The Effects on Task-Engagement and Staff-Assistance on Students with Emotional Disabilities Through the Use of Choice-Making for Academic Tasks

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Abstract

Choice-making is an essential developmental skill which has been shown to increase adaptive behaviors and decrease maladaptive behaviors. One adaptive behavior that has been studied extensively is task-engagement and its promotion through the use of choice-making. Fewer studies have examined staff-assistance required to complete tasks and remain on task.

This study examined both task-engagement and staff-assistance through the use of choice-making with two participants who were diagnosed with emotional and behavioral challenges in a naturalistic setting. Both participants increased levels of task-engagement during conditions in which they were given a choice of academic assignments. However, the level of staff-assistance they received had no influence on their on-task behavior or task completion.
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The Effects on Task-Engagement and Staff-Assistance on Students with Emotional Disabilities Through the Use of Choice-Making for Academic Tasks

Choice-making is an important developmental skill for all demographics and can be used as an antecedent-based procedure to promote adaptive behaviors and to reduce maladaptive behaviors. Previous research, primarily with participants diagnosed with developmental disabilities, has examined the effects of choice-making on several behaviors including increasing task-engagement and decreasing problematic behaviors.

Most literature on choice-making and task-engagement has focused primarily on participants diagnosed with autism or other developmental disabilities and to a lesser extent on participants diagnosed with traumatic brain injury. Fewer studies have focused on participants with emotional and behavioral challenges who live in naturalistic settings and participate in community life.

In naturalistic settings, such as public schools, the application of interventions affects not only the children exhibiting the behaviors, but also the adult staff members implementing the interventions as well. Often, these adult staff members are not previously trained in behavior analysis. This means that interventions must be employed that are easily understood by people with limited behavioral skills.

Throughout their day, children with behavioral problems interact with several adults including parents, teachers, aides, and other staff members. Behavioral problems exhibited by these children have been shown to impact the behavior of the adults with whom they associate. Carr, Taylor, & Robinson (1991) examined the effects of problematic children on the adults who were working with them.
The children in the study were classified as ‘problematic’ or ‘non-problematic’ based on whether they exhibited maladaptive behaviors when staff members gave instructions.

Initially, this study indicated that the adult participants were negatively reinforced in the form of escape from children exhibiting problematic behavior. When comparing the behavior of adults working with the pair of children, one of which exhibited problematic behavior and one who did not, results showed that adults spent more time instructing children who did not exhibit problem behavior than those who did. In addition, the adults typically presented tasks that were shown to exhibit lower rates of problematic behavior. This study suggests that the problematic behaviors of children can affect the instructional behavior of adults. In a naturalistic setting, this could potentially impact the academic progression of children exhibiting problematic behaviors.

Several studies have attempted to decrease disruptive or inappropriate behaviors and increase task-engagement during instructional periods. Athens, Vollmer, & St. Peter Pipkin (2007), implemented a consequent-based intervention to increase task-engagement which included shaping and changing the criterion to reinforcement. The participants, who were reported to have had low levels of compliance and task engagement, were required to reach a certain criteria level of on-task behavior before receiving reinforcement.

The participants in this study emitted variable behavior throughout the different reinforcement criteria conditions. With the onset of the changing criterion, most participants did not initially increase task-engagement. However, with all participants, levels of task-engagement returned close to zero levels when baseline conditions were resumed.

While changing reinforcement criteria is often effective, it can be a time consuming intervention. Additionally, reinforcement procedures rely on the participant exhibiting or not
exhibiting a behavior to be reinforced. By examining an antecedent based approach, adaptive behaviors can be increased and disruptive behaviors can be decreased without the necessity of a consequence.

It has been demonstrated that choice-making of instructional tasks can also increase task-engagement and decrease rates of problematic behavior (Dunlap et al., 1994). A benefit of using choice-making to increase task-engagement and decrease problematic behavior during instructional periods is that it is an antecedent based intervention. By using an antecedent based approach, adaptive behaviors may be exhibited and maladaptive behaviors may be decreased before their onset.

Dyer, Dunlap, & Winterling (1991) used both antecedent and consequent based procedures to study the serious problematic behavior exhibited by three school-aged children diagnosed with severe autism or mental retardation. The participants were given a selection of 3 to 4 academic tasks that they were previously able to complete and were shown to be of equal preference. The participants were also allowed to select reinforcers from a selection of predetermined stimuli. Results indicated that the participants exhibited lower levels of disruptive behaviors during conditions in which they were given a choice of academic tasks.

