

## Using Choice to Increase Time On-Task, Task-Completion, and Accuracy for Students with Emotional/Behavior Disorders in a Residential Facility

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### Abstract

Choice-making of task-sequence was implemented to determine the effect on the percentage of time on-task behavior, task-completion, and accuracy for five students with E/BD served in a residential setting. An ABAB design was used to examine a potential functional relation between choice-making and the dependent variables. All sessions were conducted by the classroom teacher during independent academic tasks in math and language arts classes. Results suggest that choice of task-sequence had an overall positive effect for time on-task and task-completion but little effect on accuracy. Limitations and future directions for choice-making are discussed.

During the primary and secondary school years, students with and without disabilities spend nearly 15,000 hours in school (Deci, Vallerand, Pelletier, & Ryan, 1991). Much of the 15,000 hours are directed and controlled by adults in the environment. When opportunities to make choices are offered, they are often mediated by adults in the degree and type of choices students can make (Jolivette, Stichter, Sibilsky, Scott, & Ridgley, 2002). Findings of several literature reviews indicate that providing choice-making opportunities for students has had positive effects on students' social and academic behaviors (Kern et al., 1998; Lancioni, O'Reilly, & Emerson, 1996; Morgan, 2006; Shogren, Faggella-Luby, Bae, & Wehmeyer, 2004). While choice-making has been empirically reviewed and confirmed as a viable

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strategy for students with developmental and severe disabilities, less literature exists that would allow similar conclusions to be drawn about students with other disabilities, including emotional/behavior disorders (E/BD) (Jolivet et al., 2002).

Students with E/BD exhibit numerous social and academic problems (Landrum, Tankersley, & Kauffman, 2003; Reid, Gonzalez, Nordness, Trout, & Epstein, 2004; Trout, Nordness, Pierce, & Epstein, 2003; Wehby, Lane, & Falk, 2003). These students typically have issues with interpersonal relationships, depression, somatization, and learning difficulties which cannot be attributed to intellectual, sensory, or health factors (Individuals with Disabilities Education Improvement Act: IDEIA, 2004). Given that many students with E/BD may exhibit inappropriate classroom behaviors, it is possible to postulate that a link exists between poor academic performance and inappropriate behavior further compounding the academic difficulties experienced by these students (Reid et al., 2004; Trout et al., 2003). As a result, students with E/BD are typically one to two grade levels behind their same aged peers in all academic subject areas with the greatest deficits in math and spelling (Trout et al., 2003). In a meta-analysis, Reid et al. (2004) also found that 75% of the students with E/BD scored within the 25<sup>th</sup> percentile of overall academic achievement. Thus, the presence of these academic deficits for students with E/BD may likely result in negative short- and long-term outcomes compared to their peers without disabilities (Trout et al., 2003).

Students with E/BD are more likely to be placed in more restrictive placements as a result of their poor academic achievement over any other disability category (Gagnon & Leone, 2005). Day and/or residential placements, considered to be highly restrictive, account for nearly 80,000 students with E/BD (Gagnon & Leone, 2006). Students identified through the school referral process and labeled E/BD who are placed in residential programs are more likely to have histories of abuse as well as a DSM-IV diagnoses of mental illness which also may become the basis of treatment in these facilities (Barth et al., 2007; Gagnon & Leone, 2006; Gagnon & Leone, 2005). The manifestation of these behaviors in the classroom often results in the instructional emphasis on behavior management rather than academic instruction (Gagnon & Leone, 2006). Without interventions which affect change in both social and academic behaviors, students with E/BD are likely to continue to perform below their peers (Trout et al., 2003; Zimet, Farley, & Zimet, 1994).

### *Choice-Making*

Using choice-making as an antecedent intervention during academic demands can help to improve the interactions between students

with E/BD and teachers (Barth et al., 2007; Kern et al., 1998; Landrum et al., 2003) as well as decrease inappropriate behaviors and increase task engagement (Kern et al., 1998; Landrum et al., 2003; Shogren et al., 2004). Providing choices for adolescent students with E/BD may help to develop social competence and reduce problem behaviors in the classroom as well as improve task-engagement (Jolivette, Wehby, Canale, & Massey, 2001; Sigafos, 1998).

Several studies exist that support the efficacy of choice-making with students with various disabilities. Extending choice-making for students with E/BD, Dunlap et al. (1994) used an ABAB design to examine choice among tasks as an intervention in two studies to determine its effects on task-engagement and problem behaviors for three elementary aged students with E/BD served in a self-contained classroom. Both studies featured choice and no choice conditions in academic tasks. In the first study, reduced inappropriate behaviors and increased task-engagement were replicated with students with E/BD. The second study extended and replicated the effects of the previous effects by using a yoked control procedure. In the yoking procedure, the same sequence of tasks was provided in a no choice condition as was provided in a previous choice-making condition. Dunlap et al. (1994) produced an effect for choice beyond preference which was a future direction for the line of choice research for students with severe disabilities.

