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Instructional Level and Engagement in Students With Behavioral Disorders

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Abstract

This study examined the effects of adjusting the difficulty level of instructional materials on the on-task time and comprehension of four students with emotional and behavioral disorders. All participants previously exhibited low rates of on-task behavior during reading assignments. Students were presented with reading materials at their instructional, frustration, and independent levels to assess the effect on time on-task and comprehension. All four students demonstrated the highest percentage of on-task behavior when presented with reading materials at their instructional level. Comprehension scores were highest for all four students at the independent level and lowest at the frustration level.

Keywords

emotional and behavioral disorders, instructional level, frustration level, independent level, engagement

Research has consistently demonstrated that students with emotional and behavioral disorders (EBDs) often engage in behavioral problems that negatively affect their academic achievement (e.g., Bradley et al., 2008; Kauffman & Landrum, 2017; Nelson et al., 2004). Behavioral problems are particularly concerning in school settings because they cause a disruption to the ongoing classroom activities and interfere with work completion, task engagement, participation in academic activities, and with other prosocial behaviors (Lane et al., 2005; Losinski et al., 2017; Wadsworth et al., 2015). Consequently, students with EBD may miss valuable instructional time which could lead to academic underachievement, students receiving lower grades, and performing below their general education peers (Lane et al., 2008; Ysseldyke et al., 2017).

Various aspects of academic tasks may set the occasion for problem behavior (e.g., difficulty level, amount, and preference for the task). Of particular interest in this study is the difficulty level of academic tasks. Several researchers have demonstrated that difficulty level can lead to an increase in problem behavior (e.g., DePaepe et al., 1996; Gickling & Armstrong, 1978; Treptow et al., 2007; Umbreit et al., 2004). When students are provided tasks that are either too difficult or too easy, they may engage in problem behavior to avoid those tasks (Gunter et al., 1993; Umbreit et al., 2004). Gickling and Thompson (1985) suggested that students' optimal learning occurs when they are provided with academic tasks that allow an appropriate level of challenge. This is referred to as the *instructional level*—when tasks are not too easy or too hard, but "just right." Gickling and Armstrong (1978) operationally defined the instructional level for reading as assignments in which students could read between 93% to 97% of the words. Assignments that are too difficult, that is, at the student's frustration level, are those that contain less than 93% known words. In contrast, assignments that contain more than 97% known words are considered too easy and are deemed at the student's independent level.

Research has demonstrated that providing students with reading assignments at their proper instructional level improves their task engagement, task-completion, and task comprehension (Burns, 2002; Gickling & Armstrong, 1978; Treptow et al., 2007). However, these previous studies have focused on students without disabilities and students with learning disabilities. We were unable to find any similar studies with students with EBD.

To identify the appropriate instructional level for students, curriculum-based assessments (CBAs) can be used. CBA is a procedure for identifying the instructional needs of a student based on their ongoing performance in existing course content (Gickling & Thompson, 1985). Research has shown that CBA produces data that are reliable for instructional decision-making (Burns et al., 2000). By comparing a student's current skills to their reading materials and assignments, one can quickly determine the need to adjust the difficulty of tasks to meet the individual needs of the student and to improve material for students who may be struggling (Burns, 2007).

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CBA is an effective and efficient assessment procedure and can be useful when making instructional decisions regarding the needs of individual students. For example, Treptow and colleagues (2007) used CBA to match reading materials to the different skill levels of three third-grade students to examine the effects on the students' reading comprehension and time on-task. Students were then presented with reading tasks at their instructional (93%–97% known words), frustration (less than 93% known words), and independent levels (greater than 97% known words). During each condition, the authors measured each student's percentage of time on-task (task engagement) and percentage of comprehension questions answered correctly. Two of these students had no diagnosed disability and the third had a learning disability in the area of reading. The authors found that students' time on-task was highest while completing assignments at their instructional level. In addition, comprehension was highest at the independent level and lowest at the frustration level. Interestingly, the same basic pattern was observed among all three students.

