needing quicker access to reading strategies and degrees to support the need for officers in the military, while the G.I. Bill created a need for an expansion of developmental programs and student supports because—due to being covered by G.I. Bill funds—returning veterans were taking advantage of academic support opportunities (Banner, 2006).

In modern DE, Boylan said that many of the methods and techniques that were being done in the 50s, 60s, and 70s—such as individualized and supplemental instruction—are still prevalent (Levine-Brown & Anthony, 2017). With the advent of new technologies, the field has seen innovations in integrated reading and writing, modularization, and co-requisite support. Programs offered today evolved to provide students with content knowledge and the study skills to be successful in college courses. While criticized for low completion rates, especially in developmental math, these courses are being taken by students who would not, in many cases, otherwise be admitted to college (Arendale, 2002).

Correctional Education in Developmental Education Literature

Despite a long history of research in DE, little to none of it has focused on correctional education. Utilizing an existing corpus of peer-reviewed articles from nine different journals across the field of DE, a search for the term *prison* was conducted. This resulted in 62 hits within 20 documents. The majority merely referenced the word prison as a thematic term or by generally referencing correctional institutions. Only four articles (Gleason et al., 2018; Olinger et al., 2012; Paulson & Barry, 2012; Stanley, 2017) mention prison education in some substantive way. An additional search for *inmate* and *correctional education* were conducted, but found no additional results. Gleason et al. (2018) discusses having included adults learning in an incarcerated setting as a topic in a graduate-level course that is taught in their graduate program, but does not delve into what the lesson covers. In Paulson & Barry (2012), the only mention of prison education comes from open-ended answers as part of a survey of college reading instructors, as some of the respondents noted having experience teaching in prisons. Stanley's (2017) article argues for the use of sociocultural style feedback to avoid micro-aggressions and to promote affirmation for students in basic writing courses. She goes on to critique a previously published article in which the author is retelling events from their experiences teaching basic writing courses in prison, and how an incident occurred when a student interpreted the instructor's extensive feedback as "dissin" (p. 11) her. Stanley contends that the experience left much to be desired, as the instructor chose to pull the student aside and offer more feedback, rather than take the opportunity to deconstruct what the student meant by the term 'dissin', and open up a conversation with the rest of the class to co-construct what the purpose of feedback on papers would be. Olinger et al. (2012) highlights a program in which ESL courses in prison utilized other inmates as part of a peer-assisted learning model, and the positive effects generated for all involved. This piece, by far, covers prison education the most extensively of everything found.

Developmental Education Practices in Prison

Despite a lack of formal conversations in the literature about correctional education, DE practices can be found in more well-resourced correctional education programs. For example, Adam State University (n.d.) has had correctional education programs for more than 25 years and offers "dedicated advisors" (Advising/Questions) to their students. However, this does not guarantee students will be able to contact and hear back from their advisors in a timely manner due to the difficulties with sending and receiving communications from prison. The Campus in Walls Program at Southside Virginia Community College (Jordan, 2022) boasts multiple campuses at correctional facilities in southern Virginia. Their students are housed together in

dormitory-style units, given a common room to work on assignments, and given laptop access, all to assist with facilitating and increased sense of belonging in their education pursuit. Uniquely, the program uses teaching assistants—typically fellow inmates that have graduated from college—who offer tutoring and mentoring services.

The Prison-to-College Pipeline (n.d.) program brings City University of New York (CUNY) faculty members to the Otisville Correctional Facility to teach credit and non-credit courses. The program also features a full-scale developmental education program to assist with reading and writing skills, and all students who keep a passing grade in their coursework are guaranteed acceptance to a CUNY college when released from prison. Additional resources include prerelease academic counseling, financial aid advisors, and advisors/transition coaches. Similarly, the Vera Institute of Justice recommends creating pathways models for education programs (Delaney et al., 2019). The model proposes the use of both developmental and credit-bearing courses to build college credential progress, implementing academic supports inside the prison which would include academic advising and peer support, reentry advising that assists with application assistance to local colleges, and training faculty and staff from local colleges to teach inside prisons. Post-release, supports would continue at their new institutions which would include financial aid, post-prison college persistence support, and hiring formerly incarcerated people to serve as trained peer counselors.

