Intensive Intervention Practice Guide:

Using Student Choice to Decrease Challenging Behaviors for Elementary Students With Comorbid Academic and Behavior Difficulties

Gabrielle Crowell, Vanderbilt University
Jillian Thoele, University of Georgia
Sarah DeAngelo, University of Illinois at Chicago
Amber Reilly, University of Minnesota

IDEAs that Work
U.S. Office of Special Education Programs

NCLII NATIONAL CENTER FOR LEADERSHIP IN INTENSIVE INTERVENTION

This project was supported in part by Grant H325H190003 from the U.S. Department of Education, Office of Special Education Programs (OSEP). Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education, and no official endorsement by it should be inferred.

Fall 2021

Graphic services supported in part by *EKS* NICHD Grant #1P50HD103537-01 to the Vanderbilt Kennedy Center.

Abstract

An often overlooked but simple antecedent modification is student choice. Student choice can be incorporated with a variety of individuals and across a multitude of activities (Texas Statewide Leadership for Autism, 2013). Choice can be as simple as letting a student choose the assignment they want to complete first (Cosden et al., 1995; Kern & Clemens, 2007; Fraumeni-McBride, 2017), asking what reinforcer(s) they wish to work for (Tiger et al., 2006), or allowing them to choose when they take a break (Rajaraman et al., 2021). Choice may be especially effective with students who have comorbid learning and behavior disorders (Killu, 1999l; May & Howe, 2013)—and engage in task avoidant behavior (Morgan, 2006)—as it gives them a sense of control in challenging academic situations that typically precipitate challenging behavior (Kerns, 2002). The goal of this practice guide is to provide an overview of student choice, describe who it benefits, present examples of research on its efficacy, suggest tips for implementation, underscore its practicality, highlight questions that remain, and supply resources where you can learn more.

Keywords:

- choice
- avoidance behavior
- comorbid
- behavior difficulties
- challenging behavior

Contents

What Is It?

Choice can play an essential role in a practitioner's educational planning for elementary students. When students are given choices, they feel more in control of their learning environment (Jolivette, 2001) and are subsequently more likely to partake in desired academic activities (Lane et al., 2015; Royer et al., 2017) and less likely to engage in disruptive behaviors (Dunlap et al., 1994; Ramsey at al, 2010). Incorporating choice is a quick and easy intervention that does not require additional external resources, special training, or equipment to implement. "Providing students with opportunities to make choices means that the student is provided with two or more options, is allowed to independently select an option, and is provided with the selected option" (Jolivette, 2002, p. 28). Choice-based interventions can be implemented through the manipulation of antecedent events (Cosden et al., 1995; Fraumeni-McBride, 2017; Kern & Clemens, 2007), consequence events (Tiger et al., 2006), or as a noncontingent break (Rajaraman, 2021).

Choice-Based Antecedent Intervention

Choice-based antecedent interventions are typically implemented around academic events that precede challenging behavior (Kerns, 2002). These preventative interventions proactively manipulate environmental events and structure the setting so that the function of the behavior is met before students feel they need to engage in challenging behaviors.

Choice-Based Consequence Intervention

Choice-based consequence interventions allow students to choose the reinforcer they want to work for before or after a task is complete (Tiger et al., 2006). In addition, choice-based consequence interventions can serve as differential reinforcement as the student is reinforced for engaging in appropriate behaviors (choice-making) and in the absence of challenging behaviors (Skerbetz & Kostewicz, 2015.).

Noncontingent Break

A noncontingent break is a student-managed intervention that provides students a choice to participate in a task or take a break (Rajaraman et al., 2021). The choice is offered independent of what behaviors are exhibited by a student. Meaning, a student is proactively offered a break regardless of whether a task is finished or a goal is met. For example, a student can utilize a break card to indicate their need to escape a frustrating task. In addition, providing noncontingent access to negative reinforcement (break) increases the likelihood that the student will reengage with the target task after the break is taken (Cihak & Gama, 2008).

For Whom Is It Intended?