The effect of choice-making and task preference has been studied extensively. Vaughn & Horner (1997) examined task preference and teacher-choice versus student-choice on tasks that typically elicit problematic behaviors. After evaluating the preference of various tasks, the experimenters observed that the participants elicited higher rates of problematic behaviors during lower preference instructional tasks. When given choices of instructional tasks, the participants
typically chose those of higher preference. While working on these higher preference tasks, the
participants typically exhibited less problematic behaviors.

Later, the experimenters examined the effects of teacher-choice versus student-choice on
instructional tasks. As demonstrated previously, most of the participants exhibited low rates of
problematic behavior during high preference tasks in both the teacher-choice condition and in the
student-choice condition. The experimenters then examined the rates of problematic behavior for
low preference instructional tasks. For 2 of the 4 participants, there were lower rates of
disruptive behaviors during the student-choice condition of low preference tasks than during the
teacher-choice condition. These results imply that, even though the instructional task was of low
preference and had been previously shown to elicit problematic behavior, rates of problematic
behavior were lower when the student chose between low-preference tasks.

Bambara, Ager, & Koger (1994) also examined the effects of choice and preference on
work tasks. Tasks were classified as high-preference or low-preference based on a preference
hierarchy. Task engagement was then measured for the high and low-preference tasks and a
condition in which the participant could choose between a high-preference or low-preference
task.

The percentage of on-task intervals was measured. Results indicated that task-
engagement was higher when participants were assigned a high-preference task than when
participants were assigned a low-preference task. When presented with a choice between a high-
preference task or a low-preference task, participants typically chose the high-preference task
and task-engagement levels were comparable to the data measured when assigned a highly
preferred task.
The experimenters then examined the effect of choice on similar task-preferences. When provided with a choice of tasks of similar preference, such as all low-preference tasks, task-engagement levels were higher than when a task was assigned. The implication of these results is that, while preference for task effects the level of task-engagement, choice-making between tasks of similar preference also increases the level of task-engagement.

The yoked control procedure provides a way for analyzing choice-making and task preference. In a yoked procedure, the schedule of tasks is identical in both conditions; choice and no-choice. First, the participant is given a choice of academic tasks. In the subsequent no-choice condition the tasks are then present in the identical order. It is assumed the preference levels are the same and that any differences between conditions are attributable to the opportunity to make a choice.

While previous research has employed participants with autism and developmental disabilities (Dyer, Dunlap, & Winterling, 1991), some investigations have been conducted with participants with other demographics and similar results have been found. Tasky, Rudrud, Schulze, & Rapp (2008) yoked task sequences between choice and no-choice conditions to distinguish between choice and preference with participants diagnosed with traumatic brain injury. Results indicated that all 3 participants showed increase task-engagement when given a choice from a list of tasks.

Dunlap et al. (1994) examined the effects of choice-making versus preference on task-engagement. This was achieved through a yoked schedule procedure. Two conditions were implemented; one in which the participant chose the academic tasks, and one in which the participant was assigned an academic task. In the initial condition, the experimenters measured
the levels of task-engagement when the participant chose the order of academic tasks. For the following no-choice condition, the participants were not given a choice of tasks, but were assigned the tasks in the exact order that they were chosen in the previous condition. Despite having the same order of tasks in both conditions, the participants showed higher levels of task-engagement during the condition in which they chose the order. This study implies that the choice-making affects the level of task-engagement, not only the preference of the task.

Dunlap et al. (1994) further examined the effect of choice-making on both task-engagement and disruptive behaviors on two school-aged children diagnosed with emotional and behavioral challenges. Dependent variables were measured by calculating a percentage of intervals in which the participants exhibited the behaviors observed. Staff-assistance to complete tasks was measured but not recorded.

For both participants, task-engagement increased during the choice conditions than during the no-choice conditions. The reversal design demonstrated that disruptive behaviors were lower during choice conditions than during no-choice conditions. This indicates that choice-making could be used as a successful antecedent intervention to promote task-engagement and decrease disruptive behaviors while engaging in academic or vocational tasks.

The current study assessed the effect of choice-making on task-engagement. It expanded the literature on choice-making by examining the amount of staff-assistance required to remain on task and complete academic tasks. The participants used in this study did not have any reported disruptive behaviors when engaging in academic work. A reversal design was used with alternating choice and no-choice conditions without a yoking procedure in examining the effects
of these conditions on participants diagnosed with emotional and behavioral challenges within a naturalistic setting.