Academic Skills Assessment in Prison

There have only been a few large-scale surveys or assessments disseminated to those in prison regarding their education background and skill levels. The National Adult Literacy Survey (NALS) in 1992 and the National Assessment of Adult Literacy (NAAL) in 2003 were the first such surveys conducted by the National Center for Education Statistics (Greenberg & Jin, 2007). More recently, the PIAAC survey continued data collection with inmates in 2014 (Hogan et al., 2016). Each of these surveys compared prison and household samples across background questions and cognitive items. The NALS and NAAL only had literacy assessments (Greenberg & Jin, 2007), whereas the PIAAC implemented math assessments for the first time (Hogan et al., 2016).

The NALS and NAAL determined reading literacy skill proficiency using a 500-point scale to place respondents at below basic, basic, intermediate, and proficient levels (Greenberg & Jin, 2007). PIAAC adapted the scale and created levels 1–5 (Hogan et al., 2016). Each proficiency level is characterized by how complex the sentences are, the words used, and the skills needed for readers to grasp the test item (Organization for Economic Co-operation and

Development [OECD], 2016). The PIAAC has also added proficiency levels for numeracy that have functioned similarly and analyzed equations based on complexity and the skills needed to complete the task. Recent additions also include a measure for problem solving in technology-rich environments; however, no measures have been created for measuring writing skills/literacy.

Research Question

Correctional education studies are often centered around correlations with reductions in recidivism (Pompoco et al., 2017), but we seek to assess the potential need for student support by comparing prison and household samples across highest education achievements, parent/guardian education achievements, literacy scores, and numeracy scores from the PIAAC survey. Two additional research questions focus on the desire for education and basic skills classes activities while incarcerated. Research questions are as follows:

- RQ1: What is the desire for education amongst the prison sample?
- RQ2: How many in the prison sample are utilizing basic skills activities?
- RQ3: What is the association between highest education qualifications and whether someone is incarcerated?
- RQ4: What is the association between the first-gen status and whether someone is incarcerated?
- RQ5: What is the difference between the literacy scale scores in the prison sample and the household sample?
- RQ6: What is the difference between the numeracy scale scores in the prison sample and the household sample?

Null Hypothesis

The overall question was to determine if those who are incarcerated have a higher potential need for student supports than does the average U.S. household population. We investigated the research questions using the following null hypotheses:

- NH3: Incarceration status and highest education qualifications are independent.
- NH4: Incarceration status and highest education level of the mother or father are independent.
- NH5: There is no statistically significant difference between the literacy scale scores in the prison sample and the household sample.
- NH6: There is no statistically significant difference between the numeracy scale scores in the prison sample and the household sample.

Method

PIAAC Data

Due to the difficulty of gaining IRB approval for research within prisons, secondary research was used. The PIAAC survey offers a well-vetted and thorough set of publicly available data that offered the demographic and cognitive information necessary to address our research questions. A national supplementary test was conducted in households across the United States from 2013 to 2014. In 2014, 98 prisons across the country were surveyed. The raw data from the prison study and the PIAAC household study from 2014 was used for our data collection and analysis. We focused on survey items regarding highest education qualification attainment, highest parent/guardian education qualification attainment, the literacy and numeracy scale assessments, interest in education, and access to basic skills activities.