Continuing the research line of investigating choice as an intervention for problem behaviors, Kern, Mantegna, Vorndran, Bailin, and Hilt (2001) used choice of task-sequence with two elementary students and one middle school student engaging in problem behaviors served in settings from private schools to inpatient hospitals. A reversal design was used to examine choice of task-sequence and inappropriate behaviors. When choice of task-sequence was offered all three participants exhibit fewer occurrences of maladaptive behavior. Further, Jolivette et al. (2001) used choice of task-sequence to determine its effect on the academic and social behavior of three elementary students with E/BD in a self-contained classroom. Using a multiple-baseline across participants design, the data indicated a functional relation between the choice of task-sequence and a reduction of disruptive and off-task behaviors. Additionally, an increase in problems attempted and problems correct was evidenced for two of the three participants.

The three previous studies investigated choice-making as an antecedent intervention to reduce problem behaviors primarily with elementary aged students in self-contained classrooms in public schools. Given the characteristics of students with E/BD and the limited amount of research for both students with E/BD and those in

residential school settings, it is important to examine the effectiveness of choice making as an intervention. Further investigation is needed with choice-making as an intervention to address the behavioral issues that students with E/BD exhibit due to increased academic task demands (Cullinan & Sabornie, 2004). Further, as students with E/BD exhibit more frequent and intense inappropriate behavior they are more likely to be served in more restrictive settings (Barth et al., 2007). Previous research in choice-making for students with severe disabilities, as well as those with E/BD, indicates a need to investigate choice-making with other populations. Kern et al. (2001) also suggested future research to clarify variables of participants (e.g., age) and broader applicability of choice-making as an intervention. To extend the choice-making literature for students with E/BD as well as further investigate educational interventions provided to students served in residential settings (Gagnon & Leone, 2006) it is hypothesized that choice-making also may be an effective intervention for a residential population. The purpose of this study was to systematically replicate the effects of choice of task-sequence on the time on-task, task-completion, and accuracy as presented by Jolivette et al. (2001) and replicate the results for adolescent students with E/BD served in a residential facility. In addition, maintenance of the dependent variables without intervention also was measured and social acceptability for students and teachers was assessed.

## Method

### *Participants*

Based on federal guidelines, five adolescents with E/BD were selected as participants (see Table 1 participant demographics). All five students were chosen based on the following selection criteria: (a) teacher nomination; (b) a diagnosis of E/BD with a concomitant psychiatric disorder; (c) placement in a residential setting and attending the residential school; (d) functioning at least two grade levels below their current grade across all subject areas; and (e) history of inappropriate behaviors interfering with time on-task, task-completion, and accuracy of academic tasks during academic courses.

Three special education teachers were the implementers of this study. All teachers held bachelor's degrees, were provisionally certified in special education, and were pursuing full certification. Two of the teachers had worked as behavior specialists at the facility for two years and had taught at the facility for the past three years for a total of five years experience. The last teacher had worked as a behavior specialist for one year and a teacher for one year at the facility.

Table 1  
Participant Characteristics

Student	Age	Grade	Gender	Ethnicity	Disability	DSM-IV Diagnosis	Medications	Global Assessment of Functioning Score
Abby	14	7	Female	Latin American	E/BD	3, 1, 10	Risperdal, Prozac	65
Sara	15	8	Female	African American	E/BD	3, 4, 1	Neurontin, Effexor	55
Trey	15	9	Male	African American	E/BD	5, 3, 6	Paxil, Seroquel, Concerta	65
Chris	16	9	Male	Caucasian	E/BD	7, 2	Seroquel, Focalin	55
Kate	13	7	Female	Caucasian	E/BD	8, 9, 2, 1, 11	Risperdal, Effexor	20

Note. Key to DSM-IV diagnosis: 1 - substance abuse, 2 - Intermittent Explosive Disorder, 3 - Depression, 4 - Oppositional Defiant Disorder, 5 - Generalized Anxiety Disorder, 6 - ADHD, 7 - Asperger, 8 - Dysrhythmic Disorder, 9 - Borderline Personality Disorder Traits, 10 - Victim of Child Neglect, and 11 - Victim of Child Sexual Abuse. Current medications which were held constant during the research study: Global Assessment of Functioning score is a measurement of the student's most impaired level of general functioning for a specified time period which describes his/her functioning on a hypothetical continuum of health and illness. Scores below 69 indicate that outpatient or inpatient care may be warranted.

### *Setting*

The study took place at a residential facility located outside a major metropolitan city in the southeastern United States. The setting was three classrooms on-campus with observations occurring during math and language arts. Depending on individual student schedules, there were anywhere from eight to ten other students in the classroom. The special education teacher was always present plus one to two behavior specialists with an adult-to-student ration of 2:10 to 3:10 during both math and language arts classes. The existing conditions regarding choice making opportunities in these classrooms were void of choices regarding assignments.