Much of the research on choice-based intervention focuses on students who engage in escape-maintained challenging behaviors (Jolivette, 2001; Romaniuk et al., 2002; Skerbetz & Kostewicz, 2015). Though choice can be both valuable and effective for students with and without disabilities, most of the research has been conducted with students who have disabilities (Howell et al., 2018). For example, antecedent and consequence choice interventions have shown to be effective with early and upper elementary students with autism (Kautz et al., 2018; Elliot & Dillenburger, 2016), elementary students with intellectual disabilities (Warren et al., 2019), and neurotypical students (Ackerlund Brandt et al., 2015; Fennerty & Tiger, 2010). In addition, the use of choice as an antecedent modification for elementary students with emotional behavior disorders (EBD) has also shown favorable outcomes for increasing task engagement and reducing levels of disruptive behavior (Dunlap et al., 1994; Ramsey et al., 2010).

Choice can also be applied to students with comorbid academic and behavioral difficulties. In the classroom setting, many off-task disruptive behaviors function as an avenue for students to escape academic demands (Killu, 1999; May & Howe, 2013). Students with academic difficulties often engage in task avoidance behaviors due to a history of academic struggles, perceived low motivation, or negatively impacted executive functioning skills (Kauffman, 2005). For example, a student with a history of low math performance may attempt to escape complicated mathematics tasks by tearing up the assignment. Providing students autonomy in their learning through the implementation of choice reduces the probability they will feel the need to engage in avoidance behaviors (Skerbetz & Kostewicz, 2015).

How Does It Work?

By incorporating choice into a student's academic experience, practitioners encourage them to engage in self-determination (Beymer & Thomson, 2015) and provide them the opportunity to have control over their educational experience (Norris, 2015). As previously mentioned, choice can be antecedent- or consequence-based (Howell et al., 2019) and can also be incorporated as a noncontingent break (Rajaraman et al., 2021). Further, choice-based interventions can be used as a stand-alone treatment or in conjunction with other interventions. There are ample ways to incorporate choice throughout the school day (see Appendix A). Specifically, incorporating choice can be as easy as allowing the student to choose the task they want to finish first (Cosden et al., 1995; Fraumeni-McBride, 2017; Kern & Clemens, 2007), how they want to complete it (Mogey

et al., 2013), who they want to complete it with (Beymer & Thomson, 2015), where they want to complete it (Bicard et al., 2012) or the reinforcer they want to work for (Tiger et al., 2006). Additionally, including a choice-based noncontingent break can be as simple as creating a designated break area and having it available for the student to use when they need (Rajaraman et al., 2021).

Jolivette and colleagues (2017) outline guidelines for the planning of choice-making opportunities. The first step of any plan should always be identifying the function of the choice (e.g., why do we think choice-making will help the student in this situation?). Planning then requires the practitioner to identify the context in which the challenging behavior occurs to determine the appropriate context in which to give choices. It should then be decided who will be delivering the choices and what materials are needed to implement the choice-making opportunity. Then the implementor should make a detailed plan for how to implement each step of the choice-making procedure (Jolivette et al., 2017). Below the authors provide a step-by-step guide on the planning, assessment, and decision-making processes across different choice-based interventions.

How Do We Incorporate Antecedent-based Choice?

When incorporating choice between demands, instructors should choose activities that typically coincide or precipitate challenging behavior (Texas Statewide Leadership for Autism, 2013). In addition, choice may be a valid intervention component for students who engage in low-risk challenging behavior (i.e., non-compliance, swiping, vocal refusals) around academic expectations (Morgan, 2006).

Prior to Incorporating Demand Choice

Identify the activities that occur before challenging behaviors. Practitioners can do this by collecting descriptive data throughout the academic day. One option is to use antecedent and behavior data collected using a pencil and paper. The practitioner, or whoever is working with the child, will write down the demand that is delivered (the antecedent) and the student's behavior following the demand (See Figure 1). The instructor can also note contextual details such as the demand structure, where the student was seated, or the materials they were using if it is thought that these factors contribute to challenging behavior.

Figure 1

	Demand	Behavior
1	Multiplication worksheet	Challenging behavior (desk swipe) following instruction
2	Creative writing prompt	Followed instruction. No challenging behavior
3	Division worksheet	Challenging behavior (vocal refusals) following instruction
4	Reading prompt	Followed instruction. No challenging behavior
5	Math word problem	Challenging behavior (desk swipe) following instruction .... This can continue for the rest of the academic day.

After Collecting Descriptive Data

Next, instructors should review their data and assess the demands around which challenging behavior occurred most often and those around which the student readily followed the request. For example, in Figure 1, challenging behavior occurred following the presentation of math problems but not after reading or writing demands. This information demonstrates that math demands most commonly precipitate challenging behavior and are likely non-preferred.

