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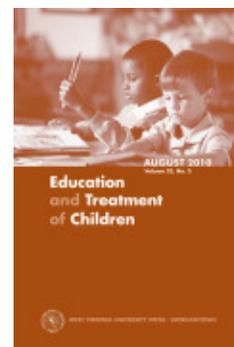
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The Effects of Choice on Assignment Completion and Percent Correct by a High School Student with a Learning Disability

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Abstract

The effects of choosing between two academic assignments on task completion and percent correct by a ninth grade student with a learning disability was investigated. This case study extended the efficacy of antecedent based intervention as an instructional modification. Further, the study extends previous research by investigating the effect of choice on academic achievement. The withdrawal design showed that percent completed and correct were highest when the participant was given a choice between two assignments when compared to baseline conditions. Results are discussed in term of efficacy of choice as an antecedent intervention, choice selection, and future research directions.

Students with learning disabilities (LD) often perform lower on academic tasks than their peers without disabilities (Heward, 2003). One reason students with LD or other disabilities have inadequate academic outcomes are low levels of task completion and thus, are less likely to have a high percentage of correct answers on assignments. Therefore, it is critical that educators pursue research-based interventions designed to improve academic performance. Antecedent based interventions are advantageous for several reasons. As demonstrated by McComas, Hoch, Paone, and El-Roy (2000), antecedent based interventions that manipulate instructional variables or in which task choice is provided to students have been shown to decrease problem behavior and increase academic performance. These findings are not an isolated phenomenon. Additional studies (e.g., Dunlap et al., 1994; Mithaug & Mar, 1980; Parsons, Reid, Reynolds,

Correspondence to Donald M. Stenhoff, Department of Special Education & Rehabilitation Counseling, University of Kentucky, 229 Taylor Education Building, Lexington, KY 40506-0001; email: don.stenhoff@uky.edu..

& Bumgarner, 1990) have shown choice making to increase student performance. In addition, Morgan (2006) reviewed the choice making literature to identify its effectiveness on K-12 student behavior during academic tasks. Thirteen articles were included in the review. Morgan reported that choice making was, while results varied, a successful intervention in increasing task engagement, task completion, and accuracy.

For example, Dunlap et al. (1994) conducted two experiments evaluating the effectiveness of choice on task engagement and disruptive behavior. In Study 1 two fifth grade students with emotional disabilities were given a menu of tasks they could choose to work on during a class period. In Study 2, an elementary student with a severe emotional disturbance was presented with eight books and allowed to choose one to read. Dunlap and colleagues demonstrated that task choice successfully increased the amount of on-task behavior and collaterally decreased disruptive behaviors.

Powell and Nelson (1997) extended Dunlap et al.'s (1994) study to students with mild disabilities. Powell and Nelson evaluated the effects of manipulating antecedents through choice responding on the frequency of inappropriate behaviors with a second grade student diagnosed with Attention-Deficit/Hyperactivity Disorder. School personnel implemented a no-choice condition and choice condition that allowed the student to choose between two tasks identical in length and difficulty, yet varying in content. Inappropriate behaviors decreased during the choice condition.

While several studies have evaluated the effects of choice on task responding and task engagement (e.g., Dunlap et al., 1994; Kern, Bambara, Fogt, 2002; McComas et al., 2000; Mithaug & Mar, 1980; Parsons et al., 1990), Morgan (2006) reported that in only five studies (Carson & Eckert, 2003; Cole, Davenport, Bambara, & Ager, 1997; Cosden, Gannon, & Haring, 1995; Dyer, Dunlap, Winterling, 1990; Moes, 1998) researchers evaluated the effects of choice making on students' performance (e.g., percent completed, percent correct, rate correct) in a content area. However, none of the studies included high school aged participants and none of the studies included students with learning disabilities. Morgan suggests that more research is needed that studies the effects of choice making across disability types.

The current case study addresses the need to investigate the efficacy of choice making on improving students' academic performance, and extend the research on choice making with students with learning disabilities in high school settings. The purpose of this case study is to extend the use of choice making as an antecedent based academic intervention to high school aged students with learning disabilities.

Methods

Participant and Setting

Theo was a 15-year-old male student in ninth grade identified as having a learning disability. He was selected for the study because he had a poor grade in biology class and often refused to complete assignments. The study took place in a high school resource biology class with an enrollment of 15 students classified with learning disabilities or behavior disorders. The classroom teacher was a certified special educator who served as the primary data collector and is the first author of this study. All sessions were conducted within natural classroom routines. That is, instructional techniques were not the focus of this investigation, and therefore were not systematically manipulated. Sessions were conducted daily over 16 school days. Each session lasted approximately 40 minutes.

Dependent Variables and Measures

Two dependent variables were measured: (a) the percent of assignment completed and (b) the percent of items correct. The percent of assignment completed was computed by dividing the number of items completed correctly and incorrectly by the number of possible opportunities to respond and multiplying by 100%. For example, if the participant was assigned to complete a study guide with 18 fill in the blank problems the number of possible opportunities to respond would be 18. Likewise, if the participant was assigned to label a diagram of an animal cell with seven possible labels, the number of possible opportunities to respond would be seven. Percent correct was computed by dividing the total number of correct answers by the total number of problems completed and multiplying by 100%. Percent correct data were not collected during baseline.

