Interventions for Learning Disabilities: Annotated Bibliography

Christina Thatcher

Department of Education, Sul Ross State University

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Dr. Lisa Sousa

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Annotated Bibliography of EBP for Disabilities

Beard, J. (2023, August 5). *Module four learning activity: Annotated bibliography for technology* [Discussion board post]. Sul Ross State University. https://shsu.blackboard.com

Research was conducted that explored the effects of the use of eBooks in the skill of reading. Results showed that eBooks were beneficial to students with disabilities, but there are concerns that students ignore or miss important aspects of reading, including comprehension. The distraction of what technology can offer is also a concern raised in this study. The use of eBooks is a tool that helps students with reading deficits, but this tool is not proven to help with test scores in reading.

Beard, N. (2023, August 5). *Module four learning activity: Annotated bibliography for technology* [Discussion board post]. Sul Ross State University. https://shsu.blackboard.com

The use of assistive technology (AT) for students with visual impairments was explored and found multiple devices to help these students. Two subjects that were explored were P.E. and math. Devices to help in each subject were listed, as well as the benefits of the use of these tools. The use of 3D objects was emphasized to include an abacus, objects with braille, as well as tandem bicycles.

Chazin, K. T., Velez, M. S., & Ledford, J. R. (2022). Reducing escape without escape extinction: A systematic review and meta-analysis of escape-based interventions. *Journal of Behavioral Education, 31,* 186-215. https://doi.org/10.1007/s10864-021-09453-2

The evaluation of this study focused on those with disabilities that used the escape method to avoid unwanted tasks. In this study, it was noted that many teachers offer an

intervention that does not give the option of escape, which can further exacerbate the situation. It was suggested that adults working with these individuals try to use methods that give an alternative to escaping, preferably something that the individual deems more desirable, rather than taking away the option of escape. It was found that whether an escape option was offered, there were no large differences in reducing behavior. The authors recommended antecedent intervention as well as reinforcement.

Cook, J. L., Rapp, J. T., Gomes, L. A., Frazer, T. J., & Lindbald, T. L. (2014). Effects of verbal reprimands on targeted and untargeted stereotypy. *Behavioral Interventions, 29*(2), 106-124. https://doi.org/10.1002/bin.1378

This study evaluated five students diagnosed with autism spectrum disorder (ASD). These students displayed vocal stereotypy in various forms. Many students with ASD struggle with social interactions. Stereotypy in most forms can attribute to deficits in social interaction and increase social isolation. The purpose of this study was to evaluate the results of verbal reprimands targeting vocal stereotypy. It was found that verbal reprimands decreased vocal stereotypy in the majority of those evaluated. During the study, there was never a point of complete extinction of the vocal stereotypy, but a couple of the students had sustained periods of time without vocal stereotypy. The results displayed that verbal reprimands can be beneficial in reducing vocal stereotypy. However, it should be noted that this was a study of a very limited number of individuals.

Costa, L. C., Edwards, C. N., & Hooper, S. R. (2016). Writing disabilities and reading disabilities in elementary school students: Rates of co-occurrence and cognitive burden. *Learning Disability Quarterly, 39* (1), 17-30. https://doi.org/10.1177/0731948714565461

Costa et al. (2016) studied the concomitance of reading and writing disabilities in students in first through fourth grades. During their study, they separated the students into three groups classified as developmentally typical, with a disability in writing only, or with a disability in reading and writing. The researchers used standardized assessments in the areas of language, writing, memory, executive functions, and fine motor skills. It was found that the students with the concomitance of reading and writing disabilities scored lower in cognitive areas tested than the typically developing students and the students with only writing disabilities in each area with differing effects for each grade level, except for fine-motor skills. Results of the study also showed possible early identification and intervention needed at the preschool level to help those students that have reading and writing disabilities together to alleviate further academic struggles in their academic future. The implication of this study is that there is an underlying cognitive connection between reading and writing skills that should be studied further. This study was longitudinal in that it followed the students beginning in first grade until fourth grade. However, the researchers noted that this is one of the first of this type of study and that a longitudinal study that follows students throughout their entire education would be beneficial.