Creating Demand Choice Conditions

From the descriptive data (Figure 1), tasks that precipitate challenging behavior (math) and those that don't (writing and reading) have been identified. With this, the instructor can pair the low preferred tasks against the more highly preferred when setting up our choice conditions. See Figure 2 for examples of how practitioners can embed choice during the student's instructional period using their high and low preferred activities.

Figure 2

	Demand Type	Choice Configuration
1	Multiplication worksheet	Choice between the order of completing activities: "Would you like to work on multiplication (low preferred) or creative writing (high preferred) first?"
2	Division worksheet	Choice between work configuration: "Would you like to work on your division worksheet alone or with a partner?"
3	Math word problem	Choice between modality and seating arrangement: "Would you like to work on your math problem with a pencil at your desk or on the computer at the computer station?"

How Do We Incorporate Consequence-based Choice?

Prior to Implementing Reinforcement Choice

Instructors can conduct a preference assessment to identify preferred items or activities that may influence how the student responds to non-preferred tasks (DeLeon & Iwata, 1996; Fefer et al., 2016; Fischer et al., 1992; Roane et al., 1998). See Appendix B for preference assessment types and procedures.

After Conducting the Preference Assessment

The practitioner should analyze the results to identify highly preferred (chosen first, selected most frequently, or identified as most preferred), moderately preferred (chosen in the middle of the group, selected sometimes, or identified as moderately preferred), and least preferred (chosen last, not selected, or identified as low preferred) items.

Creating Reinforcement Choice Conditions

Instructors may either ask the student to choose between reinforcers they want to work for during the session (Dyer et al., 1990) or, using principles similar to those seen in Seaver and Bourret (2020), instructional personnel can create two concurrent reinforcement conditions that the student can choose between. See Appendix C for procedures using these two methods.

How Do We Incorporate Breaks?

The final choice option and one that practitioners can use in conjunction with other choice methods is a noncontingent break (Rajamaran et al., 2021). When using this method, no prior assessments or data collection are necessary. Instead, the only requirement is that the student has constant access to take a break throughout the academic session. However, if having a break available throughout the academic period is not feasible, then systematically choosing when it is available or waiting for the student to ask for a break—like in the "Breaks are Better" curriculum (BrB; Boyd & Anderson, 2013)—is also an option. See Appendix D for examples.

Data Collection and Progress Monitoring

As with other interventions, it's essential to monitor and track students' progress to ensure there is consistent intervention implementation and a therapeutic change in challenging behavior. An example progress monitoring sheet is included in Appendix E. The sheet allows the implementer to track details such as when choices will be embedded, how many options will be delivered, the student's choice modality, and occurrences of challenging behavior. A copy of this sheet can go with the student to other classrooms to ensure intervention continuity. Additionally, the student can take a copy to their caregivers to keep them informed and encourage them to use choice-making strategies in the home environment.

How Practical Is It?

Choice-based interventions in both structured and unstructured activities require planning and forethought, but it also has a great deal of flexibility embedded in the strategy itself. There are many different types of choices that can be implemented to individualize choice-making opportunities for students. Opportunities to implement choice-based interventions can be utilized in any classroom in any school in any context. It can be used with both large and small groups in the classroom. For example, students could vote to decide which book to read aloud or what type of manipulatives to use for a math lesson. Choice-based interventions are especially effective when working with a student one-on-one. It can also be implemented in any content area and during classroom transitions and different activities across the day and classroom schedule (Jolivette et al., 2017). Choice-based interventions are flexible interventions that can be easily incorporated into a variety of classroom routines and activities.

How Can Families Support Implementation?

Evidence suggests that parent-implemented strategies are more effective when choice strategies are embedded (McCormick et al., 2003). Practitioners can empower families to implement choice-based intervention through training and coaching (Amsbary & AFIRM Team, 2017). Research has also shown that caregivers can systematically conduct preference assessments to drive choice-making interventions during their families' daily routines (Harding et al., 2002). Further, integrating school and home supports that rely on proactive planning, consistent communication, and high-quality parent training can help students acquire, generalize, and maintain new skills that choice interventions have bolstered.