Interobserver agreement (IOA) was conducted by having a trained second observer score the participant's assignments. The second observer had no prior contact with the student and was employed outside the school. Training consisted of providing the second observer uncorrected photocopied work samples of other students' assignments. The second observer computed the percent of the assignment completed and percent correct. The results between the second observer and researcher were compared point-by-point. Discrepancies between the second observer and researcher were discussed and clarified. Training continued until the second observer reached a criterion of 100% point-by-point agreement with the researcher.

The IOA procedures were conducted identical to training except discrepancies were not discussed. IOA was quantified as point-by-

point agreement and was computed by dividing agreements by the sum of agreements and disagreements and multiplying by 100%. IOA was conducted on 62% of the sessions for assignment completion and was 100%. Percent correct IOA was conducted on 31% of the intervention sessions. IOA was 95% (range, 82-100%).

Social validity was addressed by comparing the student's course grade average prior to intervention and at the end of the study.

Independent Variable

The independent variable was a choice between two demand levels of assignments (i.e., a class assignment, or an alternative assignment). The class assignment consisted of fill-in-the-blank, matching, drawing and/or labeling diagrams, short answer, multiple choice, and/or true or false questions. The alternative assignment had "Option 2" typed at the top of the page, and had the same number of questions as the class assignment. However, the questions were located on the right side of the page and the answers on the left side of the page. The participant was required to copy the answer from the left side to the right side of the paper. Additionally, if the participant was required to find an answer from his textbook and record it on the page the worksheet would have the page number where the answer may be found. It is important to note there were no systematic consequences delivered other than those preexisting in the classroom.

Experimental Design

An ABAB design was used to measure the differential effects of the independent variable on daily assignment completion and percent correct.

Procedure

No Choice (Baseline). During baseline the teacher taught a lesson on the topic, distributed the class assignment to students, and moved throughout the classroom answering questions and providing feedback to students. Students' papers were collected at the end of the class. Two photocopies were made of Theo's assignment, one for the teacher and one for the independent observer. The assignment was corrected using an answer key provided by the teacher.

Choice. During this phase the teacher distributed the class assignment to the other students in the class. Theo was given the class assignment and alternative assignment. The teacher explained the requirements to Theo for the class assignment and the alternative assignment and told Theo to, "Choose one." The teacher moved away for 15 seconds while Theo chose. After 15 seconds, the teacher returned and

collected the non-selected assignment. Allotted assignment completion times varied across sessions, but were identical to the other students. A photocopy of Theo's assignment was made for the teacher and independent observer to score. Assignment completion percentage and percent correct data were then recorded.

Results

Figure 1 shows the percent of assignment completion across all sessions and percent correct across all sessions except baseline. Theo's mean percent of assignment completion during baseline was 2% (range = 0 to 9%). During the Choice phase he chose the class assignment instead of the alternative assignment every session. During the Choice phase Theo completed a mean of 89% (range = 76 to 92%) of the problems on each assignment. Additionally, his mean problems correct was 75% (range = 68 to 82%).

When choice was withdrawn, Theo's assignment completion decreased to 53% then to 0%; his percent correct dropped to 50% then 0%. The brevity of this condition was warranted when considering the ethics of allowing a student to experience further failure in the classroom setting. When the choice condition was reinstated, Theo's mean percent assignment completion was 99% (range = 95 to 100%), and his mean percent correct was 81% (range = 80 to 97%). Theo chose the class assignment on all sessions during this phase.

Theo's course grade was 52% (failing) at the beginning of the study. His course grade at the end of the study was 76% (passing).

Discussion

The current study extended the use of choice as an antecedent based intervention. First, as McComas et al. (2000) allude, antecedent based interventions that address idiosyncratic characteristics of academic assignments might evoke appropriate behavior while decreasing the possibility of problem behavior. Second, this study extends the use of choice to a high school student with a learning disability. Third, the study addresses student achievement as the dependent variable as opposed to student engagement or inappropriate behaviors (Dunlap, et al., 1994; Powell & Nelson, 1997). Finally, this study highlights the ability of school personnel to conduct antecedent based treatment to positively affect student achievement.

Overall, the results suggest that providing a choice of assignment without sacrificing instructional content may be sufficient to increase student achievement. In the current case study, the participant increased his percentage of assignment completed dramatically over baseline levels. While percent correct baseline data were not collected,