Dwyer, K., Rozewski, D., & Simonsen, B. (2012). A comparison of function-based replacement behaviors for escape-motivated students. *Journal of Emotional and Behavioral Disorders, 20*(2), 115-125. https://doi.org/10.1177/1063426610387432

Challenging behaviors such as escaping undesirable tasks are the focus of this study. Many studies suggest replacing the challenging behavior with an alternative behavior to motivate the student to stay on-task. It is also agreed that identifying the function of the

challenging behavior is imperative to making appropriate decisions for intervention. This study suggests rotating approved behaviors to replace escaping tasks. There are also implications for providing students with choices of which behaviors they would like to try in the place of escaping the task. This study indicates that there is a low level of unwanted behaviors when students are presented with choices and given more control of their situation.

Kroesbergen, E. H., & Van Luit, J. E. H. (2003). Mathematics interventions for children with special educational needs: A meta-analysis. *Remedial and Special Education, 24*(2), 97-114. https://doi.org/10.1177/07419325030240020501

In this meta-analysis, the authors sought to find effective intervention strategies for mathematical struggles in special education. It was determined that there is an early onset of disability in math regarding basic skills. As most other intervention research on varied subjects will suggest, this study agreed that early intervention is significant. Disabilities in mathematics present in varying forms such as basic skills, problem-solving skills, computation, or the when and where of application of mathematical skills. Though educators are encouraged to use many forms of intervention, it was found that instruction directly taught by the teacher and instruction by the student was the most effective. Peer tutoring that is found in most classrooms can be beneficial, but problems arise when peers do not know what a struggling student needs for guidance. Intervention in the form of computers may help with automaticity but should not serve as a primary intervention or as a substitute for explicit and direct instruction from a teacher.

Ledbetter-Cho, K., O'Reilly, M., Watkins, L., Lang, R., Lim, N., Davenport, K., & Murphy, C. (2023). The effects of a teacher-implemented video-enhanced activity schedule

intervention on the mathematical skills and collateral behaviors of students with autism. *Journal of Autism and Developmental Disorders, 53*(2), 553-568. https://doi.org/10.1007/s10803-020-04495-3

This study examined the outcome of video modeling (VM) and video activity schedules (VAS) in five students with autism. The teacher used an iPad to make PowerPoint slides with video clips as a mathematical intervention for each student. The video clips showed step-by-step instructions on how to perform the targeted mathematical skills. The mathematic skills being addressed were counting on from a numeral, adding single-digit numbers, and counting images. The teacher practiced using the iPad intervention with each student individually and then released the students to try to use the iPad interventions on their own while she engaged in other activities in the classroom. The goal was for the students to eventually complete their tasks independently of the iPad intervention instruction. The students were able to complete their mathematical tasks with the iPad intervention, but not all the students were able to complete the tasks independently of the iPad. It was also noted that stereotypy and other unwanted challenging behaviors were reduced while using the intervention. This was not acutely measured but was a welcome side effect. This could have been because the students were busy and preoccupied with the iPads. It was also noted that many students with autism prefer instruction by means of technology rather than in-person.

Lequia, J., Machalicek, W., & Lyons, G. (2013). Parent education intervention results in decreased challenging behavior and improved task engagement for students with disabilities during academic tasks. *Behavioral Interventions, 28*(4), 322-343. https://doi.org/10.1002/bin.1369

Children diagnosed with autism spectrum disorder (ASD) or attention deficit hyperactivity disorder (ADHD) that displayed challenging behaviors including yelling, flopping, and aggression were examined in this study. The approach to this study was to teach parents individually about forms of intervention that they could use at home to help their students with challenging behaviors when presented with tasks that the child did not want to do. Three children were examined as well as one or more of each of their sets of parents. The overall results revealed that educating parents in interventions had a positive impact on the parents as well as the students. The parents felt supported and more knowledgeable after their training. The actions of parents performing intervention behaviors reduced the incidents of challenging behaviors as well as increased on-task behaviors.