### *Design*

An ABAB withdrawal design was used with each of the five participants to evaluate the effects of the choice making intervention (Kazdin, 1982; Kennedy, 2005). Each session was conducted for fifteen minutes during independent work time. Sessions were conducted twice a day across consecutive weekdays.

### *Materials*

The materials used for this study were selected from the math and language arts curricula and supplemented with worksheets. The supplemental materials were chosen based on the curriculum standards to facilitate additional practice opportunities for students. The materials were adapted to meet the following considerations: (a) equal in length and difficulty, and (b) both assignments could be completed in fifteen minutes. Of the two sheets presented the number of problems or concepts varied by student according to their academic functioning level as determined by their present level of performance in the individualized education plan (IEP) and academic achievement testing. The independent assignments were based on the following criteria: (a) classroom observation during independent assignment work periods; (b) specific academic objective for the lesson in math or language arts; (c) each students' IEP math and language arts goals; (d) residential treatment objectives for education; (e) each students' current educational achievement based on the current year's educational testing and classroom-based assessments; and (f) the difficulty of the task which was assessed to ensure that the student could complete it independently.

### *Procedures and Teacher Training*

The three special education teachers implemented all conditions of the study. The conditions occurred during the last 15 minute

independent practice time during class. During independent practice work sessions, the teachers prompted the class to begin their work, provided one-on-one assistance when students had questions, praised work effort, and awarded points at the end of class for those who exhibited behaviors aligned with the schools behavioral expectations. If a student was off-task, the teachers would provide verbal and visual prompts to get back on-task. If a student engaged in disruptive behaviors during this time, the behavior specialists would briefly remove the student from class for a "cool down" in the hallway. This independent practice time was held constant for both the Choice and No Choice conditions. Prior to the independent practice time, the teacher had introduced and provided instruction on the math and language arts concepts to be practiced independently. In this setting, independent practice time typically consisted of 15 minute work sessions in which students completed tasks or assignments that reflected the instruction preceding the sessions. These assignments might include answering questions at the end of a book chapter, writing activities, or math skills sheets. These assignments were typically completed by students with assistance from the teacher or behavior specialist on a student-requested basis.

Teacher training occurred prior to the implementation of the study where the three teachers were taught the No Choice and Choice procedures. The two procedures were modeled and then the teachers engaged in role-playing each procedure to criteria.

#### *No Choice*

When the No Choice condition was in effect, the teacher told the students they had two assignments to complete and in a random order gave the students one of the assignments to complete during the last 15 minutes of independent practice in math or language arts class. To make sure all three teachers followed the same procedure, they followed a three-step process. The teacher told the students, "During the independent practice time you will have two assignments to complete." Next, the teacher approached the student at his/her desk and while giving the student an assignment and said, "Complete this assignment first." As the teacher gave the student the assignment to complete, he/she was asked, "Do you have any questions about the assignment?" The teacher then answered any questions. The teacher repeated this procedure for each student in the study. All five students started in the No Choice condition. The students were started in the No Choice condition as the baseline of the ABAB design as this represented the existing classroom condition.

### *Choice*

During the Choice condition all three teachers followed a five-step modified method (Jolivette et al., 2001) to provide choice making opportunities during independent assignments in math and language arts. All three teachers presented the students with two independent tasks by placing the two tasks in front of the student on his/her desk and said, "You have two assignments to complete." The teacher then explained the two assignments and asked if the student had any questions about the assignments and answered the students' questions. Then the teacher asked, "Which assignment would you like to complete first?" When the student made their choice, the teacher wrote a "1" on the top of the sheet and gave the student the assignment and prompted the student to begin work. If the student did not choose one of the two assignments then the teacher re-prompted the student to choose an assignment and repeated the five-step procedure as needed. This procedure was repeated for each student.

### *Dependent Variables and Data Collection*

Based on information from the teachers and direct observations in the classroom, three dependent measures, time on-task, task-completion, and accuracy, were operationally defined for the five participants. **On-task behavior** was defined as the student's eyes were on the assignment, writing and questions asked were task related, materials used for task, teacher directions followed, and no occurrences of cursing, talking out, or touching other students. It was measured using **duration recording**. The percentage of time on-task was calculated by dividing the amount of time on-task by 15 minutes. **Task-completion** was defined as the number of independent problems and tasks completed as evidenced by pen or pencil marks under or next to the problem or task. Percentage of task-completion was calculated by dividing the number of items completed by the total number of items on the assignment. **Accuracy** was defined as the number of problems or tasks completed correctly. The accuracy percentage was calculated by dividing the number of correct items by the total number of items on the assignment.