Sample

The prison study used a random sampling algorithm to select participants from 100 total detention facilities (80 all-male or coed facilities, 20 all-female; Hogan et al., 2016). Facilities ranged from minimum/low security to super-max/close/high security, federal and other types of facilities, and facilities placed in the northeastern, midwestern, southern, and western regions of the United States. The final reporting sample included 1,319 participants, only four of whom were unable to complete the questionnaire due to literacy-related issues. The final sample included 1,052 (93.30%) males and 267 (6.70%) females. Of the sample, 267 (21.96%) were Hispanic, 515 (34.24%) were White, 439 (36.57%) were Black, and 92 (7.22%) were marked as other. The national supplemental household study from 2014 contained its own sample, as well as the household sample from the main 2012 study to correct for unexpected under coverage of a targeted population and covered the same regions as the prison sample (Hogan et al., 2016). The final sample included 8,670 total respondents, which included 4659 (53.7%) females and 4011 (46.3%) males. Of the sample, 1101 (13%) were Hispanic, 5269 (62.3%) were White, 1450 (17.1%) were Black, and 641 (7.6%) were noted as other.

A discrepancy exists between the prison and household samples. The household sample had 53.7% female respondents while the prison sample had 6.7%, and those who self-reported as Black are overrepresented in the prison sample. Additional discrepancies included 21.96% Hispanic in the prison sample and 13% in the household sample, 34.24% White in the prison sample and 62.3% in the household sample, 36.57% Black in the prison sample with 17.1% in the household sample, and 93.30% males in the prison sample with 46.3% in the household study. This limitation persists through prison research when attempting to make comparisons to household samples. Though this limits

research claims, describing conditions and the barriers of those in prison is paramount to enhancing their support and chances of attaining an education.

Analysis Methods

Raw data for the prison (National Center for Education Statistics [NCES], 2016b) and household (National Center for Education Statistics [NCES], 2016a) studies were downloaded from their respective study pages. Per the technical report (Hogan et al., 2016), all syntax was created through IDB Analyzer 5 so that all final weights, replicated weights, and plausible values could be properly managed during analysis. The syntax was then run through SPSS 25 to compile frequency data. A Welch's t-test was conducted for research questions 5 and 6 to account for the difference in sample sizes (Welch, 1947). Accordingly, degrees of freedom were calculated using Satterthwaite's (1946) formula. To increase rigor, Hedges' g was implemented to calculate effect sizes because of sample size discrepancies (Maher et al., 2017). For research questions 3 and 4, corresponding chi-square tests were run to test for significance with an additional Phi coefficient calculation for effect size. Descriptive statistics were presented for research questions 1 and 2.

Results

The purpose of this investigation was to compare PIAAC's prison and household samples to understand if students in prisons had higher potential need for supports. The study focused on questions shared between the prison and household surveys which pertained to highest education qualification attainment, highest parent or guardian education qualification attainment, and the literacy and numeracy scale assessments. Despite not being reflected in the household survey, two prison survey questions describing educational interest and basic skills access were included.

Research Question 1

Several questions illustrated the desire for education (P_Q060, P_Q070, P_Q080, P_Q090, P_Q100; Hogan et al., 2016). The first asked if respondents (1190 valid responses) would like to enroll in an academic class or program of study, to which 830 (69.75%) responded affirmatively while 360 (30.35%) said they would not be interested in enrolling. The second inquired about the enrollment waiting list, which of the 823 valid responses, 210 (25.5%) said they were on a waiting list to get into classes and 613 (74.5%) said they were not. Next, the PIAAC requested information on the type of degree or certificate program respondents would like to enroll in. Of the 822 valid responses, 2 (0.24%) answered grades 1–6, 3 (0.36%) said grades 7–9, 152 (18.49%) said

high school or GED, 105 (12.77%) said pre-associate education/trade school without certification or degree received, 239 (29.07%) wanted to obtain a certificate from a college or trade school before enrolling in associate/bachelor programs, 148 (18.00%) were interested in an associate degree, 114 (14.86%) wanted a bachelor's degree, 35 (4.25%) wanted a master's degree, 10 (1.21%) wanted a professional degree (e.g., MD, DDS, DVM, LLB, JD), and 14 (1.70%) wanted to enroll in a doctorate degree program.