Lovett, M. W., Frijters, J. C., Wolf, M., Steinbach, K. A., Sevcik, R. A., & Morris, R. D. (2017). Early intervention for children at risk for reading disabilities: The impact of grade intervention and individual differences on intervention outcomes. *Journal of Educational Psychology, 109*(7), 889-914. https://doi.org/10.1037/edu0000181

This study addresses the effects of the time at which a student is placed in intervention for reading disabilities as well as examines specific reading intervention strategies. As implied in other studies, this study agrees that early intervention is best, with gains when placement in intervention begins in the first grade. Though early intervention seems to be the favored method, this study noted that early intervention does not weigh the same number of benefits for differing areas of reading. There were advantages noted of peer tutoring for skills such as recognizing words and reading through forms of text. The most beneficial interventions examined in this study involved intensive phonics instruction as

well as phonological awareness. Specifically, this study examined the Triple Focus Program and the large effect size of gains among those studied. It was found that the Triple Focus Program was largely beneficial for students that received instruction in first grade through third grade.

Martinez, D. (2023, August 6). *Module four learning activity: Annotated bibliography for technology* [Discussion board post]. Sul Ross State University. https://shsu.blackboard.com

Students with dysgraphia or dyslexia participated in a study that allowed the use of technology in the writing process. The tools used were keyboards and access to a stylus. The results showed that students improved their writing skills and later performed in a similar fashion to those students that did not have disabilities.

Morano, S., Ruiz, S., Hwang, J., Wertalik, J. L., Moeller, J., Karal, M. A., & Mulloy, A. (2017). Meta-analysis of single-case treatment effects on self-injurious behavior for individuals with autism and intellectual disabilities. *Autism & Developmental Language Impairments, 2*, 1-26. https://doi.org/10.1177/2396941516688399

This meta-analysis focused on the treatment of self-injury in those diagnosed with intellectual disabilities and autism. The perspectives of medical treatment and behavioral treatment were addressed. Medical treatment involved providing medication to individuals being studied. Behavioral treatment was measured with a functional analysis (FAn) approach. To reduce self-injurious behavior (SIB), punishment and reinforcement in varying order and combination produced the best results. However, the study did caution against the use of punishment and recommended limitations when punishment was used. Medical intervention, such as medication, was found to yield a small effect.

The use of extinction also revealed a small effect. It was also noted that categorizing the behavior function did not make a difference in results.

O'Reilly, M., Fragale, C., Gainey, S., Kang, S., Koch, H., Shubert, J., El Zein, F., Longino, D., Chung, M., Xu, Z., White, P., Lang, R., Davis, T., Rispoli, M., Lancioni, G., Didden, R., Healy, O., Kagohara, D., van der Meer, L., & Sigafoos, J. (2012). Examination of an antecedent communication intervention to reduce tangibly maintained challenging behavior: A controlled analog analysis. *Research in Developmental Disabilities, 33*(5), 1462-1468. https://doi.org/10.1016/j.ridd.2012.03.017

This study focused on the effects of tangible items versus antecedents when implementing an intervention for three students with autism as well as varying comorbid disabilities. The students were evaluated separately and in their own educational environment. Each student had a unique preferred tangible item that served as the main component for analysis. Challenging behaviors were noted to continue to be maintained when exposure to the preferred tangible items was present. However, communication through an antecedent was found to produce lower challenging behaviors in all three subjects.