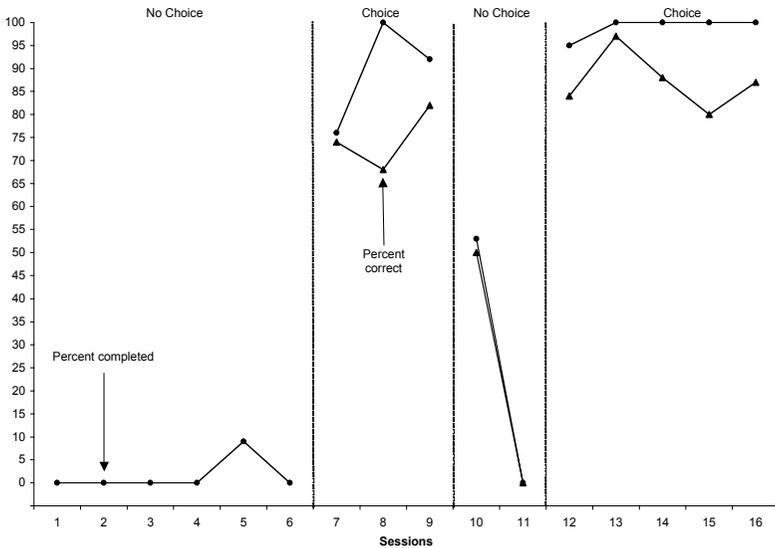


Figure 1. Theo's percentage of assignment completion and percent correct.

one may conclude that on 5 of 6 assignments the percent correct would have been 0%. Again, when the opportunity to choose the assignment was removed the percent completed returned to original no choice (baseline) levels and percent correct quickly decreased. Again, when a choice was provided, productivity and performance levels were substantially higher compared to no choice conditions, and the student's academic achievement increased.

Of particular interest, when given a choice, Theo consistently chose the class assignment. The teacher originally hypothesized that demand was the controlling variable in Theo's productivity. Thus, it was deemed appropriate to allow Theo to choose between two different demand assignments. That is, he was allowed to select the assignment that he perceived was within his demand level. This was done to increase his academic success in the classroom. However, analysis of the data suggests that this was not the case. In fact, during the choice conditions Theo consistently chose the higher demand task and completed it with high accuracy. This may suggest that Theo was simply controlling the instructional situation through the choice opportunity. More importantly the data support a conclusion that choice was a controlling variable in altering the reinforcing potency of task completion. That is, by providing Theo an assignment choice his assignment completion and academic achievement increased. McComas

et al. (2000) described that with one participant the presence of a task sequence choice decreased destructive behavior. The authors suggest that therapist or teacher determined task could serve as an establishing operation for destructive behavior. It is plausible that in the case of the McComas et al.'s study, the presentation of a teacher selected task served as the establishing operation for incomplete and incorrect work. It appears that by providing a choice of task diminished the likelihood of inappropriate academic behavior. Further, the only systematic difference between the two conditions was access to choice. While it is plausible that the increased interaction (i.e., the prompt to select one assignment and return to collect the unselected assignment) between the teacher and Theo acted as a reinforcer, it is unlikely. For example, the teacher would have provided more interaction during the no choice condition with prompts to Theo to complete the assignment. While during the choice condition these prompts would have been limited because Theo was indeed completing his assignments. This, however, clearly points to a possible controlling variable to be investigated in future studies. The findings in the current study are similar to those found by Dunlap et al. (1991). Dunlap et al. investigated choice and no choice conditions for a student with multiple disabilities who engaged in challenging behavior during academic tasks. During the choice condition the student was allowed to choose between subject tasks (e.g., science, social studies), while during the no choice condition the subject task was teacher selected. They found that during the choice condition the student's on-task behavior substantially increased. The findings by Dunlap et al. and the current study provide plausible evidence that choice was a controlling variable rather than the adult attention.

Due to several limitations, the current case study should be interrupted with caution. First, antecedents alone do not maintain behavior, but rather trigger or occasion behavior. Thus, there is the distinct possibility that other idiosyncratic variables contributed to treatment effects. For example, the classroom setting did not provide an opportunity to record the frequency or intervals of teacher-student interactions as suggested by Dunlap et al. (1994). Therefore it is plausible that increased teacher attention may have been a contributing variable to the outcomes of the study. However, there was no systematic attention delivered. In addition, peer attention might have acted as a controlling variable. However, given the characteristics of a public school classroom environment, it is difficult to control for peer attention. Second, the study's generalizability is unclear due to a single participant and the lack of generalization or maintenance probes. Therefore, it is uncertain whether the results of this study would generalize to other

participants with learning disabilities or other disabilities, or whether the results would generalize to other settings.

To address these limitations, future researchers should control for peer attention and teacher attention by possibly having the student work alone in a study carrel during all conditions while having the teacher deliver the assignment directly to the student across all phases. In addition, the study carrel would prevent peers from seeing the alternate assignment and may reduce peer influence on the student's choice. In addition, researchers should measure teacher variables (e.g., interaction with the participant across phases) as in Dunlap et al. (1994), and control peer attention. An independent observer could monitor the frequency of teacher-student interactions across conditions to measure differential rates of attention if any. If differential rates were recorded they might explain treatment effects. In addition, future research should include a social validity component that addresses whether the instructional procedures are appropriate for the participant or grade level. Researchers may examine other students' grades during the intervention as a social comparison to the effectiveness of the intervention on the participants' behavior. Further, researchers should examine whether the participants perceive the opportunity to choose as more preferred than not being allowed to choose their assignments. Finally, prior to suggesting that assignment choice would produce similar outcomes in other populations and settings, replications are needed with a wider variety of subjects and in different settings.

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