### *Social Validity*

*Teacher.* During the first day of post-planning for teachers, the social validity of the intervention was assessed through a structured interview with the teacher that included four open-response questions regarding: (a) treatment effectiveness, (b) ease of implementation, (c) planning for implementing the intervention in the future, and (d) the acceptability of the intervention in terms of the time and effort



required. The teachers' appraisal of student performance was assessed only during the intervention time.

*Student.* Student social validity was assessed by asking the three participants to complete a student survey. It consisted of five questions with responses based on a four-point Likert scale that included the following responses: not at all, some, most, and always. The five questions on the student survey of social validity were: (a) I completed my work in class, (b) I had good behavior, (c) I would like to choose the order of my work, (d) I would like to choose my assignments in other classes, and (e) Choice making helped me. The questions were administered the second to last day of the school year after the second Choice condition, and two students were assessed on the last day of school after the final maintenance data points were collected. The students were instructed to consider their work and behavior during the choice intervention.

#### *Treatment Fidelity and Interobserver Agreement*

To assess treatment fidelity 30% of the sessions were observed. Using a 9-item Choice and 5-item No Choice checklist, the teacher was observed for completion of each step within the first 30 seconds of the start of the independent work time. The mean percentage for treatment fidelity was 99.33% (range, 97%-100%) across the three teachers.

Interobserver agreement data for time on-task were collected during 29% of sessions for Chris, 30% of sessions for Trey and Sara, and 33% of sessions for Katie and Abby (distributed across conditions and phases). Interobserver agreement for time on-task was calculated by total agreement for minutes (Kazdin, 1982; Kennedy, 2005). The formula used to determine agreement involved totaling the number of minutes, dividing the smaller number by the larger number, and multiplying by 100%. Interobserver agreement for percent of time on-task for Chris and Trey was 100%, Sara was 91% (range, 88% to 96%), Katie was 86% (range, 70% to 98%), and Abby's was 98% (range, 95% to 100%). Interobserver agreement was assessed on 30% of all assignments across all five students for task-completion and accuracy. Interobserver agreement for task-completion and accuracy was calculated using point-by-point agreement (Kazdin, 1982; Kennedy, 2005). The formula used was the number of agreements for task-completion or accuracy divided by the agreements plus disagreements multiplied by 100%. The interobserver agreement across the five students for task-completion and accuracy was 100%.

## Results

The percentage of time on-task, task-completion, accuracy, and percentage of nonoverlapping data points (PND) during a fifteen minute independent task time for the five students are reported and depicted in Figures 1 through 5. Percent of nonoverlapping data was calculated by adding the number of intervention points that exceeded the highest baseline data point and dividing the sum by the total number of data points in the intervention phases (Scruggs, Mastropieri, & Casto, 1987).

### *Abby*

Figure 1 shows the percentage of time on-task, task-completion, and accuracy for Abby. Of the five participants, Abby had the highest mean during the Choice conditions and upon visual analysis a functional relation is present between phases. During the No Choice condition across 8 sessions, Abby had a mean percentage of time on-task of 69.87% (range, 33% to 100%), task-completion of 65% (range, 0% to 100%), and accuracy of 47.5% (range, 0% to 90%). These data depict marked levels of variability, thus no statements regarding trend or stability may be made. However, during the first Choice condition, a relatively immediate increase in percentage of time on-task, task-completion, and accuracy is evident. While Abby did not remain on task for 100% of the session, her level of engagement remained high. Overall, for the first Choice condition across 14 sessions, her performance was more consistent and her mean percentage increased to 98.28% (range, 90% to 100%) for time on-task, 98.21% (range, 75% to 100%) for task-completion, and 89.28% (range, 75% to 100%) for accuracy. When considering PND, complete overlap is evident for time on-task and task-completion as the most positive value in the first No Choice condition was 100%. However, for accuracy the most positive value from the first No Choice to the first Choice condition was 90%. There were 7 sessions exceeding this value indicating 50% PND from the first No Choice condition to the first Choice condition.

Although the percentage of time on-task variable did not return to zero during the No Choice condition, Abby's data demonstrated a negative downward slope. Abby's mean percentages decreased to 53.75% for time on-task (range, 26% to 66%), 25% for task-completion (range, 0% to 50%), and 12.5% for accuracy (range, 0% to 25%). During the last phase, a return to the Choice condition across 7 sessions, Abby's performance was not as stable as compared to the first Choice condition. Abby's mean percentages increased for time on-task to 84.42% (range, 70% to 100%), task-completion 84.28% (range, 75% to 100%), and accuracy 76.42% (range, 50% to 95%). For PND,

