Universal Design for Learning and Academic Interventions for Students with Emotional and Behavioral Disorders

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Abstract

This systematic review of literature offers an analysis of interventions for students with emotional and behavioral disorders (EBD) for the presence of the three principles of Universal Design for Learning (UDL), and the use of technology. UDL focuses on three core principles, (a) representation, (b) action and expression, and (c) engagement, to help educators design motivating, accessible instruction and environments to increase the participation and achievement of all learners, including those with special needs. Research indicates many evidence-based interventions exhibit indicators associated with the principle of multiple means of engagement, but few studies embed multiple means of representation or action and expression within the specified interventions. This review found that 86% of academic interventions for students with EBD aligned with at least one aspect of the UDL framework. A discussion of implications for further research related to UDL implementation for classrooms (inclusive and self-contained) serving students with EBD follows.

INTRODUCTION

Students with emotional and behavioral disorders (EBD) have externalizing (e.g., delinquency, aggression, noncompliance) and internalizing (e.g., anxiety, depression, somatic complaints) behavior patterns. Many students with EBD display both (Achenbach, 1991; Lane, Jolivette, Conroy, Nelson, & Benner, 2011; Walker, Ramsey, & Gresham, 2004). The behavioral patterns persist into adulthood, leading to other life challenges such as under and unemployment, divorce, the need for mental health services, and contact with the justice system (Moffitt, 1993; Lane et al., 2011; Wagner, Kutash, Duchnowski, Epstein, & Sumi 2005). Less than 5% of school-aged students in 2014 received special education services for EBD (National Center for Educational Statistics, 2016). Although prevalence estimates suggest as much as 20% of all students have EBD, these students often are unidentified and therefore unserved during their educational years (Lane et al., 2011).

Students with EBD often are described as the toughest to teach, the most likely to be placed in specialized classrooms, and most likely to fail in the school setting (Fitzpatrick & Knowlton, 2009). These students are less engaged by academic work, more likely to display off task behaviors, and more impulsive in the classroom (Swaggart, 1998). The lack of engagement and distractibility exacerbates problem behavior and academic difficulties resulting in less academic instruction, decreased exposure to academic material/course content, and fewer opportunities to learn (Carr, Taylor, & Robinson, 1991; Wehby, Symons, Canale, & Go, 1998). For example, students with EBD perform 1.2-2 grade levels behind their peers in elementary school (Trout, Nordness, Pierce, & Epstein, 2003). Unfortunately, the discrepancy worsens with age. By the time these students reach high school, they are performing almost 3.5 grade levels behind their peers, with less than one-third of students with EBD functioning at or above grade level in any academic area (Coutinho, 1986; Epstein, Kinder & Bursuck, 1989). Despite these academic outcomes, most interventions conducted with students with EBD have focused primarily on behavior interventions and supports, often neglecting the glaring academic deficiencies found within this group of students (Ryan, Reid, & Epstein, 2004). More explicitly, eliminating aspects of curricula and instruction that function as barriers to academic learning may support appropriate student behavior while improving academic outcomes.

APPLICATION OF UDL FOR STUDENTS WITH EBD

The three principles of UDL can be applied to the instruction of students with EBD in a variety of ways. The first principle calls for providing multiple means of representation so that students can approach information in more than one way (National Education Technology Plan, 2016). For example, if a student with an EBD struggles with reading fluency the teacher could utilize audio software to minimize frustration during independent reading time and increase comprehension (multiple means of representation). If an assignment required a student to write, but s/he lacks the necessary social skills to work on a group project, then the teacher could allow for online collaboration through a system like GoogleDocs (multiple means of action and expression). Also, teachers allowing students to choose whether to build a model, take a test, create a board game or etcetera related to the content are ways in which student interest can be recruited (multiple means of engagement). Allowing these sorts of choices for demonstrating knowledge also is a means of assessing students' content attainment in a variety of ways which also allows for multiple means of action and expression. Additionally, digital learning tools within the UDL framework can offer more flexibility and learning supports than can traditional formats for students with EBD. Furthermore, using mobile devices, laptops, and networked systems, educators are better able to individualize and customize learning experiences to align with the needs and variability of each student. Consequently, UDL could decrease externalized and internalized behaviors, lead to active engagement in the learning process, and improve academic performance of students with EBD.

