Integration of Assistive Technology in the Teaching of Incarcerated Students with Learning Challenges: One Instructor's Perspectives

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Abstract

While 7-10% of the people in the world are estimated to have dyslexia (Dyslexia International, 2022), the percentage of incarcerated persons with these "specific reading difficulties" is estimated at 40% (Dewey et al., 2020). Additionally, due to schooling experiences and a negative stigma associated with diagnosis, most of the older individuals remain undiagnosed (International Dyslexia Association, 2020). For instructors in correctional education, this means that they may suspect dyslexia, but do not have official diagnoses to support their instruction. They often teach with these diagnoses in mind, but face additional challenges because correctional education is typically a pen and paper setting. Safety protocols and lack of funding for technology mean that resources that might be present in other adult learning contexts (e.g., smartphones, laptops, electronic dictionaries) are not available to students. Teaching under those constraints makes it difficult to effect the very change correctional education intends: to provide adult learners with skills, knowledge and attitudes that will help them to make different choices upon release and will result in their living as productive members of society.

Keywords: Assistive technology, learning challenges, corrections, correctional instructors, instructional design

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INTRODUCTION

Until recently, correctional instructors have had few options for assistive technology - technological tools that facilitate learning in educational settings. With technological and safety advancements, coupled by jurisdictional approvals, a new tool is being approved for use in correctional settings: a scanning pen. A scanning pen is a device that looks like a thick pen or highlighter, but contains a mini-computer and a small screen. There are several brands on the market, but for our research, we refer specifically to the ReaderPen Secure (hereafter "the Pen"). When the student glides the Pen over a type-written sentence, it reads back the words to the student, thereby providing them with immediate feedback as to what the text says and how to pronounce the word. If they encounter a word they do not know, they can use the dictionary function to find out the meaning. The Pen can be used with or without headphones. Since it does not have a recording function and meets other safety requirements, it has been approved for use in several Canadian correctional institutions.

To ensure optimal use, instructors benefit from training in the use of the Pen and guidance in how to integrate it into their courses. In our larger research project, we have worked with correctional instructors to investigate their perceptions of the benefits and challenges to this integration. Regarding dyslexia, we wanted to know how they used the Pen with individuals with dyslexia (either confirmed or suspected) to determine if this assistive technology was particularly helpful. For the purpose of this article, we examine one experienced instructor's perceptions both before and after integrating the Pen.

LITERATURE REVIEW

Exploring the context of the use of assistive technology in learning environments and more specifically, with students with learning challenges like Dyslexia and Attention Deficit Disorder, is key to understanding the successes and gaps in its use. Assistive technology has been integrated into learning environments for decades in different forms (Fernández-Batanero et al., 2022) to assist with different physical and cognitive challenges that students face while learning. There is a possible benefit to using technology as it may provide autonomy of learning for the student (Cloete, 2017). Working inside the corrections environment brings even more complexity to students' learning as these severely structured environments bring constraining logistics around programming, daily schedules, and institutional policies (Mastrorilli, 2016). Literature, or lack of literature, on assistive technology-enhanced adult learning both in typical and correctional environments, provides a picture of the current state of use and impact.

Adult students who struggle with literacy learning have been a recent and growing concern. Factors influencing this struggle include an increase in diagnosis of children in recent years who are now entering adulthood and yet, ironically, adults who were not tested to identify and diagnose learning or cognitive disabilities and challenges (Dewey

et al., 2020; Learning Disabilities Association of Canada, 2024;). The awareness of assessment and teaching strategies for learning disabilities related to literacy has been around for over 60 years (Kirk & Bateman, 1962). Typically, undiagnosed students would be described as having difficulty reading and writing, which was inaccurately attributed to a lack of focus and hard work (McBride, 2019). Adult learning students in corrections often struggled throughout their formal schooling journey, not achieving academic success and typically their journey was accompanied by a lack of self-esteem, self-confidence and self-competence (Curwen & Sharpe, 2012). These past difficulties restrict the students' success in post-secondary courses, often leading to difficulty in acquiring and maintaining employment and securing long-term career pathways (Zhang, 2006). Additionally, age-appropriate methodologies to address adults with dyslexia is still considered a gap in the learning approaches for adults with dyslexia. According to McLoughlin and Leather (2013) "most interventions from assessment through to tutoring and accommodation are directed to the adult population who are still in education, and methodologies [are] based on models developed for work with children" (p. 2). Creating even more complexity is the broader indirect and direct discrimination students with learning disabilities encounter while in correctional environments. According to Gormley (2022), "institutional failings, or disabling barriers, revealed the hidden harms that people with learning disabilities face in prison", examples include lack of understanding prison sentences and release, lack of access to services, and high levels of fear of, harassment by and victimization (p. 266). The consequences of struggles with literacy learning are far reaching.