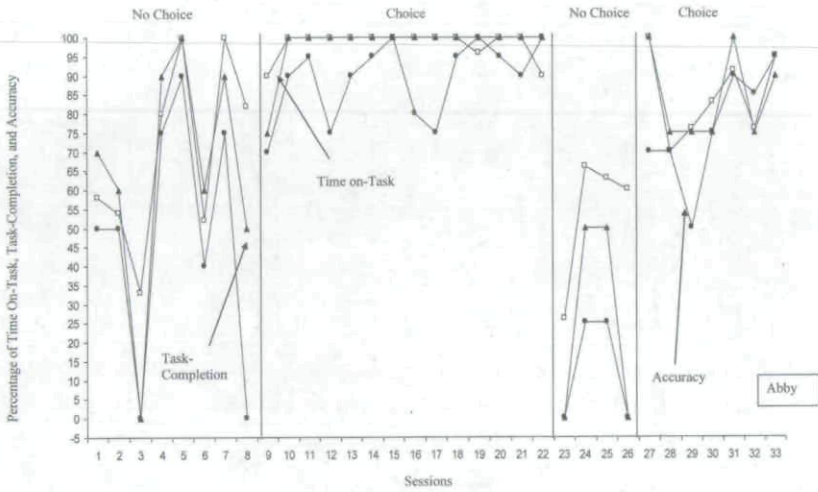


Figure 1. Time on-task, task completion, and accuracy percentages are displayed for Abby.

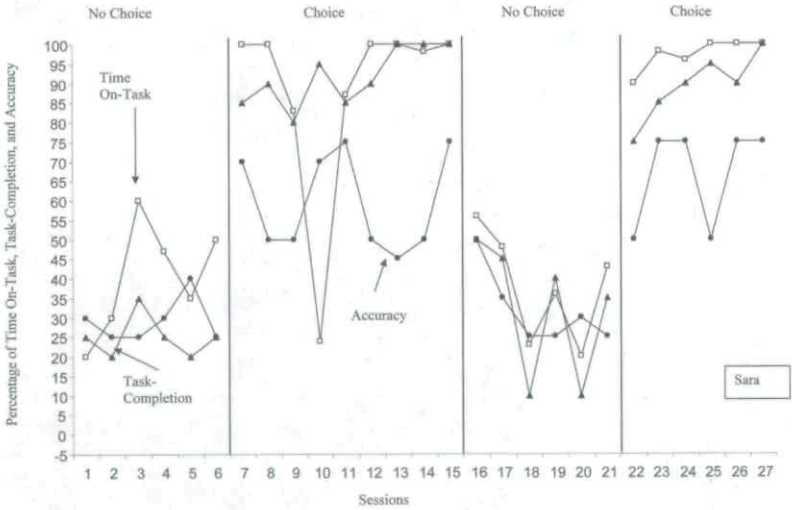


Figure 2. Time on-task, task completion, and accuracy percentages are displayed for Sara.

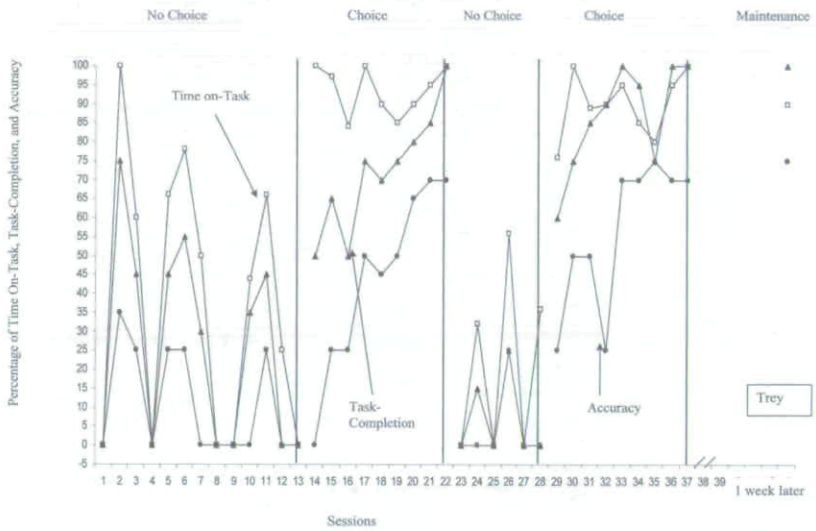


Figure 3. Time on-task, task completion, and accuracy percentages are displayed for Trey.