Method

Participants and Setting

The participants were two 12 year-old boys, Frank and Brent. Both participants were enrolled in a behavior reduction program at a public middle school. Frank and Brent shared a behavioral aide who accompanied them to their classes throughout the day. The aide was shared with one additional student who was not a participant in this study.

Both participants were chosen to participate in the study based on reports from the students’ Individualized Education Plans (IEPs). Frank was chosen to participate based on reported history of not completing academic assignments at home as well as an IEP report of ‘struggles to initiate, maintain attention during, and complete academic tasks without significant support from an adult’.

Frank was diagnosed with ADHD, emotional disability, anxiety disorder, and specific learning disability. Brent was diagnosed with ADHD and specific learning disabilities. Brent reportedly ‘exhibited difficulty independently initiating and completing assignments across academic areas without significant support of an adult’ according to his IEP and also did not complete academic assignments at home.

The study was conducted in a self-contained classroom for students with emotional and behavioral challenges within the middle school. The classroom was specifically used for students’ academic support period. Both students attended regular 6th grade academic classes and
were allowed one academic support period per day. The classroom included tables, computers, textbooks, white boards and other academic materials. It also contained a seclusion time-out room which was used in behavioral reduction programs.

During the study, 4 students and 2 behavioral aides were in the classroom during the academic support period. The behavioral aides also provided academic support in addition to behavioral support throughout the school day.

Behavioral Definitions, Measurement, and Reliability

The dependent variables measured were task-engagement and staff-assistance. Task-engagement was defined as attending to an academic assignment through writing, typing, or orienting towards an assignment through eye contact. This also included orienting towards a staff member providing assistance to complete an academic task. Staff-assistance was defined as any verbal or gestural prompt to remain on-task or any academic support necessary for the student to complete the task.

Data were collected until all academic tasks were completed or until 20 minutes had elapsed. Time was recorded using a stop-watch application on a cellular phone. Data were collected on task-engagement and staff-assistance using a 30-second momentary time interval. Data for task-engagement were recorded as occurring or not occurring and then circled if staff-assistance was being provided. A behavioral aide who was familiar with the students and proficient in data collection recorded the data. The time of day in which the academic support period occurred and data were collected varied each day.

During sessions in which interobserver agreement (IOA) data were collected, observers trained in data collection observed using the same stop watch and separate data sheets.
Interobserver agreement was collected for 19% of sessions for Brent and 22% of sessions for Frank. Reliability sessions were distributed across all experimental conditions with the exception of the first no-choice condition.

Agreements were scored as intervals scored identically. Disagreements were scored as intervals scored differently. Percentage agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%.

Total interobserver agreement for Brent’s task-engagement was 90% (range 82.5%-97.5%), 91.9% (range 80.0%-97.5%) for task-engagement and staff-assistance, respectively.

Frank’s total interobserver agreement was 89.7% (range 82.5%-100%), 95.8% (range 91.7%-100%) for task-engagement and staff-assistance, respectively.

Procedural Integrity was calculated for 9% of Brent’s sessions and 8% of Frank’s session with an average of 100%.

Procedure

Sessions were conducted on consecutive school days in which the students were present. However, the students often were absent due to illness, detentions, suspensions, and weekly meetings with the school psychologist. Data were collected for 20 minutes of the academic support period. Class periods ranged from 42 minutes to 50 minutes dependent on the day of the week.

All students currently enrolled in the behavior program used the same behavioral support plan in which the students could earn up to 6 points per class based on academics, behavior, and transition. The program reported in the study was the only reinforcement schedule provided for
the participants. Seclusion time outs were also given throughout the day contingent on inappropriate behavior. Participants were funded for a 3 students to 1 behavioral aide ratio. This aide also provided academic support during the academic support period in addition to implementing behavioral consequences. Points were earned at the end of each class and time-outs were given at any time throughout the day.

Two conditions were implemented; choice and no-choice. In the no-choice condition, academic assignments for the day were written on the classroom’s white board, which were separated by subject. For both participants, the daily were English, science, social studies, and math. The teacher verbally stated the assignment on which the participants were to work and instructed the students to get out the necessary materials to complete the assignment. The participants were expected to complete the assignments independently, but they were allowed academic support at any time from a teacher or an aide.

When the students completed an assignment, they were expected to clean up the assignment and any materials. The aide would then tell the students the next assignment on which they were supposed to work. This procedure was repeated until the end of the 20 minute data collection. Data collection began when the aide told the students which academic task they would do and the students took out the necessary academic materials.