Rispoli, M., O'Reilly, M., Lang, R., Machalicek, W., Kang, S., Davis, T., & Neely, L. (2016). An examination of within-session, responding following access to reinforcing stimuli. *Research in Developmental Disabilities, 48*, 25-34. https://doi.org/10.1016/j.ridd.2015.10.013

In this study, three participants with autism were presented with desired tangible items before sessions of task orientation. This intervention is in response to challenging behaviors that are associated with tasks that the subjects did not want to complete. The

findings of this study revealed that exposure to the desired tangible object prior to blocks of time being asked to perform undesired tasks helped to decrease the events of challenging behaviors. Suggestions of this study include designating free minutes of exposure to the tangible object during scheduled breaks when sessions are deemed longer than normal. This is because challenging behaviors seemed to arise again in two out of three students after about 60 minutes of task orientation.

Roe, T. (2023, August 5). *Module four learning activity: Annotated bibliography for technology* [Discussion board post]. Sul Ross State University. https://shsu.blackboard.com

The use of assistive technology (AT) with preschool children was explored to help students decrease dependence on others. Research showed that AT was successful in helping preschool-aged children, but only if their teachers allowed it. The teaching philosophy impacts the use of AT in a classroom and must be supported by the teacher if a student is to get maximum benefits. The early use of technology is beneficial when aiming for independence. Professional training and support were emphasized in this article.

Royston, R., Naughton, S., Hassiotis, A., Jahoda, A, Ali, A., Chauhan, U., Cooper, S.-A., Kouroupa, A., Steed, L., Strydom, A., Taggart, L., & Rapaport, P. (2023). Complex interventions for aggressive challenging behaviour in adults with intellectual disability: A rapid realist review informed by multiple populations. *Public Library of Science, 18*(5), e0285590. https://doi.org/10.1371/journal.pone.0285590

Adults with intellectual disabilities that displayed challenging behaviors such as aggression were evaluated in this study. As with students, it was found that there is not just one recommended intervention to help serve all individuals. That is what makes it

complex. Adults are dealing with wants of acceptance in the job environment. Challenging behaviors can be triggered by needs that have not been met, not understanding what is being asked, and feeling as though the individual is not truly part of a team. Communication can be a barrier, but with relationship building, understanding, empathy, and training, adults with intellectual disabilities can contribute positively to their work environment. The recommended intervention in this study includes personalizing the intervention to the individual and understanding that it is going to take more than one act to help decrease challenging behaviors.

Sanchez, T. (2023, August 8). *Module four learning activity: Annotated bibliography for technology* [Discussion board post]. Sul Ross State University. https://shsu.blackboard.com

The use of assistive technology (AT) as an intervention for students with specific learning disabilities (SLD) is addressed as beneficial for students to access the curriculum as well as to help with transitioning through the school day. This is useful to every age group and reaches a wide variety of those with disabilities. Some of the difficulties associated with AT is the lack of funding as well as lack of information.

Scammacca, N. K., Roberts, G. R., Vaughn, S., & Stuebing, K. K. (2015). A meta-analysis of interventions for struggling readers in grades 4-12: 1980 – 2011. *Journal of Learning Disabilities 48*(4), 369-390. https://doi.org/10.1177/0022219413504995

This study examines the effectiveness of reading intervention in students beyond primary grades, specifically fourth grade through 12th grade. This is significant as most studies found on reading intervention are designed to target early childhood through third grade. Of interest in this study is the types of intervention that were most effective with these

older students. In the younger years, there is quite a bit of emphasis on decoding and fluency. In contrast, for the older students, this study revealed that reading comprehension intervention, as well as vocabulary intervention, yielded greater gains than fluency or word attack interventions. This study indicates that longer intervention serves these students best and that small, but steady gains were revealed. By longer intervention, it is implied that the student is served over years if needed, not necessarily a longer intervention each day.