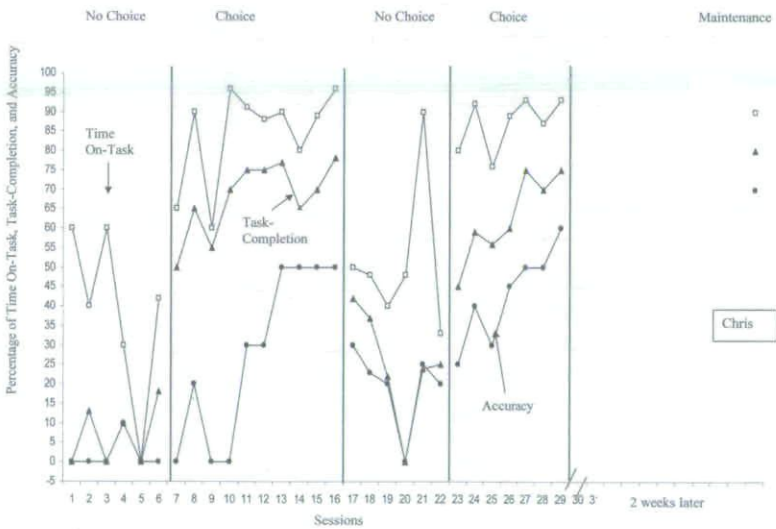


Figure 4. Time on-task, task completion, and accuracy percentages are displayed for Chris.

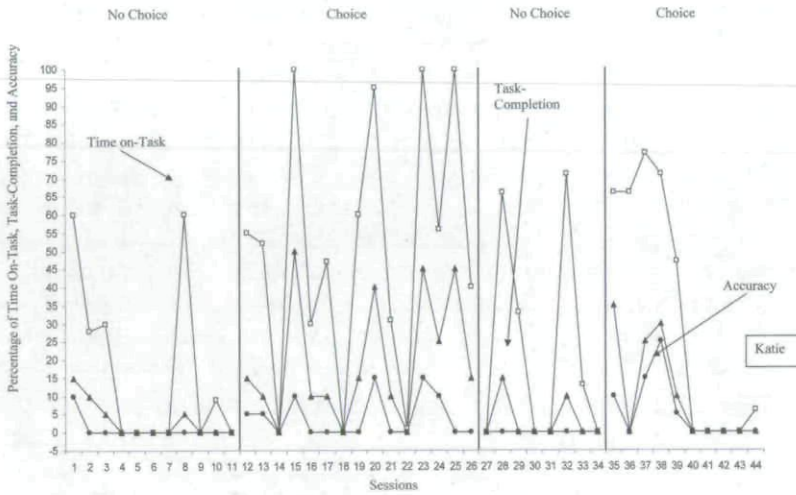


Figure 5. Time on-task, task completion, and accuracy percentages are displayed for Katie.

the percentages for time on-task, task-completion, and accuracy in the Choice condition exceeded the most positive values for each of those variables in the No Choice condition. Thus 100% PND is evident in the second Choice condition for all variables.

### Sara

Sara's data are displayed in Figure 2. Visual inspection of Sara's data suggests that a functional relation was established with minimal overlapping data across phases. The initial No Choice condition across 6 sessions resulted in a mean percentage of time on-task of 40.33% (range, 20% to 60%), task-completion of 25% (range, 20% to 35%), and accuracy of 29.16% (range, 25% to 40%). When Sara was provided with Choice-making opportunities during the second phase across 9 sessions, her mean percentage of time on-task increased to 88% (range, 24% to 100%), task-completion increased to 91.66% (range, 80% to 100%), and accuracy increased to 59.44% (range, 45% to 75%). In the first No Choice condition, the most positive value for percentage of time on task was 60%. Observations in 8 sessions indicated values that exceeded 60% indicating 89% of nonoverlapping data points. During the Choice conditions 100% of data points for both variables exceeded the highest value compared to the No Choice condition.

When the Choice condition was withdrawn across 6 sessions, Sara's mean percentages decreased to 37.66% (range, 20% to 56%)

for time on-task, 31.66% (range, 10% to 50%) for task-completion, and 31.66% (range, 25% to 50%) for accuracy. Sara exhibited higher increases with more stability with the reintroduction of the second Choice condition across 6 sessions as compared to the first Choice condition for a mean percentage of time on-task of 97.33% (range, 90% to 100%), task-completion of 89.16% (range, 75% to 100%), and accuracy of 66.66% (range, 50% to 75%). When considering PND, all values in the second Choice condition for percentage of time on task and task-completion exceeded the most positive values for these variables in the No Choice condition indicating 100% nonoverlapping data points. For the task accuracy variable, the most positive value in the second No Choice condition was 50%. Sixty-seven percent of sessions in the second Choice condition exceeded this value.

### *Trey*

Figure 3 displays Trey's data. Trey's performance for the initial No Choice condition across 13 sessions was variable with a mean percentage of time on-task of 37.61% (range, 0% to 100%), task-completion of 25.38% (range, 0% to 75%), and accuracy of 10.38% (range, 0% to 35%). Since stability in the No Choice condition phase could not be established at 50% of the mean, Trey entered the first Choice condition when three descending data points for task-completion, time on-task, and accuracy were obtained. Upon visual analysis, Trey had an ascending trend across the three dependent variables during the first Choice condition across 9 sessions and his mean percentages increased for time on-task to 93.4% (range, 84% to 100%), task-completion 72.22% (range, 50% to 100%), and accuracy 44.4% (range, 0% to 70%). When considering PND, no data points in the first Choice condition exceed the most value in the initial No Choice condition for percentage of time on task, thus complete overlap is evident. Upon introduction of the Choice condition, 33% of data points were non-overlapping in percentage of task-completion and 66.7% were non-overlapping for percentage of accuracy.