Families can support their children in a variety of ways within the implementation of choice interventions. Both school and family factors impact children's behavior. Therefore, continuity of support across both settings and the inclusion of all relevant stakeholders is best practice (Reinke et al., 2009). Caregivers possess a wealth of information about their child; to assist in school-based interventions, they can inform service providers on their student's preferences (Greenwood & Hickman, 1991). Further, caregivers can implement choice interventions in naturalistic settings with their child, and likely, already do. For example, on the way to the grocery store, a parent may offer their child a choice between two items in exchange for good behavior, highlighting the use of antecedent-based choice, with the chosen item serving as contingent reinforcement for good behavior.

Practice across settings and with different intervention agents helps children learn new skills and contribute to their ability to use them across naturalistic contexts (LaRocque et al., 2011). However, special considerations should be made to cater to interventions in the classroom and parent training around each family's expectations, which requires attention to individual differences. Practitioners must become informed about the family's culture when building rapport and should be prepared to incorporate cross-cultural values to enhance the effectiveness of choice interventions (Cheremshynski et al., 2013).

How Adequate Is the Research Knowledge Base?

Choice-Based Antecedent and Consequence Interventions

Presently, research exists on both choice-based antecedent and consequence interventions that employ less intrusive methods. Specifically, researchers have studied the effects of choice provided around demand arrangement (Dyer et al., 1990), demand modality, seating arrangements (Bicard et al., 2012), work configuration (Beymer & Thomson, 2015; Texas Statewide Leadership for Autism, 2013), and reinforcement allocation (Beymer & Thomson, 2015; Romaniuk & Miltenberger, 2001; Seaver & Bourret, 2020; Shogren et al., 2004). In addition, research around reinforcer choice and its impact on challenging behavior (Tiger et al., 2006) and work completion (Skerbetz & Kostewicz, 2015) have also occurred.

Noncontingent Break

On the other hand, research on the effectiveness of noncontingent breaks is still emerging. Currently, there's only one study (Rajaraman et al., 2021) assessing the efficacy of using a noncontingent break, rather than escape extinction, to decrease challenging behavior and increase academic engagement.

Future Considerations

Although choice has been studied across students with various disabilities and functioning levels, there is a lack of research on how cultural differences might impact choice and its use as an intervention. In particular, cultures that promote more democratic teaching or parenting styles are likely to set rules and high standards and incorporate and encourage choice and student preference (Bornstein, 2012; Khan & Rasheed, 2019). Whereas individuals who belong to cultures that promote authoritarian teaching or parenting styles may view choice less favorably as they believe in strict and unwavering rules and guidelines (Bornstein, 2012; Khan & Rasheed, 2019; Shaw & Starr, 2019). That being said, we need more research to understand how individuals' personal and cultural beliefs affect the appropriateness and efficacy of the interventions we suggest.

How Effective Is It?

Existing research suggests that giving students choices has benefits in both decreasing challenging behavior and increasing the occurrence of desired behaviors (Jolivette et al., 2017). Research also suggests that providing choices may be more effective than simply assigning a student only preferred tasks (Romaniuk & Miltenberger, 2001).

Choice-based interventions also increase student motivation to complete assignments. Patall et al. (2010) found that students were more motivated to complete their homework when they were given a choice of what assignment they were going to do. This research group also found that having choices increased students' effort, performance, and self-efficacy surrounding their assignments.

What Questions Remain?

- How do you determine which area of choice (antecedent strategies, consequence strategies, or noncontingent break) to attempt first?
- How do choice procedures vary across age ranges? How do these strategies generalize to older students?
- When should student choices be assessed? How often should they be reassessed?
- How often are choices offered? Are they faded? If so, how and in what contexts is this appropriate?
- Specific to noncontingent breaks, should items in the break area be preferred or neutral?
- How can we measure the effects of additional strategies and supports that are implemented in conjunction with choice?
- What are the long-term impacts of choice on student autonomy, engagement, and academic and behavioral success?

Where Can I Learn More?