Reviewing the situation of adults with learning disabilities detained in correctional facilities reveals that the number of adults with learning disabilities is exponentially higher than in the nonincarcerated population. The percentage of students with learning challenges in correctional environments is 40% (Dewey et al., 2020). This number can be even higher when you add in individuals who are basic literacy learners and additional language learners (DelliCarpini, 2006). These students require additional support in the classroom, so the instructors are tasked with preparing for and teaching a group of students with diverse learning needs.

Before implementing technology, instructors invest time in learning the technology themselves, identifying which students might benefit from using assistive technology and developing instructional design strategies that align with the students' needs and the outcome of the courses (King, 2017). Teaching in correctional environments is complex as this closed environment is tightly managed by routines and processes that prioritize safety and institutional priorities. This impacts the teaching and learning through lockdowns, court procedures, disciplinary actions and individual transfer out of the institution mid-course. Instructors mitigate these realities using flexible teaching strategies and time management plans for students (McAleese, & Kilty, 2020). For example, they may send students back to their living spaces with work so they can complete a course. Increased student mental and cognitive needs also impact the class environment,

requiring specific strategies to meet student needs. Teachers typically utilize adult learning principles to ensure teaching strategies are relevant, meaningful, progressive, and cooperative to cater to the student's life experiences and personal and professional learning goals (Lugo, 2018; Merriam & Baumgartner, 2020). In addition, inclusive teaching practices and teaching tools are implemented as needed as the students attending class may be learning basic literacy or English language and/or have learning challenges. Learning challenges may include dyslexia, Attention Deficit Disorder, and other general or undiagnosed learning challenges (Bhatti, 2010). Franklin (2018) reported that while integrating the pen into the classroom, "tutors carefully consider the needs of their students and ensure confidence building is a focus within lessons" (p. 7). Developing inclusive strategies using assistive technology can provide possible solutions to decoding words, reading comprehension, defining terms, and pronunciation (MacArthur et al., 2001). While technology provides learners in corrections several options to enhance learning (Tilt, 2024), little is known about how assistive technology for learning in correctional environments is used. Since handheld assistive technologies like the Reader Pen Secure are very new, our investigation appears to be amongst the first of its kind (see Franklin, 2018; 2019, for an initial report on the Reader Pen Secure).

METHODS

This study emerged from a larger research project exploring the impact of assistive technology on students and instructors participating in courses in a correctional facility. This project was developed as a research partnership between the University of Calgary, Norquest College, and the Alberta Ministry of Justice. Ethics was obtained from the research ethics board at the university and the Alberta Ministry of Justice before conducting the study.

The following research question guided this study:

♦   How can assistive technology improve correctional education for incarcerated students with learning challenges?

Participants and Procedure

As part of the partnership, an experienced instructor from the college, which provides courses and programs in one provincial institution, volunteered to participate in the early phase of the larger project. This instructor, whom we refer to as Fiona, has 11 years of experience teaching at correctional centres. The instructor participated in the curriculum revision process, where they worked with the first author to adapt the instructional design to include the Pen as a teaching tool. The instructor taught several courses over one year, including four literacy courses and one high school course, with the Pen integrated. Using an iterative design, the process of curriculum revision included a pilot phase of four months, followed by an evaluation, reflection and revision process. Once revisions

were made to improve the student experience, the instructor continued their participation using the revised design for an additional eight months. Two interviews were conducted: an initial interview after the curriculum was revised, and a follow-up interview after one year of participation in the project. The first interview focused on the curriculum process and anticipation of how the Pen might impact student learning. The follow-up interview reflected on the instructor's experience using the Pen as an instructional tool and their perception of how the students learned using the pen. Each interview was approximately 25 minutes long. The transcriptions were analyzed inductively to reveal this experienced instructors' perception of how the use of the Pen facilitated student learning, especially for those students who may have presented with learning challenges.