Trey's mean percentage of data for the second No Choice condition across 6 sessions fell below the means of the first No Choice condition. His mean percentage of time on-task decreased to 20.6% (range, 0% to 56%), task-completion to 6.6% (range, 0% to 25%), and accuracy to 4.1% (range, 0% to 25%). When the second Choice condition was introduced across 9 sessions, increases in the dependent variables were evidenced, as compared to the previous phase, indicating that a functional relation did exist. His mean percentage of time on-task increased to 90% (range, 76% to 100%), task-completion to 86.6% (60% to 100%), and accuracy to 56.11% (range, 25% to 75%). For the

percentage of time on-task and task-completion variables, the most positive values in the second No Choice conditions were 56% and 25% respectively. In the second Choice condition all data points for both variables exceeded these values indicating 100% PND.

One week following the end of the second Choice condition, maintenance data were recorded and his time on-task was 90%, task-completion was 100%, and accuracy was 75% which met or exceeded his mean performances in the previous phase.

### *Chris*

Chris' data are displayed in Figure 4. During the No Choice condition across 6 sessions, Chris' mean percentage of on-task was 38.6% (range, 0% to 60%), task-completion was 6.8% (range, 0% to 18%), and accuracy was 1.6% (range, 0% to 10%). During the first Choice condition across 10 sessions, his mean percentage of time on-task increased to 84.5% (range, 60% to 96%), task-completion to 68% (range, 50% to 78%), and accuracy to 28% (range, 0% to 50%). With the withdrawal of Choice, Chris' second No Choice condition across 6 sessions, mean percentages decreased with time on-task at 51.5% (range, 33% to 90%), task-completion at 25% (range, 0% to 42%), and accuracy at 19.6% (range, 0% to 30%). Ninety percent of data points in the Choice condition exceeded 60%. For the percentage of task-completion variable, the most positive value was 18% in the No Choice condition, and 100% of data points in the Choice condition were nonoverlapping. The greatest value for percentage of task accuracy was 10% in the No Choice condition. Seventy percent of data points in the Choice condition were nonoverlapping.

When the Choice condition was reintroduced across 8 sessions, his mean percentage for time on-task increased to 87.14% (range, 76% to 93%), 62.85% (range, 45% to 75%) for task-completion, and 42.85% (range, 25% to 60%) for accuracy. Two weeks following the end of the second Choice condition, maintenance data collected show higher levels of performance as compared to the means of the prior phase with time on-task at 90%, task-completion at 80%, and accuracy at 70%.

For the second No Choice condition, the most positive values for percentage of time on task, task-completion, and task accuracy were 90%, 42%, and 30% respectively. Forty percent of data points were nonoverlapping in the percentage of time on task and 100% were nonoverlapping for the percentage of task-completion variables. For the percentage of task accuracy, 71% of data points were nonoverlapping; however, the values remained below a rate that would be considered passing.

### *Katie*

Katie's data are displayed in Figure 5. Katie had the highest variability during the Choice and No Choice conditions and upon visual analysis; a functional relation could not be established between the dependent variables within each phase. During the first No Choice condition across 11 sessions, Katie had a mean percentage of time on-task of 17% (range, 0% to 60%), task-completion of 3.18% (range, 0% to 15%), and accuracy of 0.9% (range, 0% to 10%). During the first Choice condition across 15 sessions, her mean percentages increased for time on-task to 51.13% (range, 0% to 100%), task-completion to 19.33% (range, 0% to 50%), and accuracy to 3.9% (range, 0% to 15%). When considering PND in each of the three variables, Katie's most positive data point in percentage of time on task was 60%, task-completion was 15%, and accuracy was 10% in the initial No Choice condition. During the Choice condition, the percentage of nonoverlapping data points for time on task was 26%. For percentage of task-completion and accuracy the PND were 33% and 13% respectively.

Given that stability could not be met in the prior condition of 15 sessions, a decision was made to return to the No Choice condition. In the second No Choice condition across 8 sessions, her percentages decreased for time on-task to 22.87% (range, 0% to 66%), task-completion to 3.12% (range, 0% to 15%), and accuracy to 0%. Again, stability could not be established and with the end of the school year approaching the Choice condition was reinstated. During the final Choice condition, her mean percentage increased for time on-task to 33.3% (range, 0% to 77%), task-completion to 10% (range, 0% to 35%), and accuracy to 5.5% (range, 0% to 25%). In the second No Choice condition, 10% of data points were nonoverlapping. For percentage of task-completion, the greatest value was 15% in the No Choice condition. Three data points exceeded this value in the final Choice condition indicating 30% PND. In the final No Choice condition for the percentage of accuracy variable, the greatest value was 0%. Four points in the Choice condition exceeded this value resulting in 40% PND. All values remained below passing levels.