- **A podcast about the enhanced choice model**
  https://behavioralobservations.com/enhancing-learner-choice-in-skills-based-treatment-session-156-with-adithyan-rajaraman/

- **An article on the enhanced choice model**
  https://link.springer.com/content/pdf/10.1007/s40617-020-00548-2.pdf

- **A website with resources and tips about using choice**
  https://www.molineschools.org/apps/pages/index.jsp?uREC_ID=723257&type=d&pREC_ID=1197113

- **A website with vignettes on choice-making strategies**
  https://iris.peabody.vanderbilt.edu/module/bi2/cresource/q1/p01/#content

- **A document describing why and when you might give choices**
  https://www.pbisworld.com/tier-1/give-choices/

- **Tips on ways to intensify and individualize choice**
  https://www.unl.edu/asdnetwork/downloads/virtual-strategies/ChoiceMaking.pdf

References

Ackerlund Brandt, J. A., Dozier, C. L., Juanico, J. F., Laudont, C. L., & Mick, B. R. (2015). The value of choice as a reinforcer for typically developing children. *Journal of Applied Behavior Analysis, 48*(2), 344–362. https://doi.org/10.1002/jaba.199.

Amsbary, J., & AFIRM Team. (2017). Parent implemented interventions. Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorder, FPG Child Development Center, University of North Carolina. Retrieved from http://afirm.fpg.unc.edu/parent-implemented-interventions

Beymer, P. N., & Thomson, M. M. (2015). The effects of choice in the classroom: Is there too little or too much choice? *Support for Learning, 30*(2), 105-120. https://doi.org/10.1111/1467-9604.12086

Bicard, D. F., Ervin, A., Bicard, S. C., & Baylot-Casey, L. (2012). Differential effects of seating arrangements on disruptive behavior of fifth grade students during independent seatwork. *Journal of Applied Behavior Analysis, 45*(2), 407-411. https://doi.org/10.1901/jaba.2012.45-407

Bornstein, M. H. (2012). Cultural approaches to parenting. *Parenting, 12*(2-3), 212-221. https://doi.org/10.1080/15295192.2012.683359

Boyd, J. R., & Anderson, C. M. (2013). Breaks are better: A tier II social behavior intervention. *Journal of Behavioral Education, 22*(4), 348-365. https://doi.org/10.1007/s10864-013-9184-2

Cheremshynski, C., Lucyshyn, J. M., & Olson, D. L. (2013). Implementation of a culturally appropriate positive behavior support plan with a Japanese mother of a child with autism: An experimental and qualitative analysis. *Journal of Positive Behavior Interventions, 15*(4), 242-253.

Cihak, D., & Gama, R. (2008). Noncontingent escape access to self-reinforcement to increase task engagement for students with moderate to severe disabilities. *Education and Training in Developmental Disabilities, 43*(4), 556-568. https://www.jstor.org/stable/23879683

Cosden, M., Gannon, C., & Haring, T. G. (1995). Teacher-control versus student-control over choice of task and reinforcement for students with severe behavior problems. *Journal of Behavioral Education, 5*(1), 11-27. https://doi.org/10.1007/bf02110212

DeLeon, I. G., & Iwata, B. A. (1996). Evaluation of a multiple-stimulus presentation format for assessing reinforcer preferences. *Journal of Applied Behavior Analysis, 29*(4), 519-533. https://doi.org/10.1901/jaba.1996.29-519

Dunlap, G., dePerczel, M., Clarke, S., Wilson, D., Wright, S., White, R., & Gomez, A. (1994). Choice making to promote adaptive behavior for students with emotional and behavioral challenges. *Journal of Applied Behavior Analysis, 27*(3), 505–518. https://doi.org/10.1901/

Dyer, K., Dunlap, G., & Winterling, V. (1990). Effects of choice making on the serious problem behaviors of students with severe handicaps. *Journal of Applied Behavior Analysis, 23*(4), 515-524. https://doi.org/10.1901/jaba.1990.23-515

Elliott, C., & Dillenburger, K. (2016). The effect of choice on motivation for young children on the autism spectrum during discrete trial teaching. *Journal of Research in Special Educational Needs, 16*(3), 187–198. https://doi.org/10.1111/1471-3802.12073.

Fefer, S., DeMagistris, J., & Shuttleton, C. (2016). Assessing adolescent praise and reward preferences for academic behavior. *Translational Issues in Psychological Science, 2*(2), 153-162. https://doi.org/10.1037/tps0000072

Fisher, W., Piazza, C. C., Bowman, L. G., Hagopian, L. P., Owens, J. C., & Slevin, I. (1992). A comparison of two approaches for identifying reinforcers for persons with severe and profound disabilities. *Journal of Applied Behavior Analysis, 25*(2), 491-498. https://doi.org/10.1901/jaba.1992.25-491

Fraumeni-Mcbride, J. (2017). The effects of choice on reading engagement and comprehension for second- and third-grade students: An action research report. *Journal of Montessori Research, 3*(2), 19-38. https://doi.org/10.17161/jomr.v3i2.6453

Greenwood, G.E., & Hickman, C.W. (1991). Research and practice in parent involvement: Implications for teacher education. *The Elementary School Journal, 91*(3), 279-288.