In the choice condition, the academic assignments for the day were written on the white board, identically to the procedure for the no-choice condition. The subjects included English, science, social studies, and math. Assignments for each class differed daily for both conditions as the students progressed through the curriculum. The aide would ask the students which assignment on which they wanted to work. The students then verbally chose the assignment at
which point the aide instructed them to take out the necessary materials if they had not done so independently. Students were allowed to request academic support at any time from a teacher or aide.

If the students completed their academic assignment, they were asked by the aide to choose another assignment to begin if they did not already do so independently. This procedure continued until all academic assignments were completed or until the end of the 20 minute data collection period. Data collection began when the student had made a selection and got out the necessary academic materials. Assignments consisted primarily of worksheets and written work. On occasion, academic tasks were to be completed on the computer or typed.

Design

A reversal design was used to demonstrate the effects of choice-making on task-engagement and staff-assistance. Brent was exposed to two no-choice conditions and two choice conditions, whereas Frank was exposed to three no-choice conditions and two choice conditions.

Results

Figure 1 shows the results for Brent. Task-engagement was higher during both choice conditions than during the no-choice conditions. Initially, there was a decrease of staff-assistance required to maintain his on-task behavior. However, when the second no-choice condition was applied, levels of staff assistance remained low and variable. While task-engagement was variable, the magnitude of the level of change between conditions demonstrated that the independent variable had an effect on the dependent variable.
Frank’s data are represented in Figure 2. During the initial no-choice condition, his level of task-engagement was variable. When the first choice condition was introduced, Frank’s task-engagement increased. A reversal conducted after the first choice condition showed a decrease in task-engagement which returned to increased levels of task-engagement during the second no-choice condition. While levels of task-engagement were variable, the magnitude of difference between conditions demonstrated the effect of the independent variable on the dependent variable. Levels of staff-assistance were variable between conditions. There was no substantial change of levels of staff-assistance between choice and no-choice conditions for Frank.

Both participants demonstrated increased task-engagement during choice conditions and decreased task-engagement during no-choice conditions. The staff-assistance required to maintain their on-task behavior was variable and there was little difference between conditions.

Discussion

Results demonstrated that by providing choices for academic tasks, levels of task engagement increased for 2 participants with emotional and behavioral challenges. While an increase in task-engagement was demonstrated during choice conditions for both participants, there was no substantial change in staff-assistance. The behavior of the aide providing staff-assistance may have been a confounding variable. While procedural integrity scores were high, the data collected did not reflect the excessive academic support provided by the aide. While the aide followed the procedure, support typically lasted for several minutes or multiple intervals, not reflecting an accurate portrayal of how much academic support was actually necessary for the participants to remain on-task and complete tasks.
Both participants were suspended multiple times throughout the study for inappropriate behaviors. On days subsequent to the suspensions, they had larger amounts of academic tasks due to make up for missed assignments. At these times, additional prompting may have been provided to keep students on-task.

For a few sessions, academic tasks assigned were computer work or study games on the computer. For both participants, staff-assistance was far less on days in which the academic tasks were on the computer and academic engagement was increased for these sessions. Data from Frank’s session 4 demonstrates this phenomenon.

Since the academic assignments were based on the participants’ typical 6th grade curriculum, there were some days where no academic tasks were assigned or only one task was assigned. On days where there was only one academic task assigned, there was no differentiation between conditions since it was neither a choice or no-choice condition.

Although it is advantageous for typical classroom staff to be able to apply this intervention successfully in the naturalistic setting, it is sometimes difficult to obtain interobserver agreement under these conditions. The academic support period in the behavior reduction classroom typically had only two adults, the observer and the aide providing academic support present. IOA could only be conducted when other aides were available and there were multiple different observers conducting IOA.

The behavioral aide providing academic assistance had no formal behavior analysis training. With the excessive duration of assistance provided by the behavioral aide, a different method of measuring staff-assistance, such as rate of requests for academic support, might be a more accurate representation of the amount of staff-assistance necessary.
Future research could include follow-up data on the on-task behavior of the participants. Due to the naturalistic setting of the study, future research could also examine the application of choice-making implemented by classroom teachers or staff members not previously trained in behavior analysis.

Literature could also examine an antecedent approach paired with reinforcement to possibly further increase task-engagement. With an increase in task-engagement for both participants, research on task-performance could be a useful expansion of the study.
References


Figure 1: Brent

[Graph showing percentage of intervals for 'Engagement' and 'Assistance' over sessions, with two sections labeled 'No Choice' and 'Choice'].

Session Number: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21.

Percentage of Intervals: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100.
Figure 2: Frank

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- **Engagement**
- **Assistance**