### *Social Validity*

*Teacher perspective.* Teacher themes for the open-response questions centered around three main aspects: (a) ease of implementation, (b) an increase of time on-task and task-completion, and (c) empowering the students to take control of some of their educational decisions. Katie and Abby's teacher reported that overall she felt choice making was easy to implement. The only aspect of implementation felt to be moderately difficult was making sure the independent assignments



could be completed in the time limit. Chris' teacher also reported some difficulty in preparing independent tasks for the choice-making intervention. Trey and Sara's teacher reported that he thought the choice making intervention was simple and easy to implement. All three teachers reported that their students completed more tasks and displayed more appropriate behaviors in class related to getting their work done. Katie, Abby, Trey, and Sara's teachers reported that they felt the choice making intervention empowered their students to make choices and helped them to advocate for themselves in other aspects of their life at the residential facility. All three teachers reported that they would use the intervention in the future.

*Student perspective.* Abby and Trey reported that they completed their work most of the time, while Katie, Sara, and Chris reported that they completed their work some of the time. Abby, Chris, and Sara reported that they had good behavior all of the time, Trey reported he had good behavior some of the time, and Katie reported that her behavior was not good at all in class. The five students who participated in the study all reported that they liked to choose the order of their work and would like to choose their assignments in other classes as well.

### Discussion

Control in one's life is an effect of making choices. Most people exercise choice everyday; however, people with disabilities often are limited in the choices they are able to make (Sigafoos, 1998). Teachers and other adults typically mediate the choices students with disabilities make in classrooms due to both behavior and cognitive considerations. By providing choices for students with E/BD, the researchers hoped to reduce the display of inappropriate behaviors during academic contexts which are typical in residential school settings (Gagnon & Leone, 2006; Sigafoos, 1998). Choice-making contributes to facilitating increased autonomy by giving students more control over their environment (Jolivet et al., 2001).

Overall, the findings of the present study yield similar positive effects of choice-making on specific academic tasks (e.g., Dunlap et al., 1994; Jolivet et al., 2001; Kern et al., 2001) and extend the literature to adolescent students with E/BD served in residential facilities. By providing choices in task sequence, a functional relation between choice and time on-task, task-completion, and accuracy resulted for four of the five students during independent academic tasks. Sara, Chris, Trey, and Abby exhibited higher percentages of time on-task, task-completion, and accuracy when provided with explicit choices.

The data on accuracy did not produce the positive effects as

observed during the choice conditions for time on-task and task-completion. Accuracy did increase for four out of the five students during the choice conditions; however, only one of the students achieved an overall passing average for the independent assignments. While positive outcomes were noted for most of the participants, it is important to note that these changes occurred during short work sessions on specific academic tasks. Based on these findings, it would be difficult to make generalized statements regarding overall achievement or the students' performance on alternative tasks that may require more time or greater cognitive demands.

#### *Limitations and Future Directions*

Despite some positive outcomes of the choice-making intervention on the percentage of time on-task and task-completion during independent academic work time, several limitations must be addressed. First, the study length limited aspects of the design given both the variability and complexity of student's behavior. For both Trey and Katie, decisions to change phases despite the variability of their data were necessitated by the impending end of the school year. Additionally, maintenance points were only obtained for Trey and Chris while Abby was discharged from the residential facility. Future research should replicate these findings in similar restrictive settings with students with E/BD to increase our understanding of the intervention when time constraints are absent. Further, future research should explore the use of extended work sessions within phases, as the 15 minute sessions utilized in this study limit potential generalizability to tasks that require greater amounts of time.

A second limitation to the study is the research design. To strengthen the design, counterbalancing students such that one group follows an ABAB design, while another follows a BABA design may be necessary with a true baseline being established. Therefore, future research would necessitate the collection of baseline data in both ABAB and BABA conditions.

Third, the function of the student's inappropriate behavior were not assessed or matched to choice type. For example, Katie's data were variable across No Choice and Choice conditions. Based on anecdotal records, Katie's behavior appeared to be multiply maintained by escape of task demands and attention from peers and adults. Future research should investigate the efficacy of choice-making given differing functions of behavior as well as matching function to choice types.

Giving students the opportunity to choose the task sequence in which they completed assignments is an effective method for

increasing time on-task and task-completion (Jolivet et al., 2001; Kern et al., 2001). As an intervention, choice-making is practical in the classroom environment and does not require excessive preparation. Choice-making is a viable intervention which can continue to be used to investigate variables including; increased time on-task, task-completion, and accuracy for students with E/BD to improve their academic and social functioning in classroom settings.

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