Harding, J., Wacker, D., Berg, W., Barretto, A., & Rankin, B. (2002). Assessment and Treatment of Severe Behavior Problems Using Choice-Making Procedures. *Education & Treatment of Children, 25*(1), 26-46.

Howell, M., Dounavi, K., & Storey, C. (2018). To choose or not to choose?: A systematic literature review considering the effects of antecedent and consequence choice upon on-task and problem behaviour. *Review Journal of Autism and Developmental Disorders, 6*(1), 63-84. https://doi.org/10.1007/s40489-018-00154-7

Jolivette, K., Parks Ennis, R., & Swoszowski, N. C. (2017). Educator “what-ifs”: The feasibility of choice making in the classroom. *Beyond Behavior, 26*(2), 74-80. https://doi.org/10.1177/1074295617713977

Jolivette, K., Stichter, J. P., & McCormick, K. M. (2002). Making choices—Improving behavior—Engaging in learning. *Teaching Exceptional Children, 34*(3), 24-29. https://doi.org/10.1177/004005990203400303

Jolivette, K., Wehby, J. H., Canale, J., & Massey, N. G. (2001). Effect of choice-making opportunities on the behavior of students with emotional and behavioral disorders. *Behavioral Disorders, 26*(2), 131–145. https://doi.org/10.1177/019874290102600203

Kauffman, J.M. (2005). *Characteristics of Emotional and Behavioral Disorders of Children and Youth* (8th ed.). Pearson Prentice Hall.

Kautz, M. E., DeBar, R. M., Vladescu, J. C., & Graff, R. B. (2018). A further evaluation of choice of task sequence. *The Journal of Special Education, 52*(1), 16–28. https://doi.org/10.1177/0022466917735655.

Kern, L., Choutka, C. M., & Sokol, N. G. (2002). Assessment-based antecedent interventions used in natural settings to reduce challenging behavior: An analysis of the literature. *Education & Treatment of Children* (*West Virginia University Press*), 25(1), 113.

Kern, L., & Clemens, N. H. (2007). Antecedent strategies to promote appropriate classroom behavior. *Psychology in the Schools, 44*(1), 65-75. https://doi.org/10.1002/pits.20206

Khan, M. J., & Rasheed, S. (2019). Moderating role of learning strategies between meta-cognitive awareness and study habits among University students. *Pakistan Journal of Psychological Research, 34*(Spring 2019), 215-231. https://doi.org/10.33824/pjpr.2019.34.1.12

Killu, K., Clare, C. M., & Im, A. (1999). Choice vs preference: The effects of choice and no choice by preferred and non-preferred spelling tasks on the academic behavior of students with disabilities. *Journal of Behavioral Education, 9*(3–4), 239–253. https://doi.org/10.1023/A:1022143716509

Lane, K.L., Royer D.L., Messenger, M.L., Common E.A., Ennis R.P, & Swogger E.D. (2015). Empowering teachers with low-intensity strategies to support academic engagement: Implementation and effects of instructional choice for elementary students in inclusive settings. *Education and Treatment of Children, 38*(4), 473–504. https://doi.org/10.1177/0741932517734634

LaRocque, M., Kleiman, I., & Darling, S.M. (2011). Parental involvement: The missing link in school achievement. *Preventing School Failure, 55*(3), 115-122.

May, M. E., & Howe, A. P. (2013). Evaluating competing reinforcement contingencies on off-task behavior in a preschooler with intellectual disability: A data-based case study. *Education and Treatment of Children, 36*, 97–109.

McCormick, K. M, Jolivette, K., & Ridgley, R. (2003). *Choice Making. Young Exceptional Children, 6*(2), 3-10.