Soares, E. E., Bausback, K., Beard, C. L., Higinbotham, M., Bunge, E. L., & Gengoux, G. W. (2021). Social skills training for autism spectrum disorder: A meta-analysis of in-person and technological interventions. *Journal of Technology in Behavioral Science, 6*, 166-180. https://doi.org/10.1007/s41347-020-00177-0

This meta-analysis compared results of in-person training and technology-driven social skills in children with autism spectrum disorder (ASD). The two approaches examined were found to have similar effect sizes, thus indicating that in-person training might not be the only way to teach children with ASD about valuable social skills. The technology-driven social skills training included computer software, avatars, and robots programmed for therapy. This decreases discomfort of in-person interactions. Therapy and training that can be offered through technology can help to reach students that are in remote areas and those that have limited access to properly trained professionals. This study showed that social skills training using technology is beneficial, but there is limited data on this subject, thus recommendations for more research was suggested.

Stevens, E. A., Rodgers, M. A., & Powell, S. R. (2018). Mathematics interventions for upper elementary and secondary students: A meta-analysis of research. *Remedial and Special Education, 39*(6), 327-340. https://doi.org/10.1177/0741932517731887

This study targets students in fourth grade through 12th grade that either struggle with mathematics or have a learning disability in the subject of mathematics. It is noted from the beginning that the views of the authors indicate that students not receiving intervention in mathematics if needed have negative implications on whether those students will continue their education post-high school graduation. The authors relate the lack of attending college or university to jobs that pay less than those that do attend and obtain some form of degree. This study revealed that mathematics intervention targeting fractions showed the greatest gains. It was noted that implementing the intervention in older grades is more difficult than in younger grades because mathematics is built upon to greater levels each year. If a student struggled in earlier years, there might be several gaps or areas they could have a deficit in mathematics. This study addressed the delivery of intervention via teacher, computer, or researcher. It was agreed upon that each method of delivery showed benefits, but for future gains, a student would need to have a teacher delivering the intervention over an extended amount of time.

Wang, A. H., Firmender, J. M., Power, J. R., & Byrnes, J. P. (2016). Understanding the program effectiveness of early mathematics interventions for prekindergarten and kindergarten environments: A meta-analytic review. *Early Education and Development, 27*(5), 692-713. https://doi.org/10.1080/10409289.2016.1116343

The authors in this article researched the effects of intervention in mathematics in the early grades including kindergarten and pre-kindergarten to help teachers make decisions

on effective interventions. Before the interventions were underway, the authors noted that it would be beneficial if early childhood programs spent more time learning mathematical concepts in general, though the authors stated quality over quantity did have merit. The findings in this study included five final conclusions. The first conclusion addressed the implication that students responded to mathematical intervention better if there was only one mathematical strand being addressed. The second conclusion revealed that 2-2-1/2 hours of intervention was preferred over less than an hour or 1-1/2 hours. The third conclusion revealed that the intervention built for prekindergarten was more effective than the kindergarten intervention. This gave strong implications for more play-involved mathematical intervention. The fourth conclusion revealed students responded better to one-on-one intervention rather than small-group or whole-group intervention. The fifth conclusion implied that the assessments made by researchers showed greater gains than standardized assessments.

Wood, S. G., Moxley, J. H., Tighe, E. L., & Wagner, R. K. (2018). Does use of text-to-speech and related read-aloud tools improve reading comprehension for students with reading disabilities? A meta-analysis. *Journal of Learning Disabilities, 51*(1), 73-84. https://doi.org/10.1177/0022219416688170

This study recognized the oral tools that help with reading comprehension in students with disabilities in reading. Overall, it was found that text-to-speech and other read-aloud tools were effective in improving the reading comprehension of students with reading disabilities. It was not clear which tools had a greater effect. To that end, more research was recommended. It was also noted that many studies that were analyzed did not accurately include reading intervention, rather, these studies included more studies

targeted reading compensation. In conclusion, this study promoted the distribution of text in an oral fashion to best support students with reading comprehension difficulties. This study also listed examples of software that could be used to obtain text in an oral route.