PURPOSE OF THE REVIEW

Intervention research on students with EBD has primarily focused on behavior, overlooking the importance and potential for academic interventions for this population of students. UDL may be one way to support teachers of students with EBD design accessible instruction and utilize technology to improve student academic and behavioral development despite student social and academic deficits. The purpose of this systematic literature review is to analyze academic interventions for students with EBD for the

presence of the three principles of UDL to address the following research questions:

How do academic intervention research studies that include students with EBD align with the UDL framework?

How have researchers used technology as part of interventions for students with EBD?

RESULTS

I reviewed and analyzed 22 articles from 14 different scholarly journals that met the inclusion criteria. The included studies were represented in several journals, including *Education & Treatment of Children, Exceptional Children, Child & Youth Care Forum, Preventing School Failure: Alternative Education for Children and Youth, Journal of Special Education Technology, Behavior Disorders, Learning Disability Quarterly, Journal of Behavioral Education, Severe Behavior Disorders of Children, Beyond Behavior, Journal of Negro Education, Exceptionality, Journal of Emotional & Behavioral Disorders*. All the articles were published between 2005 and 2015. These articles became the focus of the review and are identified with an asterisk in the "References" section. Articles were categorized by whether they met one or more of the guidelines under the three principles of UDL, with two studies aligning to all three principles and three studies aligning to none of the three principles.

Table 1 shows how each of the included studies aligned with the principles of UDL. A total of four studies included technology in ways that aligned with representation options under UDL. Two studies used interventions that incorporated features aligned with the multiple means of action and expression. The bulk of studies included aspects that addressed student engagement and did so using ways to recruit interest, sustain student effort and persistence, and promote student self-regulation. Furthermore, two studies incorporated features that aligned with all three principles of the UDL framework. A total of 14 studies incorporated a form of technology as a part of their academic intervention, with technology ranging from mobile devices to a variety of software applications. In the next section, I discuss the results organized by the three domains of UDL.

Technology as Part of Interventions for Students with EBD

Technology was used as a component of the intervention in 14 of the 22 studies (64%). Mobile devices were used in seven studies. For example, iPads were used to study whether students had greater accuracy in solving math problems, reading fluency, and as a possible reinforcement (Flower, 2014; Haydon et al., 2012; Skerbetz & Kostewicz, 2015). One video modeling study used a mobile device (iPod touch; Blood et al., 2011)—whereas the other video modeling study used a video camera and a TV (Chu & Baker, 2015). Moreover, mobile devices were also used to monitor on-task behavior, and as a self-monitoring tool (Gulchak, 2008; Will & Mason, 2014). Furthermore, AlphaSmart Neoboards, which are personal word processing units that have full keyboards were utilized as a writing tool (Ennis et al., 2014).

A variety of computer software was used throughout the studies included in this review. For instance, Inspiration was used to develop cognitive maps (Blankenship et al., 2005). In Evmenova et al. (2016) students used computer-based graphic organizers developed on Microsoft Word to support planning and writing of persuasive essays. Students used Microsoft Excel to enter their CBM data on a spreadsheet and graphed their effort on the embedded graph (Sutherland & Snyder, 2007). Microsoft Power Point was also used to display information to students in a variety of ways (Patterson, 2005). TELLE-Web software was used as a scaffolding tool to enhance writing performance in an online environment (Englert et al., 2007).

> Lastly, the student response system was used to increase active responding (SRS; Blood 2010). SRS is a polling system that allow the students to use a small handheld device, commonly referred to as a clicker, to respond to multiple-choice and true-false questions posed by the instructor. To concluded, utilizing the SRS as a tool within the classroom greatly increased the likelihood that students would respond to questions posed by the instructor.

DISCUSSION

The purpose of this review was to examine academic interventions for students with EBD, with and without the incorporation of technology, for the presence of the UDL framework. Research supports that effective instruction for students with EBD can lead to positive academic and behavioral outcomes (Wehby et al., 2003). Through the use of UDL and technology, schools can provide more accessible, meaningful, and engaging learning environments for all students, especially those with diverse learning needs (Rose & Meyer, 2002). This happens through the teacher systematically planning for the removal of the academic or social barrier that triggers emotional distress.