Mogey, N., & Hartley, J. (2013). To write or to type? The effects of handwriting and word-processing on the written style of examination essays. *Innovations in Education and Teaching International, 50*(1), 85-93. https://doi.org/10.1080/14703297.2012.748334

Morgan, P. L. (2006). Increasing task engagement using preference or choice-making. *Remedial and Special Education, 27*(3), 176-187. https://doi.org/10.1177/07419325060270030601

Patall, E. A., Cooper, H., & Wynn, S. R. (2010). The effectiveness and relative importance of choice in the classroom. *Journal of Educational Psychology, 102*(4), 896-915. https://doi.org/10.1037/a0019545

Rajaraman, A., Hanley, G. P., Gover, H. C., Staubitz, J. L., Staubitz, J. E., Simcoe, K. M., & Metras, R. (2021). Minimizing escalation by treating dangerous problem behavior within an enhanced choice model. *Behavior Analysis in Practice*. https://doi.org/10.1007/s40617-020-00548-2

Ramsey, M., Jolivette, K., Patterson, D., & Kennedy C. (2009). Using choice to increase time on-task, task-completion, and accuracy for students with emotional/behavior disorders in a residential facility. *Education and Treatment of Children, 33*(1), 121. https://doi.org/10.1353/etc.0.0085

Reinke, W. M., Splett, J. D., Robeson, E. N., & Offutt, C. A. (2009). Combining school and family interventions for the prevention and early intervention of disruptive behavior problems in children: A public health perspective. *Psychology in the Schools, 46*(1), 33-43.

Roane, H. S., Vollmer, T. R., Ringdahl, J. E., & Marcus, B. A. (1998). Evaluation of a brief stimulus preference assessment. *Journal of Applied Behavior Analysis, 31*(4), 605-620. https://doi.org/10.1901/jaba.1998.31-605

Romaniuk, C., & Miltenberger, R. G. (2001). The influence of preference and choice of activity on problem behavior. *Journal of Positive Behavior Interventions, 3*(3), 152-159. https://doi.org/10.1177/109830070100300303

Royer, D.J., Lane, K.L., Cantwell, E.D., & Messenger, M.L. (2017). A systematic review of the evidence base for instructional choice in k-12 settings. *Behavioral Disorders, 42*(3), 89-107. https://doi.org/10.1177/0198742916688655

Seaver, J. P., & Bourret, J. C. (2020). Producing mands in concurrent operant environments. *Journal of Applied Behavior Analysis*. https://doi.org/10.1002/jaba.592

Shaw, Z. A., & Starr, L. R. (2019). Intergenerational transmission of emotion dysregulation: The role of authoritarian parenting style and family chronic stress. *Journal of Child and Family Studies, 28*(12), 3508-3518. https://doi.org/10.1007/s10826-019-01534-1

Shogren, K. A., Faggella-Luby, M. N., Sung Jik Bae, & Wehmeyer, M. L. (2004). The effect of choice-making as an intervention for problem behavior. *Journal of Positive Behavior Interventions, 6*(4), 228-237. https://doi.org/10.1177/10983007040060040401

Skerbetz, M. D., & Kostewicz, D. E. (2015). Consequence choice and students with emotional and behavioral disabilities: Effects on academic engagement. *Exceptionality, 23*(1), 14–33.http://dx.doi.org/10.1080/09362835.2014.986603

Texas Statewide Leadership for Autism. (2013, December 31). CHOICE MAKING. University of Nebraska–Lincoln. https://www.unl.edu/asdnetwork/downloads/virtual-strategies/ChoiceMaking.pdf

Tiger, J. H., Hanley, G. P., & Hernandez, E. (2006). An evaluation of the value of choice with preschool children. *Journal of Applied Behavior Analysis, 39*(1), 1-16. https://doi.org/10.1901/jaba.2006.158-04

Warren, T., Cagliani, R. R., Whiteside, E., & Ayres, K. M. (2019). Effect of Task Sequence and Preference on On-Task Behavior. *Journal of Behavioral Education, 30*(1), 112–129. http://dx.doi.org/10.1007/s10864-019-09358-1

Appendix A

Antecedent-Based Choice

- **Assignment Choice:**
  Allow the student to select the order in which they complete their assignments. "You have assignments in math and writing, which one would you like to complete first?"

- **Work Configuration:**
  Allow the student to choose if they want to work solo or in a group. "Would you like to work on your math assignment by yourself or would you like to work with another student?"

- **Assignment Modality:**
  Allow the student to choose how they want to complete their assignment. For example, "Would you like to write your assignment using a pencil or type your assignment on the computer?"