The purpose of this study was to extend the work of Treptow et al. (2007) to students with EBD. This study replicates the methods used by Treptow et al. to assess the effects of adjusting the difficulty level of reading materials on the time on-task and task comprehension of individual students identified as EBD. We hypothesized that (a) students with EBD who typically demonstrate low levels of engagement would demonstrate the highest levels of on-task behavior while working at their instructional level and (b) that these students would demonstrate the highest levels task comprehension at the instructional and independent levels.

Method

Participants and Settings

Following Institutional Review Board (IRB) approval, the researchers received student referrals from general and special education teachers based on student's low levels of on-task behavior during reading activities. Once referred, students were directly observed in their classroom on three different occasions during reading activities to confirm low levels of on-task behavior. During these screening observations, data were collected on each student's time on-task using a momentary time-sampling procedure with 10-second intervals. Each observation was 10 minutes in length. At the end of each interval, a plus was scored if the student was reading their assignment or answering the questions in the assignment. The mean time on-task during the initial screening observations for each included participant is presented below. Four students were referred, and all four were confirmed to engage in low rates of on-task behavior during reading tasks.

Once low rates of on-task behavior were confirmed, researchers conducted a CBA with each student to identify his instructional, frustration, and independent reading levels. Each student read aloud for 1 minute from two different randomly selected reading passages at his grade level. Words that were read correctly were scored as known words, and words that were read incorrectly were scored as unknown. The percentage of known words was calculated by dividing known words by the total number of known and unknown words and multiplying by 100%. Participants were then administered CBA reading passages at easier and more difficult levels to identify each student's individual instructional level (93%–97% known words), frustration level (<93% known words), and independent level (>97% known words). Interestingly, all four students were regularly assigned reading materials at their current grade level, but none of the grade-level assignments matched their appropriate instructional level. In two cases, the instructional levels were below the students' grade level; in the other two cases, the instructional levels were above their grade levels.

The four participants were male students, all of whom received special education services under the educational label of *emotional disturbance* (ED), due to behavioral issues that hindered their academic progress. Table 1 presents academic and school-related information about each participant. The Behavior Assessment System for Children—Third Edition (BASC-3; Reynolds & Kamphaus, 2015) was used by the school staff identify students with and at-risk for EBD. Participant's BASC-3 scores are also included in Table 1.

This study took place in a public elementary (K–6) school that served nearly 400 students. Three of the participants received reading instruction in their general education classroom (Sal, Pete, and Kevin). One received reading instruction in a special education resource room (Dan). These specific settings are described for each individual participant in the following paragraphs.

Sal was a 9-year-old Caucasian male who attended third grade. He frequently displayed off-task behaviors during independent academic assignments in reading. Off-task behaviors included singing songs, yelling across the room to other students, and fidgeting in his seat. His mean percentage of time on-task during initial observations was 43% (range: 17%–73%). Sal's reading curriculum was at the third-grade level, but his calculated instructional level was with first-grade reading material. He was receiving failing grades in all subject areas due to inconsistent task completion. Sal's teacher had been an elementary school teacher for more than 15 years and held a master's degree in education. There were 28 students in the class, and the room was arranged so that students sat at individual desks in groups of four. To limit his disruptive behaviors, the

Table 1. Student Information.

Student	Grade level	Approximate instructional level	BASC-3 (*T* scores)			
			Externalizing problems	Internalizing problems	School problems	Behavior Symptoms Index
Sal	Third	First	77 (clinically significant)	61 (at-risk)	66 (at-risk)	69 (at-risk)
Pete	Third	Fourth	78 (clinically significant)	72 (clinically significant)	64 (at-risk)	91 (clinically significant)
Dan	Fourth	First	73 (clinically significant)	56 (average)	79 (clinically significant)	71 (clinically significant)
Kevin	Sixth	Seventh	84 (clinically significant)	81 (clinically significant)	80 (clinically significant)	96 (clinically significant)

Note. BASC-3 = Behavior Assessment System for Children, 3rd Edition (Reynolds & Kamphaus, 2015). A standard score ranging from 41 to 59 is considered average, 60 to 69 is at-risk, and 70+ is considered clinically significant concerns.

teacher had Sal sit alone at a desk in the front of the classroom, next to her desk.

Pete was a 9-year-old Hispanic male who attended third grade. Pete also frequently displayed off-task behaviors during independent reading assignments. He typically laid his head on his desk or played with items in his desk. His mean percentage of time on-task during screening observations was 50% (range: 33%–67%). Pete's reading curriculum was at the third-grade level, but his calculated instructional level was higher at the fourth-grade reading material. Despite this, he was earning mostly C's and D's in all subject areas. Pete was in the same classroom as Sal and sat in a group arrangement with three other students.

Dan was a 10-year-old Caucasian male who attended fourth grade. During independent reading assignments, he frequently displayed off-task behaviors which included laying his head on his desk, walking around the classroom, ripping pieces of paper, and yelling at his teacher. His mean percentage of time on-task during screening observations was 56% (range: 10%–70%). Dan's reading curriculum was at the fourth grade level, but his calculated instructional level was at the first-grade level. Dan received all of his reading instruction in a resource classroom that also served five other students. All students sat around a horseshoe-shaped table with the teacher sitting in the middle. Dan received considerable individual attention, but still had low task-completion as he often refused to complete the assigned academic task. The teacher had been a resource teacher for 25 years and held a bachelor's degree. The classroom also included a paraprofessional with 10 years of experience in that role.

Kevin was a 12-year-old Caucasian male who attended sixth grade. During independent reading assignments, he frequently displayed off-task behavior that included drawing pictures and talking with other students. His mean percentage of time on-task during screening observations was 12% (range: 1%–23%). Kevin's reading curriculum was at the sixth-grade level, but his calculated instructional level was with seventh-grade reading material. Kevin's teacher had been an elementary school teacher for 20 years and held a bachelor's degree. There were 30 students in the class, and the room was arranged so that students sat at individual tables arranged in groups of six. Kevin was frequently moved to a table by himself near the back of the classroom when he talked to other students.

Materials

Reading passages in the previous study (Treptow et al., 2007) were selected from the reading series *Read Naturally.* This study used an updated version of this reading program (Read Naturally, Inc, 2019). This reading program included short reading passages that varied in length across grades from 50 to 200 words. Passage difficulty ranged from Grade 1 to Grade 8. Each individual passage was followed by 5 to 10 comprehension questions, which were a combination of multiple choice and short answer. The actual difficulty levels provided to the participants were determined by the percentage of known and unknown words.

The reading materials in the *Read Naturally* program were too difficult for one participant, Dan, who required reading materials at a kindergarten level when presented with tasks at his independent reading level. The materials used for this were collected from a kindergarten teacher at the elementary school. These assignments consisted of short reading passages (around 20 words) which also included three multiple choice comprehension questions on the same page as the reading passage. Dan was required to complete two of these during each session at his independent level.

Independent Variable

The independent variable was the difficulty level of the reading materials, which included three levels: frustration, instructional, and independent. As in the study conducted by Treptow et al. (2007), this study used Gickling and Armstrong's (1978) definitions of frustration, instructional, and independent levels of difficulty. Gickling and Armstrong (1978) defined the frustration level as a reading assignment containing less than 93% known words; the instructional level as 93% to 97% known words; and the independent level as 98% to 100% known words.

Fidelity

To ensure that the readings were at the correct level (frustration, instructional, or independent), students were asked to read aloud a randomly selected passage from each of their determined levels after they completed the assignment. Researchers recorded and calculated the percentage of known and unknown words. These fidelity checks indicated that the percentage of known words in each of the reading passages was appropriate for each student.

Dependent Variables

Time on-task. Individual student's time on-task was observed and recorded using a momentary time-sampling procedure. Observation sessions were 10 minutes in length with a 10-second interval. Sessions were 10-minute long because that was the amount of time allotted for independent assignments during each of the teacher's reading classes. On-task behavior was defined as actively attending to the assigned instructional materials. Examples included looking at the assigned reading, writing, listening to instructions from the teacher, or raising a hand for assistance from the teacher (Treptow et al., 2007). