

CHOICE MAKING TO PROMOTE ADAPTIVE BEHAVIOR FOR STUDENTS WITH EMOTIONAL AND BEHAVIORAL CHALLENGES

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Two analyses investigated the effects of choice making on the responding of elementary school students with emotional and behavioral challenges. In the first analysis, 2 participants were given choices from menus of academic tasks, all of which were pertinent to their educational objectives in English and spelling, respectively. Reversal designs showed that the choice-making conditions increased task engagement and reduced disruptive behavior for both students. An additional analysis was performed with a 3rd student in an effort to further distinguish the effects of choice making from preference. In this study, one of the no-choice phases was yoked to a previous choice-making condition. This analysis demonstrated that the choice-making condition was superior to baseline and yoked control phases as determined by levels of task engagement and disruptive behavior. The findings of the two analyses contribute information relevant to students with emotional and behavioral disorders, and to a growing literature on the desirable effects of choice making for students with disabilities and challenging behaviors.

DESCRIPTORS: choice, problem behavior, emotional and behavior disorders, classroom behavior

Students with emotional and behavioral challenges frequently display behaviors that are incompatible with the routines and requirements of their classrooms. As a result, behavior management programs are typically a salient feature of these students' educational experiences. The most common programs have been based on the manipulation of consequences and have included token and point systems as well as punishment procedures (e.g., time-out). Recently, concern has been expressed

that excessive reliance on such programs has resulted in classrooms that are coercive and relatively ineffective in developing more adaptive student repertoires (Knitzer, Steinberg, & Fleisch, 1990; Steinberg & Knitzer, 1992). In response, some researchers have begun to explore the efficacy of approaches that seek to prevent, rather than suppress, problem behaviors that are exhibited by this population (e.g., Dunlap & dePerczel, 1990; Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Knapczyk, 1992). Many of these strategies involve antecedent manipulations, including various forms of curriculum revision that are designed to increase the favorable attributes of the student's environment (Dunlap & Kern, 1993).

An important direction in positive behavioral support has been the development of interventions that are more responsive to the individual preferences and initiatives of the students themselves (Meyer & Evans, 1989). This tack has led to a growing literature on preference assessment and choice making by students with disabilities (e.g., Newton, Horner, & Ard, 1993; Parsons & Reid, 1990; Shevin & Klein, 1984). Specifically, some recently documented approaches have attempted to improve behavior by incorporating stimuli and ac-

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tivities that are selected and/or preferred by individual students.

Numerous authors (e.g., Bannerman, Sheldon, Sherman, & Harchik, 1990; Guess, Benson, & Siegel-Causey, 1985; Shevin & Klein, 1984) have considered important ethical, developmental, and programmatic issues related to choice making. In general, these authors have noted that choice making can be seen as a vital component in support programs not only because it can improve responding but also because making decisions is an important developmental objective related to personal control and dignity. Studies have demonstrated that choice making can improve social relatedness (e.g., Koegel, Dyer, & Bell, 1987), task performance (e.g., Mithaug & Mar, 1980; Parsons, Reid, Reynolds, & Bumgarner, 1990), and levels of disruptive behavior (Dyer, Dunlap, & Winterling, 1990).

The applied literature, however, is limited largely to the responses of people with developmental disabilities. It is critical that empirical investigations explore the generality of choice-making operations to additional circumstances and with different populations. Students with emotional and behavioral challenges represent an especially appropriate group because of their great needs for behavioral support and because of the findings that their classroom programs tend to be characterized by very high levels of external control and coercion (Knitzer *et al.*, 1990). Unfortunately, very few studies have shown that choice making as an intervention can be useful with this group of children. The data that do exist are limited to brief demonstrations in the context of analyzing multiple controlling variables (e.g., Dunlap *et al.*, 1991, 1993). Therefore, a pressing need exists to investigate the effects of choice making with students whose difficulties are characterized by emotional and behavioral challenges.

A number of other issues are also waiting for experimental attention. For example, the bulk of studies thus far have been conducted in controlled contexts, with almost no data collected in the ongoing context of classroom operations. Demonstrations of choice making in these kinds of naturalistic applications are essential for considerations of fea-

sibility and external validity. Also, several conceptual questions remain open. One intriguing question has to do with the relation between preference and choice making. In particular, is choice making simply an efficient and accurate means of identifying highly preferred stimuli, or does the opportunity for a student to make choices produce a greater benefit than having a teacher provide the student with preferred alternatives? Questions such as these have vital implications for our understanding of student motivation and for the optimal design of positive behavioral support.

This investigation had several purposes. The primary objective was to evaluate the possible benefits of choice making for elementary school students identified as having emotional and behavioral disorders. In addition, we sought to enhance external validity by conducting the experimental procedures in the context of the students' regularly scheduled classroom activities. As a secondary purpose, we explored a possible distinction between the effects of preference and the operations of choice making. To address these objectives, we conducted two analyses. In the first study, choice making was evaluated with 2 students in ongoing academic circumstances. The same academic tasks were available to the students in the choice and no-choice conditions. The second study replicated the effects of the first study and extended the analyses with a yoked-control procedure in which the same sequence of tasks was provided in a no-choice condition as was provided in a previous choice-making condition.