How do academic intervention research studies that include students with EBD align with the UDL framework? The results of this research indicated that academic interventions for students with EBD align with one of the three parts of the UDL framework, but few studies indicated an alignment with all three parts of the UDL framework. For instance, only two studies showed the presence of multiple means of representation and another two studies showed the presence of multiple means of action and expression. Across all the studies, 86% demonstrated some alignment with the UDL framework. Thus, 9% of the studies aligned with multiple means of representation, and another 9% of the studies aligned with action and expression. Whereas, 59% of the studies aligned with the principle of multiple means of engagement. Of the 22 studies, only 11% (n= 2) aligned with all three principles of the UDL framework.

However, 13% of the studies didn't align with any of the UDL framework principles.

The results indicate that academic interventions for students with EBD aligned to the UDL framework in limited ways. This could be due to the extra planning time needed to prepare interventions using components of the UDL framework. When teachers assess students with the action and expression principle in mind they may be intimidated by having to create multiple option opportunities for students to be assessed. The studies that did provide multiple means of representation maximized the technology available to them in the classroom, using power point, recorders to provide feedback, and the low-tech paper pencil feedback and notes. Furthermore, the two studies that provided multiple means of action and expression utilized high- and low-tech by providing students the opportunity to answer questions through SRS, and by allowing students to pick which way they would like to solve math word problems. These were simple ways to provide options within those two principles, but they all proved to be effective for students with EBD.

Multiple means of engagement was the most prevalent principle in these academic interventions for students with EBD. Out of the 22 studies, 13 aligned to one or more of the UDL guidelines for engagement within the intervention. There are a variety of reasons for this occurrence. First, providing students with choices is a very empowering way to instruct students with EBD (Skerbetz & Kostewicz, 2015). Given the cost/benefit ratio of implementing academic choice, teachers may find incorporating academic choice an effective option to assist students with EBD in inclusive settings (Skerbetz & Kostewicz, 2015). Next, providing opportunities for engagement consist of allowing students to optimize relevance, value, and authenticity which allows for the students to make an actual connection to their work. Another relevant part of increasing engagement is the fostering of collaboration and community, which was conducted in interventions such as NHT+I (citation needed).

Technology was utilized in 64% of the studies. The use of technology and its positive impact on student outcomes shows the need for more innovative intervention practices for students with EBD. These positive outcomes could be due to novelty, or the instantaneous feedback technology provides in areas such as math (Haydon et al., 2012). When using technology as a reading tool, as in making cognitive maps to increase reading comprehension, it allowed for students to see a visual representation of their thinking which is a component of multiple means of representation (Blankenship et al., 2005). Furthermore, game elements featured in iPad games (immediate feedback, correct errors, obtain clues, practice for mastery, and earn within game reinforcement such as points, stickers, awards) may promote on-task behavior, as students do not have to wait for teachers to provide such feedback (Haydon et al., 2012). Additionally, students can practice for mastery purposes; whereas, a worksheet may not provide enough opportunity for mastery. Being able to access feedback without constant teacher presence appears to be a benefit to both teachers and students (Haydon et al., 2012). This is an important implication as students with EBD have academic performance deficits and struggle to remain on task. Finally, students were responsive when the intervention included technology (Blankenship et al, 2005; Flower, 2014; Haydon et al., 2012; Skerbetz & Kostewicz, 2015) and with exception of one intervention, on-task behavior increased dramatically. Thus, the use of technology with students who have EBD is a tool that should be further explored as intervention and instructional tool in efforts to develop more innovative practices for this population of students.

CONCLUSION

Designing effective, accessible instruction for students with EBD is vital to their success in school and beyond. By identifying and removing barriers from teaching methods and curriculum materials that reliably predict problem behaviors, teachers are proactively designing their instruction to meet the academic needs of students with EBD. The UDL framework may clarify ways to better support the academic and behavioral needs for students with EBD. This study examined current research on academic interventions for students with EBD searching for the presence of the three UDL principles and their guidelines. After looking at the literature I see that certain guidelines are already occurring in classrooms. While these principles are occurring, they are not occurring under the implementation of the UDL framework. Now that these guidelines are prevalent in classrooms, we should ask ourselves if we extended and added other parts of the framework into what teachers are already doing, would that improve academic and behavioral outcomes for students with EBD? For instance, EBD classrooms for many of the studies I found are designed with some level of engagement being addressed, what happens when we layer in designs of the other principles such as representation, action and expression, or both? Questions like these open a window of opportunity in research and practice that could significantly impact the way in which we instruct students with EBD. UDL is the future of instructional design, and the sooner we start embedding it into our practice for students with EBD, the sooner they can reap the benefits of effective, accessible instruction.

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