- **Seating Arrangement:**
  Allow the student to choose where they sit during challenging assignments. If you know a student likes to work in a specific part of the room, you can ask, "Would you like to write at your desk or in the quiet corner?"

Consequence-Based Choice

- **Reinforcer Choice:**
  Before low preferred activities, allow the student to select the reinforcer they want to work for. You can do this by asking, "What would you like to work for?"

Noncontingent Break Choice

- **Break Choice:**
  Before the start of an academic session, remind the student, "if at any time during your assignment you feel upset or like you need a break, you can leave the table and go take a break in the break corner. Once you feel ready, you can come back to the table."

Appendix B

Preference Assessments

- **Student Report:**
  Ask the student what their favorite items or activities are (Fefer et al., 2016). Record what they identify as the most, moderate, and least preferred.

- **Paired Choice Preference Assessment:**
  Choose various items and pair each of those items against the other to determine the most preferred and least preferred (Fischer et al., 1992). For example, if you select three items, you will pair the first item with the second, the first with the third, and the second with the third. You will record each time the student selects the item. The item that the student chose the most will be labeled as the most preferred, and the item chosen the least as the least preferred.

- **Free Operant Preference Assessment:**
  Observe the child for a period of time and record the amount of time they spend playing with each item (Roane et al., 1998). The item they choose to play with the longest will be the highest preferred, and those they choose to play with the least will be the least preferred.

- **Multiple stimulus without replacement:**
  Choose various items and present all items to the student, remove the item from the group after it's chosen (DeLeon & Iwata, 1996). Do this until no items are left. The item chosen first is most preferred, and the item chosen last is least preferred.

Appendix C

Choice Examples

An educator conducted a paired choice preference assessment with a student and determined that iPad is their highest preferred reinforcer, puzzles are moderately preferred, and coloring is the lowest preferred.

Student Chooses Between Reinforcers:

Using the information above, we can ask the student to choose the reinforcer they would like to work for by either giving them the option to choose between reinforcers or by allowing them to have free operant choice.

- Example 1 (paired choice):
  "Would you like to work on your math assignment for iPad (high preferred) or coloring (low preferred)?"
- Example 2 (free operant):
  "What would you like to work for?"

Student Chooses Between Concurrent Schedules:

Data from the demand and preference assessments can be used to create conditions where the low preferred demands are paired with high preferred reinforcers, and the high preferred demands are paired with low preferred items.

- From our previous example, we know that math demands are low preferred and reading or writing demands are high preferred, and that iPad was the highest preferred item and coloring was the lowest preferred.
- Using this information, we create a condition where math (low preferred demand) completion is paired with iPad (high preferred item), and writing and reading completion (high preferred demands) are paired with coloring (low preferred reinforcers).

Example:

"Would you like to work on writing for coloring free time or math for iPad free time?"

Appendix D

Noncontingent Break Example

A corner or spot in your room can be designated as a "cool down" or "break" area. This area might contain beanbags and blankets or other items that promote de-escalation and calm. It's up to your discretion to decide if the student will be allowed to have preferred items in this area or if you would like potent reinforcers saved for work completion**. Again, it's up to your discretion to decide if you'll consistently implement the break throughout instructional periods or if you will have it selectively available.

Example:
No matter if the noncontingent break is offered across assignments and activities or only available during low preferred demands, at the beginning of the instructional period, the instructor will remind the student, "you can take a break in the cool down corner at any time during your assignment and come back to work when you feel ready."

** If you are using this in conjunction with reinforcer choice, the student should only gain access to the reinforcing item if they complete the low preferred task. Therefore, you should not provide it during the break.

*** Having the break available during high- and low preferred activities allows the student to "practice" using the break area while the desire to escape and the likelihood of challenging behavior is low. Having the opportunity to practice when they are calm may make utilizing the break easier when there is motivation to escape (when low preferred demands are in place).

Appendix E

Planning for Choice-Making Worksheet

Target Student/Group:	Target Behavior:
When will you provide choices? During what activity or routine will this be done? At what point during the activity/routine?	
Who will provide the choices?	
In what format? (e.g., verbal, picture, objects)	
What will the student(s) be choosing? How many options? What is each option? Will these options always be the same, or will they change?	
Choice-making Procedure (Write a script of how you will conduct the choice-making opportunity.)	
Challenging behavior	