The fourth question asked about the respondents' (829 valid responses) reasons for wanting to enroll in an education program. Of the respondents, 6 (0.72%) were required to participate, 340 (41.01%) wanted to increase their knowledge or skills in a subject of interest, 47 (5.67%) wanted to obtain a certificate, 325 (39.20%) wanted to increase their job possibilities after release, 64 (7.72%) wanted to increase the possibility of getting a job assignment while incarcerated, 25 (3.02%) cited family reasons, and 22 (2.65%) answered other. The final question asked respondents why they did not want to enroll in an education program. Of the 365 valid responses, 38 (10.41%) said they did not have the necessary qualifications to enroll in the program of their choice, 27 (7.39%) wanted to enroll in a higher level of study than their prison made available, 31 (8.49%) had volunteer/work assignments they did not want to give up to attend class, 10 (2.73%) said the waitlist was too long, 24 (6.57%) said the programs were poor quality, 44 (12.05%) said the programs being offered were not useful, and 191 (52.32%) marked other. Open-ended responses under other included devoting their time to legal appeals, being released soon, being enrolled in other programs, and being uninterested (Rampey et al., 2016).

Descriptive analysis showed that 69.75% of respondents wanted to enroll in some sort of academic program, with 81.86% expressing that they wanted to enroll in postsecondary or higher programs. Only 0.72% expressed the reason for wanting to enroll in education programs as being required to. Respondents generally had personal reasons for enrollment interest. Though 20% did not want to enroll because of the poor quality or lack of usefulness, the majority (about 60%) were held back by time constraints (working on legal appeals, enrolled in other courses, about to be released, had work/volunteer assignments) or a lack of interest.

Research Question 2

Question B_Q27AUSP (Hogan et al., 2016) asked respondents if they had taken any classes or had tutoring to improve basic reading, writing, and math skills while incarcerated. Of the 1114 valid responses, 329 (29.50%) said yes while 785 (59.5) said no. Additionally, P_Q040 probed about reasons for participating in basic skills class or tutor activities. Of the 459 valid responses,

82 (6.20%) were required to participate, 136 (10.30%) wanted to increase their knowledge or skills in a subject of interest, 63 (4.80%) wanted to obtain a certificate, 131 (9.90%) wanted to increase the likelihood of getting a job when released, 21 (1.60%) wanted to increase the likelihood of getting a job assignment while incarcerated, 12 (0.9%) stated it was for family reasons, and 14 (1.10%) marked other. Though only 29.5% of respondents stated they had taken part in a basic skills class or tutoring activity during the current incarceration, 82.1% marked that they were taking the courses for reasons other than being required.

Research Question 3

Initial frequency data shows that a higher percentage of the prison sample has less than a high school diploma than does the household sample. Out of the 1313 respondents in the prison sample, 400 (30.17%) had less than a high school diploma, 828 (63.64%) had a high school diploma/some college but no degree, and 85 (6.19%) had a college degree or higher. For the 8472 respondents in the household sample, there were 1404 (13.98%) with less than a high school diploma, 4315 (49.89%) with a high school diploma/some college but no degree, and 2753 (36.13%) with a college degree or higher.

Results of the chi-square analysis indicated a statistically significant association between whether someone is incarcerated and their highest education qualification; $X^2 = 416.2273$, $p < .00001$. The effect size for this analysis ($\Phi = .206$) exceeds the convention for small effect size (Maher et al., 2017). Therefore, the null hypothesis that incarceration status and highest education qualifications are independent is rejected and we conclude that there is a statistically significant association between whether someone is incarcerated and their highest education qualification.

Research Question 4

This data set is intended to illustrate the number of potential first-generation (first-gen) students in either sample. The Center for First-Generation Student Success (2017) noted the federal definition of first-generation student is a student whose parents or guardians did not complete a four-year college degree and state the term implies that a student who is first-gen lacks the knowledge of the *hidden curriculum* of college because they were unable to receive it from their parents.

Accordingly—for the purposes of this study—those who answered, “neither parent has attained upper secondary” and “at least one parent has attained secondary and post-secondary, non-tertiary” (i.e., a 2-year or technical degree) are considered as potential first-generation students. Those who answered “at least one parent has attained tertiary” are considered continuing-gen. The

PIAAC considered “don’t know” as a valid response for this question because the response rate was over 85% and they believed it reasonable that a respondent may not know the education status of a parent or guardian if they had not been present enough in the home (Hogan et al., 2016). As it was counted as a valid response, it has been included in the chi-square analysis.

Of the 1315 relevant prison sample respondents, 736 (55.97%) of participants would be considered first-gen, 306 (23.27%) would be considered continuing-gen, and 273 (20.76%) did not know the status of their parent or guardians’ education. For the household sample of 8462 respondents, 4977 (58.82%) of participants would be considered first-gen, 3002 (35.48%) would be considered continuing-gen, and 483 (5.71%) did not know the status of their parent or guardians’ education. Results of the chi-square analysis indicated a statistically significant association between whether someone is incarcerated and their parents’ education attainment; $X^2 = 385.199, p < .00001$. The effect size for this analysis ($\Phi = .198$) exceeds the convention for small effect size (Maher et al., 2017). Therefore, the null hypothesis that incarceration status and highest education level of the mother or father are independent is rejected and we conclude that there is a statistically significant association between whether someone is incarcerated and their parents’ highest education attainment.

Research Question 5

The PIAAC assesses literacy proficiency using five levels (OECD, 2016). Those scoring below level 1 can locate a single piece of specific information from a familiar topic in a brief text. The information itself is identical in both the question and the text brief, meaning that respondents do not need to comprehend the text at all to locate the information. Level 3 indicates that someone is able to navigate dense text that often includes continuous and noncontinuous pages. Respondents in this level are able to construct meaning across larger portions of text and understand how to disregard irrelevant text content when answering questions. Those at level 5 are also able to synthesize dense texts, compare and contrast dense texts, and create evidence-based arguments and evaluate any conceptual models or logical constructs present in the text while also critiquing the reliability of the text and its sources.

Of the 1315 in the prison sample ($M = 1.98, SD = 0.931$), 74 (6.16%) scored below level one, 305 (22.87%) at level one, 564 (42.68%) at level two, 323 (24.48%) at level three, 45 (3.5%) at level four, and 4 (0.31%) at level five. For the 8488 in the household sample ($M = 2.30, SD = 1.289$), 344 (4.59%) scored below level one, 1324 (13.97%) at level one, 2997 (33.41%) at level two, 2852 (35.22%) at level three, 909 (12.02%) level four, and 62 (0.79%) at level five. The frequencies, means, and standard deviations were calculated using the appropriately weighted figures according to OECD (2016) guidelines.

Results of the Welch's independent t-test indicated a statistically significant difference between the literacy scores of the prison sample and the household sample; $t(2180) = -10.94, p < .001$. The effect size for this analysis ($d = .26, g = .26$) exceeds the convention for small effect size (Maher et al., 2017). Therefore, the null hypothesis that there is no statistically significant difference between the literacy scale scores in the prison sample and the household sample is rejected and we conclude that there is a statistically significant difference and suggest that those in the prison sample scored lower than those in the household sample on the literacy proficiency test.

Research Question 6

The numeracy scale identified those scoring below level 1 on the numeracy scale can accomplish tasks that require simple processes (e.g., counting, sorting, operations including money or whole numbers; OECD, 2016). Level 3 requires that a respondent can understand mathematical information from contexts that they may not be familiar with and that require several steps, choices for problem-solving, and other relevant processes. Tasks also require the application of patterns, mathematical relationships, and proportions that are stated numerically and verbally; and the interpretation of basic data from tables and graphs. At level 5, respondents can understand representations of abstract or formal mathematical ideas and statistics which are embedded within a complex text. Respondents at this level are also able to use multiple types of mathematical information to make inferences, develop mathematical models, and reflect critically on mathematical solutions or choices.

For the 1315 in the prison sample ($M = 1.45, SD = 0.982$), 237 (18.37%) scored below level one, 449 (34.08%) at level one, 452 (33.99%) at level two, 152 (11.49%) at level three, 24 (2.01%) at level four, and 1 (0.06%) at level five. Of the 8488 in the household sample ($M = 1.97, SD = 1.355$), 797 (8.65%) scored below level one, 1948 (20.30%) at level one, 2895 (33.51%) at level two, 2150 (27.84%) at level three, 643 (8.92%) at level four, and 55 (0.78%) at level five. The frequencies, means, and standard deviations were calculated using the appropriately weighted figures according to OECD (2016) guidelines.

Results of the Welch's independent t-test indicated a statistically significant difference between the numeracy scores of the prison sample and the household sample; $t(2174) = -16.87, p < .001$. The effect size for this analysis ($d = .40, g = .40$) exceeds the convention for medium effect size (Maher et al., 2017). Therefore, the null hypothesis that there is no statistically significant difference between the numeracy scale scores in the prison sample and the household sample is rejected and we conclude that there is a statistically significant difference and suggest that

those in the prison sample scored lower than those in the household sample on the numeracy proficiency test.

Discussion

Research Question 1

Identifying that those in prison may benefit from increased access to DE programs and student supports would be moot if they did not want to pursue educational goals. The descriptive analysis showed that 69.75% of prison sample respondents wanted to enroll in some sort of academic program and that only 0.72% of respondents wanted to enroll because they were required to. The rest of respondents had a mixture of personal and practical goals for enrollment. This indicates a strong desire for education programs in prisons, especially for postsecondary or higher (81.86%). For those not wanting to enroll, the majority (about 60%) were held back by time constraints (working on legal appeals, enrolled in other courses, about to be released, had work/volunteer assignments) or a lack of interest. This indicates that even if further student support or DE coursework could be available in prisons, some would still have difficult choices to make regarding their time and resources. However, by starting with a stronger base of support, students may be able to use their time more efficiently by moving more swiftly through their coursework after having completed the relevant support programs or having tutoring.

Research Question 2

Hogan et al. (2016) define basic skills activities as courses or tutoring to improve basic reading, writing, and math skills. This was included because of the basic similarity to DE courses, albeit without knowing if soft skill or self-directed learning instructions are included in the courses (as are common in DE courses). Only 29.50% of students reported taking part in basic skills activities. For those that did take the courses, 82.1% reported doing so for personal or practical reasons and only 6.20% stated they were required to take them. This shows that at least amongst those who have the ability or desire to take the courses, most of them are doing so because they want to. Unfortunately, no data was collected on why respondents chose not to take part. Overlap may exist with the reasons for respondents who did not enroll in education programs, which saw around 20% referencing the poor quality or lack of usefulness, and the majority (around 60%) needing to put their resources toward legal appeals, their upcoming release, or their other courses/work/volunteer assignments. Nonetheless, there seems to at least be a desire for such basic skills supports for those who can enroll and see them as fruitful for their future goals.

Research Question 3

Results showed a significant difference between the two groups at $p < .00001$ on education attainment and that those in the household sample were much more likely to have greater than a high school diploma and to have obtained a college degree or higher. The prison sample had a higher likelihood of having less than a high school diploma, but were also more likely to have a high school diploma or only some college. These seemingly contradictory likelihoods may be the result of the household sample completing college degrees or higher around 30% more often. Furthermore, results showed that the prison sample had 63.64% who had a high school diploma/some college, while 49.89% of the household sample answered the same. Without the items of high school diploma and some college being separated, it is impossible to understand how many respondents had only a high school diploma and did not attempt college versus those who have their high school diploma and took some college courses. If these were included as separate answers, then analysis could be done on how many in the prison sample have attempted college as compared to the household population, which could further address whether or not additional supports are needed for learners in prisons.

Due to the ambiguities that arise from combining high school diploma and some college together, more research is needed in order to understand the education gap between those in prisons and those in the general household population. If those in prison only have a high school diploma but are wanting to take courses, then transition support may be necessary, whereas if it is the case that those in prison are attempting college courses and simply not completing degrees or passing their courses, then various motivation (goal setting, self-efficacy), cognitive (study/learning strategy), and self-regulatory (self-change, self-awareness, time management) supports would be necessary.

Additional research should also be done to understand what some college specifically means. For example, if those in prison have more than 60 hours of college credits, then perhaps environmental barriers (lack of access to technology, financial aid, etc.) would require attention. If some college means those who have less than 30 hours of college, then perhaps more transition, study skill, learning strategy, and tutoring support would be necessary. Further research can strengthen advocacy for learners in prison by identifying what types of specific supports may be most relevant to their needs.

Nevertheless, our results showed that 30.17% of the prison sample had less than a high school diploma and only 6.2% held a college degree or higher. This is compared to the household sample having 13.98% with less than a high school diploma and 36.13% with a college degree or higher. Based on these

statistics, learners in prison would benefit from DE programs and/or student supports as a means of addressing the education gap between them and the household sample regarding high school equivalency and postsecondary degree attainment.

Research Question 4

We investigated the number of respondents most likely to be first-gen to assess who likely had knowledge of the *hidden curriculum*. Initially, the analysis only included responses where the parents'/guardians' education attainment was stated. This gave us that 62.37% of the household sample were first-gen, while 70.63% of the prison sample were first-gen. However, upon further inspection of Hogan et al. (2016), it was noted that “don't know” was included as a valid response and therefore the initial analysis did not make it into the results. The chi-statistic was significant in both instances, but the inclusion of “don't know” as a valid response meant that the household sample had a slightly higher percentage of respondents who were first-gen (58.82% over the prison sample's 55.79%), indicating that both samples are likely to benefit from student supports, particularly those aimed at first-gen students such as TRIO programs.

Interpreting the 20.76% of the prison sample and 5.71% of the household sample who did not know their parents'/guardians' education history is difficult. Hogan et al. (2016) stated “don't know” was a valid response because it seemed that if their parents/guardians were not around, then they would not know about their education background. If this is true, it is possible that these respondents could be considered first-gen because to access the hidden curriculum one would need to know their parents'/guardians' education experiences. This could mean that the prison sample is more likely to be considered first-gen—and would benefit from such supports—simply because their parents/guardians may have been more absent.

Research Questions 5 and 6

These questions were answered by analyzing the proficiency scores from the PIAAC. Both analyses were statistically significant, with the literacy score effect sizes being small and the numeracy effect sizes being medium. This indicates that being incarcerated had a stronger association with low proficiency scores for math than literacy.

With literacy and numeracy scores being much lower for the prison sample, this shows an increased need for supports like developmental literacy and tutoring. Lower literacy and numeracy scores may also hinder course and assignment completion. This hinderance is amplified for prison correspondence courses, which are still largely done through the mail or on the

computer with little accessible support from an instructor. Additionally, for courses that occur on site, students would still have limited access to their instructors. The lack of timely and accessible support from an instructor makes it imperative to increase access to tutors, academic coaching, and developmental coursework that can help students in prisons become confident and self-sufficient in their skills. These supports can be delivered in person, virtually, or through the mail by DE and student support professionals; however, the ways in which professionals engage with these students will depend on the needs, resources, and security of the facility. Other considerations include who is selected for education programs (typically selections are made based on a combination of crime committed, behavior, and time served) and the professional's comfort regarding their preference for virtual or in-person support. More long-term avenues of support may involve having organizations (such as the College Reading and Learning Association, Lifebound, or the National College Learning Center Association) train and certify existing prison staff and inmates to deliver support.

Results and subsequent discussions support our hypotheses that those who are incarcerated have a higher potential need for student supports than those in the average U.S. household. The natural conclusion is to express the need to implement these programs in prisons. The population that has been given the least access by DE and student support programs should be the ones to which society pays the most attention.

Limitations

Comparisons between prison and household samples can be difficult due to demographic differences. The PIAAC attempts to correct for these differences by oversampling some groups (e.g., women in prisons)—although it is not enough to correct the imbalance entirely. Nevertheless, we do not believe that these imbalances are enough to overshadow the importance of this secondary data. Given the immense difficulties of obtaining permission to do studies on detained populations, PIAAC data is one of the few avenues available for highlighting conditions and obstacles faced by this population regarding their education pursuits.

Conclusion

Our research has shown that lower education attainment, lower numeracy and literacy proficiency scores, and first-gen status are associated with incarceration. Expanding research beyond recidivism to find out what is working and what is not working in correctional education may cause meaningful change in

the future. By focusing on the need for additional student supports regarding academic and soft skills, we hope to encourage future research in the field of developmental education on practices that can encourage those in prison to enroll in education programs or assist learners in prison with completing their credentials, degrees, and high school equivalencies. We hypothesized that those who are incarcerated have a higher potential need for student supports than those in the average U.S. household. Additionally, of those who are incarcerated, we hypothesized that more would have a desire to learn for personal reasons rather than because of enrollment being a requirement. Finally, we hypothesized that fewer will be accessing support classes or tutoring. These assertions were supported by our data analysis.

Suggestions for future research would be investigating why there was low enrollment in the basic skills courses/tutoring. This seems odd given the high interest for education enrollment, low proficiency scores, and lower education attainment; and more research could illuminate why so few enrolled in basic-skills activities. The second research suggestion would be to understand what type of support is needed for students who “do not know” their parents’ or guardians’ education attainment status, particularly whether they function as first-gen students or not. Additionally, one of the drawbacks of the PIAAC data is that those who completed a high school diploma and those that have some college are placed in the same group. The support needs for those who have only a diploma and have not attempted college and those who have attempted some college will likely vary, and understanding the exact amount of education attainment for those in prison is paramount to understanding their needs. Finally, both prison staff and students in prisons should be interviewed in order to understand the types of supports each group would find valuable to prison education.

Regarding increasing DE’s presence in correctional education, The Alliance for Higher Education in Prison and the Prison University Project partnered together to create a set of recommended best practices for correctional education to promote success and equity (Erzen et al., 2019). Relevant to DE, they recommend that prison education programs have sequences that include developmental coursework (math, reading, and writing) when needed, comprehensive and sustainable one-on-one student advising, career and academic pathways, peer tutoring and peer mentoring, student success courses, study skills courses, culturally responsive pedagogy, and early warning systems. As administrators do not often view these programs to be integral to the mission of their colleges (Erzen et al., 2019), faculty and staff with experience with these recommended program areas will likely need research and seek out opportunities to assist with prison education on their own within previously established networks (e.g., Lee College in Texas, Southside Virginia Community College, Michigan Department of Corrections, Project Inside in

New Jersey, North Carolina Department of Public Safety, and City University of New York). DE organizations can assist as well. For example, organizations that offer accreditation and credentialing (e.g., College Reading and Learning Association, National College Learning Center Association, Association of Colleges for Teaching and Learning Assistance, and Association for the Coaching and Tutoring Profession) can work to train and certify individuals who are incarcerated as peer tutors, mentors, and academic coaches to provide better access to student supports.

Further implications of this research are that of the nearly 463,000 people in prisons who will become eligible for financial assistance in 2023 (Dennon, 2021), many of them will benefit from or need DE coursework or student supports. This will require increased federal and state funding for education supports in prison, more grants that target these types of supports, and more partnerships with local colleges. Most crucially, supporting this population of students will require care, attention, resources, time, and research from the DE community to guide prison education programs and their students to success.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Notes on Contributors

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