STUDY 1

METHOD

Participants and Settings

Two 11-year-old boys, Wendall and Sven, served as participants in Study 1. Both students were fifth graders enrolled in a self-contained classroom serving students labeled emotionally handicapped (EH). Wendall had been diagnosed as having attention deficit hyperactivity disorder and was receiving medication (75 mg per day of desipramine) at the time the investigation was conducted. He was de-

scribed by his teachers as displaying poor task engagement and peer relations. Sven did not receive any medications during the study. He was described as displaying inadequate task engagement as well as problems with inappropriate and aggressive verbal behavior and physical aggression. Both children were referred for the current study by their home-room teacher.

This study was conducted at a public elementary school in a self-contained special education classroom. All procedures and data collection were conducted during two regularly scheduled periods of independent seatwork. The analyses for Wendall were conducted during English, and the analyses for Sven occurred during spelling. Both of these classes were held daily before 10:30 a.m. During these activities, the classroom included an average of nine students, a teacher, a full-time aide, and two to three behavioral consultants who were in the classroom to collect data and provide assistance as necessary.

Behavioral Definitions, Measurement, and Reliability

The dependent variables for both students were recommended by their teachers and included task engagement and disruptive behavior. The students were judged to be engaged in their tasks when they were working on an assigned activity in accordance with instructions. This included having eyes on materials during written or manipulative assignments or on the teacher during verbal instruction. Disruptive behavior was defined individually for each student. Wendall's disruptive behavior included vocal or nonvocal noise making, leaving his seat without permission, talking out in a manner unrelated to the assigned task, or exhibiting non-compliant behavior (e.g., failing to comply with instructions within 5 s). For Sven, behaviors that were scored as disruptive were talking out without staff permission, vocal or nonvocal noise making, leaving his seat without permission, destroying property, and noncompliance.

All data were collected during the regular classroom operation for 15 min per day during English

(Wendall) and spelling (Sven). Throughout the investigation with Wendall, data were collected on task engagement and disruptive behavior via a 15-s continuous-interval system. For Sven, a partial-interval recording system was used in which the first 10 s of the interval were used for observation and the remaining 5 s were used to record data. Intervals were cued by a tape recording that observers heard through earphones. For an interval to be scored as an occurrence for task engagement, at least 70% of the interval had to conform to the definition. Any instance of disruptive behavior led to that interval being scored as an occurrence.

Data were collected by behavioral consultants who were familiar with the students and proficient in data collection. Prior to initiating the investigation, the observers practiced with the behavioral definitions during nonexperimental observations until interobserver agreement was at least 80% for each dependent variable. During sessions that were assessed for interobserver agreement, separate earphones were used by the two observers. The earphones were connected to the same tape player with cords that were long enough to insure independent data recording.

Interobserver agreement was assessed during 38% of the sessions for Wendall and 57% for Sven. These reliability sessions were distributed across all experimental sessions. Agreements between observers were defined as intervals scored in an identical manner by both observers. Disagreements were those intervals in which the second observer scored the interval in a manner differing from the first observer. 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 Wendall averaged 95% (range, 83% to 100%) for task engagement and 99% (range, 95% to 100%) for disruptive behavior. Occurrence reliability for Wendall averaged 97% (range, 83% to 100%) and 91% (75% to 100%) for the two dependent variables. For Sven, total interobserver agreement averaged 97% (range, 72% to 100%) for task engagement and 96% (range, 91% to 100%) for disruptive behavior. Occurrence reliability for Sven averaged

99% (range, 72% to 100%) and 80% (range, 64% to 100%) for the two variables.

Procedure

All of the sessions were conducted on consecutive school days during the ongoing classroom routine. The length of sessions was not changed from the typical classroom routine and usually ranged from 20 to 30 min; however, data were collected for a total of 15 min or until all assigned tasks were completed.

Throughout the investigation, the teachers used a behavior management system in which appropriate deportment was reinforced with points that were exchangeable for tangible rewards at the end of the day. Problem behaviors resulted in a loss of points or, if the disruption was excessive, removal from the classroom for a brief period. All management procedures were identical across the phases of the experiment.

To document the levels of teacher interaction with the participants during the experiment, data were collected on the percentage of intervals with teacher interaction using the same interval systems that were used to record the dependent variables. These data showed that interactions were infrequent and that they did not differ across conditions. For Wendall, the percentage of intervals with teacher interaction averaged 3% in both the no-choice and the choice conditions. For Sven, the percentages averaged 7% in the no-choice conditions and 6% in the choice conditions.

In the no-choice conditions in both English and spelling, academic assignments for the day were routinely presented on the blackboard. The assignments were selected by the teacher, and students were expected to complete the assignments independently as listed on the board. In English, one assignment was typically posted per day, although on rare occasions two assignments were listed. In spelling, two or three assignments were posted. When the students completed their assignments, they delivered their papers to the classroom aide, who awarded 10 points for work completion. Data collection during the no-choice conditions began after the teacher had delivered all necessary instruc-

tions and the students had begun their independent seatwork activities.

In the choice conditions, the students were given an individualized menu of academic activities specific to the subject matter. The menus were written on pieces of paper (8.5 in. by 11 in.) and remained on the students' desks throughout the class period. The menus contained six to eight options for Wendall and eight to ten options for Sven. The content of the menus was developed by the classroom teacher (with assistance from the consultant) and was drawn directly from the standard range of assignments presented in the no-choice condition. The choices were specific to the assignments that were already identified for the class curriculum for that week. The menus were presented by first asking if the participant wished to choose his assignment(s) on that day (the answer was always affirmative). The participant was then asked to select from the menu and was allowed to review the assignments and materials before selecting. The participant was also informed that he was permitted to change tasks in the middle of a session (cf. Dyer *et al.*, 1990); however, Wendall never made such a request and Sven did so on only two occasions. As in the no-choice sessions, the participant was awarded 10 points when he completed his task(s). In addition, the work was quickly checked by the teacher to see that the quantity was consistent with the expectations for the other students. On all occasions but one, the teacher agreed that the quantity met or exceeded the general requirements. When the single exception occurred, the teacher asked Sven to choose and complete one additional task, which he did within the allotted time period. In this condition, data collection began when the participant made his selection from the choice menu.

Task Assignments

The tasks that were presented in both conditions were typical independent activities that were appropriate for the students' level of achievement and consistent with the classroom's movement through the designated curriculum. In English, the topic of instruction alternated daily across several skill areas including nouns, pronouns, helping verbs, and ac-

tion verbs. The task assignments that were posted on the board or offered on the choice menu always conformed to the topic that was scheduled for that day. Table 1 presents the kinds of task options that could be selected by the teacher during the no-choice sessions or selected by Wendall during the choice sessions. This table shows only tasks for the topic of pronouns; however, all of the other topics included options that were directly analogous. In particular, all of the tasks involved worksheets or exercises from the textbook.

In spelling, a list of 20 new spelling words was presented to the class each week. All of the available task assignments pertained to the 20 words. The kinds of assignments that could be selected by the teacher or by Sven were consistent across weeks and are presented in Table 1.

Design

Reversal designs were used for both students to evaluate the influence of choice making on task engagement and disruptive behavior. For Wendall, the first condition was no choice. This was followed by the choice condition and then a return to the no-choice condition. A final choice condition was conducted, constituting an ABAB analysis. For Sven, an ABA analysis was conducted. The school year ended before a second choice condition could be conducted.

RESULTS AND DISCUSSION

Wendall's results are presented in Figure 1. The percentage of intervals with task engagement was greater during the choice phases than during the no-choice phases. Indeed, the provision of choice-making options was associated with extremely high and stable levels of task engagement. In addition, the data on Wendall's disruptive behavior indicate that choice making lowered the percentage of intervals with disruptive behavior relative to the no-choice condition. When the no-choice phase was implemented a second time, disruptive behavior increased, but was reduced again with the return of the choice condition.

Sven's data are presented in Figure 2. Although

Table 1
Sample List of Task Options for Both Conditions in Study 1

Wendall	Sven
1. Merrill English textbook pronoun unit, page 97, 1-20 (1-10 answers only, 11-20 write out complete sentences)	1. Write words three times each
2. Merrill English textbook pronoun unit, page 97, 21-35 (21-30 write out sentences, 30-35 answers only)	2. Put all words in alphabetical order
3. "I ME WE US" Worksheet 1 (1-7 fill in the blank, 8-15 write out sentences)	3. Look up definitions for 15 words and page numbers in the dictionary for 5 words
4. "I ME WE US" Worksheet 2 (A. 1-5 fill in the blank, 6-12 write out sentences; B. 1-5 fill in puzzle)	4. Create 20 sentences using spelling words
5. "Subject Pronoun" worksheet (1-15 circle pronoun, write out sentences substituting circled word)	5. "Pattern Power" (spelling textbook)
6. "Pronoun Search" worksheet (1-32 fill in the blanks with correct pronouns from clues)	6. "Meaning Mastery" (spelling textbook)
7. Read a paragraph, identify, and record all pronouns	7. "Word Building" (spelling textbook)
	8. Worksheet—suffixes and spelling word scramble
	9. Worksheet—spelling word search
	10. Write definitions and sentences for 10 words

these data are extremely variable, it is clear that task engagement during the choice condition was again superior to that during the no-choice conditions. Similarly, his disruptive behavior occurred at lower levels when he was given the opportunity to select his spelling assignments.

The data produced by this study are consistent with previous investigations (e.g., Dyer et al., 1990), but they offer an important extension to an additional population. In addition, the study was conducted in a natural, ongoing context and was conducted in response to explicit teacher concerns regarding the behavior of the 2 participants. It may also be important to note that none of the choice options had been identified previously as favored

or preferred activities. On the contrary, both students regularly complained when they were assigned to work on these academic tasks. These complaints occurred prior to the study and persisted during the no-choice conditions. However, complaints were not displayed during the choice conditions, even though the students frequently worked on the same activities during both conditions. This observation—that behavior differed substantially across conditions even when the tasks were the same—suggests that choice making might be a functional variable that exceeds the facilitative influence of activity preference (Foster-Johnson, Ferro, & Dunlap, 1994). This possibility was explored more directly in Study 2.

STUDY 2

METHOD

Participant and Setting

The participant for Study 2 was Ahmad, a 5-year-old male enrolled in a class for students with severe emotional disturbance. Ahmad was referred from a regular kindergarten class due to extremely aggressive, disruptive, and noncompliant behavior. In his current placement, Ahmad continued to exhibit high levels of disruptive behavior including non-compliance, negative verbalizations, and physical aggression.

All sessions were conducted in Ahmad's classroom. Seven other children were in the classroom, as were the teacher, the aide, a peer tutor, and one or two data collectors. Throughout all sessions of this study, Ahmad sat at his regular desk with a behavioral consultant and a data collector seated in close proximity. The other children were engaged in a variety of individual activities including worksheets, watching a program on public television, and listening to a story being read by the tutor. Sessions were conducted daily at 9:00 a.m.

Behavioral Definitions, Measurement, and Reliability

As in Study 1, the dependent variables in this analysis were the percentage of intervals that in-

cluded instances of task engagement and disruptive behaviors. For Ahmad, task engagement was defined as sitting quietly and attending to the story being read. This included being physically oriented toward the book and teacher, asking relevant questions, or responding verbally to questions or task-related statements. If Ahmad was oriented away from the activity, talked about unrelated topics, or displayed noncompliance, he was considered to be off task. Disruptive behavior included leaving his seat, destroying property (e.g., ripping paper), or engaging in aggression (hitting, kicking, or attempting to strike a person), negative verbalizations (e.g., verbal aggression, swearing), or noncompliance.

Task engagement and disruptive behavior were scored with a partial-interval recording procedure in which the first 10 s of the interval were used for observation and the remaining 5 s were used for recording data. Data were collected by experienced staff members who were familiar with the setting and the participant. Interobserver agreement was obtained for 50% of the sessions, distributed equally across conditions, using the same approach that was described in Study 1. Total agreement was 96% (range, 87% to 100%) for task engagement and 97% (range, 95% to 100%) for disruptive behavior. Occurrence reliability averaged 97% (range, 71% to 100%) and 97% (range, 67% to 100%) for these two variables.

Procedure and Design

In all sessions of this analysis, Ahmad was expected to listen to one of eight story books that was read by the behavioral consultant, who served as Ahmad's teacher throughout the analysis. All books were selected from the "easy reader" section of the public library and all were written and illustrated by Bill Peet.

Sessions were conducted each day for 15 min. Sessions began with either the teacher or Ahmad selecting a book and then proceeding to engage in the reading activity. Throughout the study, appropriate listening and participation were followed with specific praise statements and affection from the teacher. Mild off-task and disruptive behaviors were

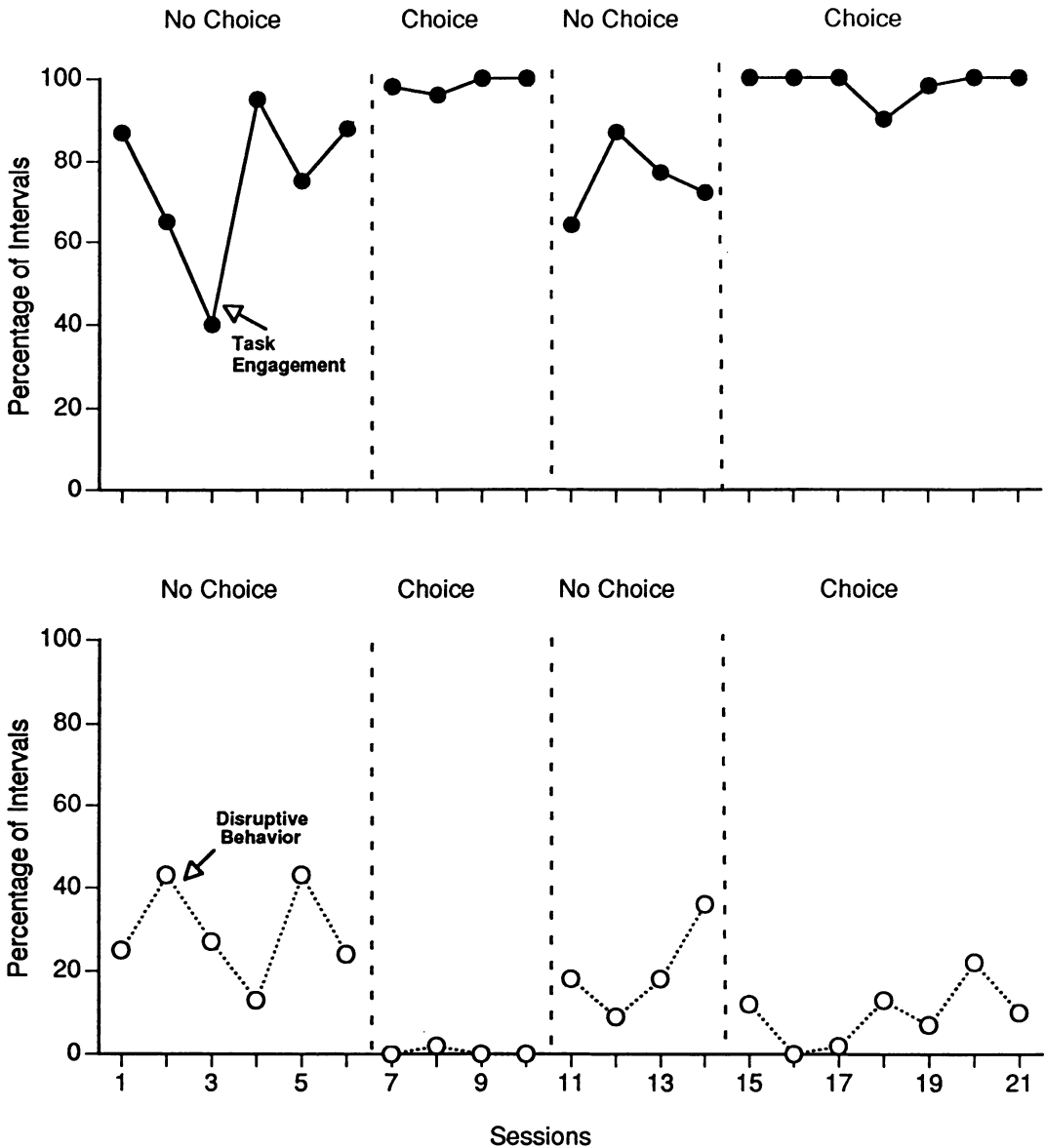


Figure 1. Results of the reversal comparison of choice and no-choice conditions for Wendall in English class. The top graph depicts levels of task engagement, and the bottom graph shows disruptive behavior.

ignored while the story continued to be read. Occasional verbal prompts (e.g., "I really like it when children listen and pay attention") were used to encourage task engagement. When Ahmad attempted to leave the area, graduated physical guidance was used to direct him back to his seat.

A reversal design, including four phases of four sessions each (ABAB), was implemented to compare no-choice with choice sessions. In two of the

phases (choice), Ahmad selected a book to be read immediately before the session. In the other two phases (no choice), the teacher selected the book to be read. In addition, the second no-choice condition was yoked to the preceding choice phase in an effort to distinguish the effects of preference from choice making per se.

In the first of the no-choice phases, the session began with the consultant selecting a book at ran-

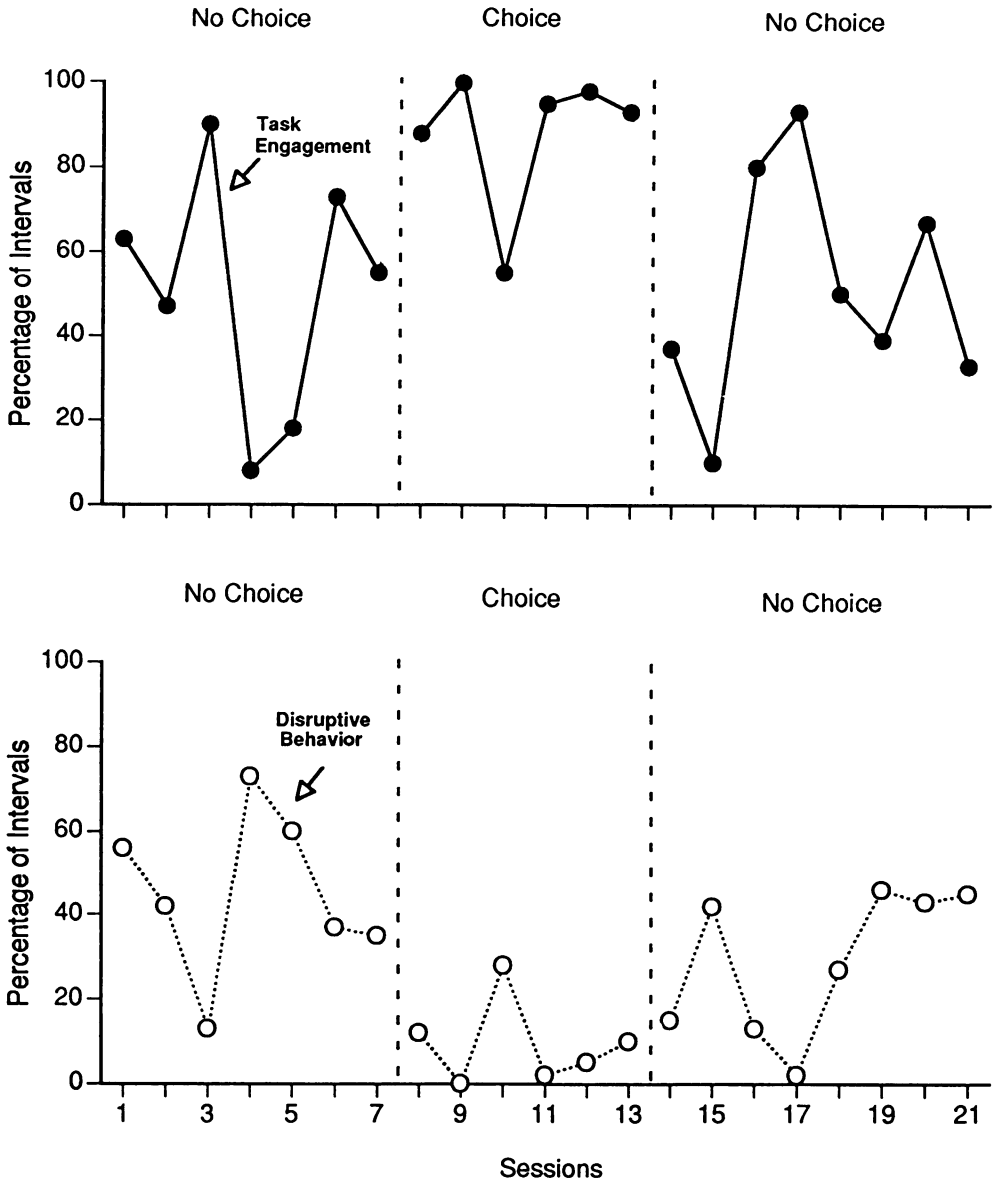


Figure 2. Results of the reversal comparison of choice and no-choice conditions for Sven in spelling class. The top graph depicts levels of task engagement, and the bottom graph shows disruptive behavior.

dom from the pool of eight options. The consultant sat next to Ahmad and said “Today I’m going to read this story to you.” The consultant then read the story, asking occasional questions and encouraging Ahmad to ask questions and discuss the story. The session continued for 15 min, after which the book was put away and Ahmad proceeded to his next activity.

In the subsequent choice condition, the consultant brought the eight books to Ahmad’s desk and said, “Today you can pick any book you would like me to read to you, and you can change books whenever you want to.” The books were spread out, and Ahmad made a selection. The session then continued in the same manner as the no-choice sessions.

Table 2
Books Selected for Each Session in Study 2

Condition	Session	Book
No Choice 1	1	<i>Ella</i>
	2	<i>Chester the Worldly Pig</i>
	3	<i>Cyrus the Unsinkable Sea Serpent</i>
	4	<i>Jethro and Joel Were a Troll</i>
Choice 1	5	<i>Chester the Worldly Pig</i>
	6	<i>Cowardly Clyde</i>
	7	<i>Chester the Worldly Pig</i>
	8	<i>Cowardly Clyde</i>
No Choice 2 (yoked control)	9	<i>Chester the Worldly Pig</i>
	10	<i>Cowardly Clyde</i>
	11	<i>Chester the Worldly Pig</i>
	12	<i>Cowardly Clyde</i>
Choice 2	13	<i>Hubert's Hair Raising Adventures</i>
	14	<i>Hubert's Hair Raising Adventures</i> and <i>Big Bad Bruce</i>
	15	<i>Cowardly Clyde</i> , <i>Big Bad Bruce</i> , and <i>Hubert's Hair Raising Adventures</i>
	16	<i>Cyrus the Unsinkable Sea Serpent</i>

The second no-choice condition was conducted exactly like the first no-choice condition, except that the books were not selected randomly. Instead, the book selections were yoked to the preceding choice phase. That is, the sequence of books was exactly the same as the sequence that Ahmad had selected over the course of the preceding block of four sessions. The final choice condition was conducted in a manner identical to the first choice condition.

As in Study 1, data were collected on the percentage of intervals that included interactions between the adult and the participant. As would be expected in this context, the levels of interaction were extremely and consistently high throughout the analysis, averaging over 95% of the intervals. In the final three conditions of the experiment, interactions occurred in an average of 99% of the intervals.

RESULTS AND DISCUSSION

In order to satisfactorily interpret the data from this analysis, it is important to identify the specific books that were selected in each condition. These data are presented in Table 2. This table shows that the consultant randomly selected four different

books during the first no-choice condition. When Ahmad was given a choice, only one of the books from the first four sessions was repeated and, interestingly, *Chester the Worldly Pig* and *Cowardly Clyde* were both selected twice. The third phase was the yoked-control condition; therefore, the sequence of selections was repeated. During 2 days (Sessions 15 and 16) in the final choice condition, Ahmad used his option to change books midway through the session. On the last day, however, he selected only one book, which was one that had been read previously during the first no-choice condition.

Figure 3 shows the percentage of intervals with task engagement and disruptive behavior during each session for each experimental condition. The data on disruptive behavior show high levels of disruption during the initial no-choice condition, but these were reduced dramatically when the choice procedures were implemented. After 4 days of near-zero levels of disruption, the same sequence of four books was then implemented in the next (yoked-control) no-choice phase. Very high levels of disruptive responding, similar to the first no-choice condition, were displayed. The second choice con-

Ahmad

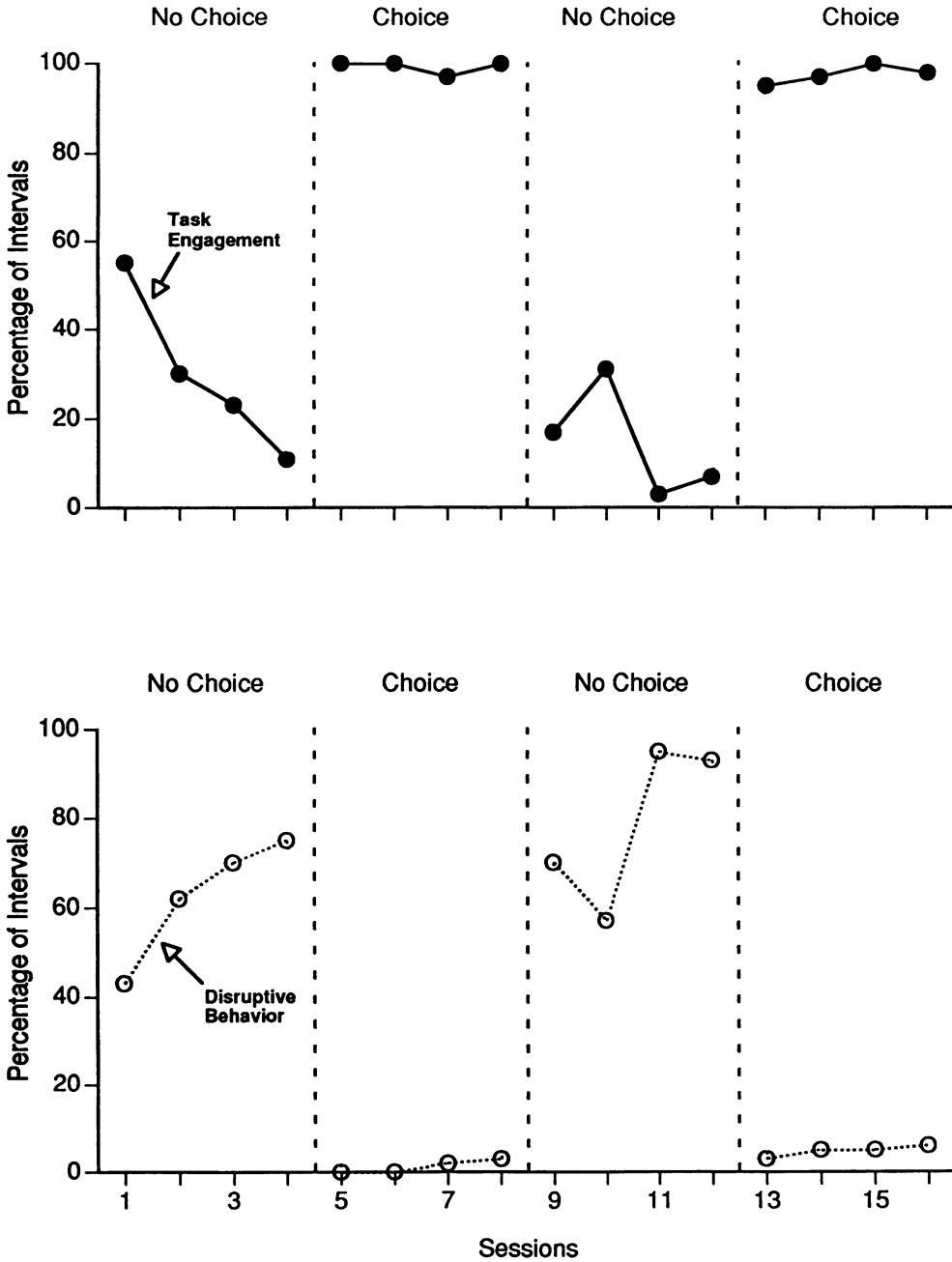


Figure 3. Results of the reversal comparison of choice and no-choice conditions for Ahmad during story telling. The top graph depicts levels of task engagement, and the bottom graph shows disruptive behavior.

dition replicated the positive effects of the first choice condition.

Levels of task engagement are shown in the top graph of Figure 3. These results are conversely related to the data on disruptive behavior. That is, the choice conditions always produced very high levels of task engagement, whereas the no-choice phases resulted in very little on-task behavior.

GENERAL DISCUSSION

Taken together, the data from these two studies demonstrate that choice making served to heighten task engagement and reduce disruptive behavior for the 3 participants. These methods, and the findings that resulted, have several implications for practice and for future research on choice making. In particular, the data may contribute to the design of intervention programs for students with emotional and behavioral challenges, and to the conceptualization of choice making as a functional variable.

From the perspective of intervention for students with emotional and behavioral challenges, the results indicate that desirable effects were produced when the students were allowed to choose, and exert some control over, the specific assignments that they worked on during the scheduled sessions. This approach can be contrasted to traditional orientations that are notable for the high degree of external control that is maintained in classrooms for this population (Knitzer et al., 1990; Shores, Gunter, & Jack, 1993). In this respect, the choice-making strategy in our study is consistent with a widespread movement to identify effective alternatives to punishment (Horner et al., 1990) and, in particular, to promote student initiative and individualized curricular interventions for reducing problem behaviors (Dunlap & Kern, 1993). Although this emphasis has been clearly articulated and demonstrated in the area of developmental disabilities, this investigation offers one of the few experimental presentations of curricular interventions for children with emotional and behavioral challenges. It may be the first such demonstration

of classroom-based choice making with this population.

Not only did the intervention serve to reduce the disruptive behaviors of each participant, but task engagement was also shown to increase markedly. This is significant because task engagement was identified as a principal concern for each student. It would have also been desirable to document effects on task performance, but the context of this study did not allow for systematic evaluation of this variable. Ahmad was required only to engage in participatory listening, with no explicit objectives associated with comprehension or question asking. Wendall and Sven did work on academic assignments that were often graded, but the expectations and task requirements changed over the course of the study, in concert with the curriculum's progress. The grades that were dispensed showed no difference across conditions for either participant. On the other hand, work completion seemed to favor the choice condition. Both Wendall and Sven completed all of their assignments in the choice conditions but, in the no-choice condition, Wendall failed to complete his work on two occasions and Sven failed to complete his assignments on three occasions. The effects that choice making might have on task performance are important, particularly for underachieving students, but at this point they remain unknown (cf. Dyer et al., 1990; Parsons et al., 1990).

The current data also contribute to the expanding literature on choice making as a beneficial component of behavioral support. In particular, the present findings serve to broaden the generality of the phenomenon in substantial ways. With the addition of this study, it is now apparent that the effects apply to populations beyond those with developmental disabilities. In addition, external validity is strengthened by the naturalistic features of the current contexts. Specifically, the procedures were conducted in the participants' classrooms under the supervision of the participants' teachers, and all of the assignments were entirely consistent with the ongoing classroom curricula. These characteristics add to the growing and diversifying data

base and contribute to a recognition that choice making is a robust intervention that is likely to have meaningful applications in a wide variety of situations. Still, there are reasons to treat the present data with some caution. The current study included a limited number of participants, sessions, and experimental replications, and the sessions were brief. Future research should seek to replicate these findings and probe their generality to additional populations and settings. Additional research will be needed to explore the limits of the strategies' effectiveness and practicality, as well as the ideal parameters for offering choices in various circumstances. For example, one productive avenue of investigation would be to relate the effects of choice making to particular response classes (e.g., escape responding) through the maturing technologies of functional assessment (Cooper & Harding, 1993; O'Neill, Horner, Albin, Storey, & Sprague, 1990).

The current investigation offers some intriguing results that invite speculation regarding the relation between choice making and preference. A considerable literature has shown that preferences can be assessed reliably, whether the assessment focuses on stimuli to be used as reinforcers (Dyer, 1987; Green *et al.*, 1988) or activities (Foster-Johnson *et al.*, 1994). In addition, some authors (e.g., Foster-Johnson *et al.*) have shown that activities assessed as being preferred are associated with reduced levels of problem behaviors when compared with non-preferred activities. From this perspective, it is reasonable to interpret choice making as a simple, efficient means of indexing preferences. However, the current data offer some preliminary indication that choice making may incorporate procedural advantages and functional influences that exceed those of preintervention preference assessments.

From an operational perspective, choice making was seemingly superior to a strategy that would have involved a preference assessment. This is apparent because earlier sessions of the experimental comparisons could be viewed as preference assessments and, in the case of these participants, preferences appeared to change frequently over the course of the choice-making conditions. Wendall's and

Sven's choices varied across the range of alternatives. Similarly, the selections in Ahmad's second choice condition are inconsistent with those in his first choice condition. Also, when tasks that were selected in a choice condition were presented later in a no-choice format, responding was highly problematic. This is evident most dramatically in the yoked-control phase for Ahmad. These data indicate that a preintervention preference assessment, at least in this format, would have been an unsuccessful means for promoting desirable behavior.

This latter observation may appear to conflict with recent data on preference assessments (e.g., Foster-Johnson *et al.*, 1994), but there are several possible explanations. For example, compared to previous studies, the preferences in the current analyses may have been relatively small or they may have changed from session to session (Dyer, 1989). It is also possible that the act of choice making itself may have produced an effect beyond the influence of preference. Relevant to this possibility are data reported by Brigham and Sherman (1973), who showed that children's responding was enhanced when they were allowed to choose their own reinforcers, even though the reinforcers were the same in the comparison conditions.

Consider the five sessions in which *Chester the Worldly Pig* was read to Ahmad. In two of the sessions, Ahmad made the choice and, in each of these sessions, his behavior was exemplary. In the other three sessions, which occurred before and after the choice sessions, his behavior was off task and disruptive. Although it is conceivable that these differences represented shifting preferences, it seems more likely in this case that the data were associated with the act of choice making itself.

Although this phenomenon might be predicted by various theoretical formulations (e.g., White, 1959) having to do with competence, control, and autonomy, the empirical evidence is, as yet, far from conclusive. There is a great need for studies that will replicate the finding and explore the possible contributing variables. In addition, it seems likely that the procedures of choice making could serve different functions for different participants

according to the contexts, the available options, the establishing operations, and numerous other variables. For example, it is quite possible that choice making, independent of preference, would have no discernible influence in many circumstances (e.g., Seybert, 1993). However, such distinctions and conclusions are dependent upon additional data. At present, the literature offers little information about these possible interrelationships.

Regardless of the manner with which the current data are conceptualized, it is clear that choice making can provide substantial benefits for students with emotional and behavioral challenges. These are findings that could and, we would argue, *should* have fundamental implications for the behavioral support that is provided for these children.

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