FINDINGS AND DISCUSSION

In presenting our findings and discussion, we revisited our research question: How can assistive technology improve correctional education for incarcerated students with learning challenges? The findings revealed that, from the instructor's perspective, the assistive technology supported incarcerated students with learning challenges through intentional design and student agency. These aspects of learning with assistive technology in correctional classrooms are highlighted here through quotes from the interviews and discussed in light of the literature reviewed previously.

Intentional Design

Intentional design refers to instructional planning for the purposeful use of the assistive technology. This design involved integration rather than merely supplementary use. The Pen "really helps to kind of think outside the box and be able to be intentional of how you're going to implement the pen in class, and not just kind of like a supplement", (Fiona). King (2017) noted that intentional design was critical for integration of effective and mindful technology into adult learning. This instructional design allowed for differentiation. Fiona felt that "the consistency [of use of the Pen] is different with different students. With the students that started on a lower literacy level, when [she] asked them to apply [the Pen] they would" (Fiona). This correlates with the successful use of learning differentiation for lower literacy students, especially those with learning challenges, was also observed in the United States and Spain (MacArthur et al., 2001; Fernández-Batanero, 2022). However, McLoughlin and Leather (2013) stressed the need to recognize the struggles of higher-level learners, who might still experience learning challenges in the form of dyslexia. However, since Fiona usually taught lower literacy courses, it was understandable that was her focus. For these students, the use of the dictionary provided quick definitions to students as they came across unknown words. Fiona reported, "what was actually one of the places where [the students] probably used the pen more often, [was] for the dictionary function." This experience aligns closely with those incarcerated students interviewed by Tilt (2024), who "reported finding the in-cell computers were easier and more convenient than the alternatives" (p.159). Decoding and comprehension

were key uses for students who are literacy learning. The Pen provided decoding of unfamiliar words as the students easily scanned words and phrases to listen to them aloud or through their headphones. Regarding comprehension, Fiona related that with students with "lower literacy, [they] could see them not kind of understanding concepts as [they] was talking about it, especially those like the knowledge-based concepts". To aid comprehension, they then turned to the Pen. From the interview with Fiona, it was revealed that the intentional instructional design supported integration of the Pen and enabled differentiated support to students.

Student Agency

The assistive technology integrated into the courses supported several opportunities for students to solve problems and answer questions independently, exercising their agency. Fiona noted that the familiarity and ease of use meant that sometimes the students "just scanned [a text] and figured it out themselves." This agency was important because "the learners didn't always have to ask [the instructor] for everything, because they don't like doing that. And so, and some learners won't ask like, 'Oh, what's this word, or what does this mean?' They would just take their pen and do it. So that was really nice for [the instructor] and for them" (Fiona). As Merriam and Baumgartner (2020) note, adults prefer to choose how they support their learning. Choices, as an adult learning principle, benefits the student and, together with the Pen enhanced student agency by creating learning opportunities for autonomy and independence (Cloete, 2017). In particular, the students used the pen to assist in editing their projects. Fiona related that there were definitely "advantages to using the pen during the editing... it was empowering for them that [the instructor] didn't tell them ever they had to use it." Similar to the tutors in (Franklin, 2018; 2019), our instructor pointed out the advantages of intentional design and planning to support confidence building as a student outcome. The Pen could be credited with providing students several opportunities to exercise their agency as adult learners.

CONCLUSION

Literacy learning is vital for life and career success and an important skill for integration into society once released from incarceration, especially for students with learning challenges who have previously struggled with formal schooling (Lugo, 2018). In this study, the instructor, Fiona, employed an intentional design of assistive technology, specifically the scanning pen and found it allowed for differentiated support, particularly for students with lower literacy levels and learning challenges. The Pen also fostered student agency to choose how they engaged with the material. For incarcerated students with learning challenges, this means they do not have to reach out to the instructor each time they need help, but rather could be empowered to help themselves. Overall, the integration of the pen supported intentional instructional design and cultivated an environment where students could exercise their agency.

There are implications from the findings of this study on assistive technology for policymakers and decision-makers. These stakeholders are called to evaluate the landscape of available assistive technologies in their contexts and consider effective strategies for integration into existing systems. By prioritizing accessibility and support, we can ensure that these technologies enhance the lives of incarcerated students with learning challenges who would greatly benefit from them and create a more inclusive environment for everyone.

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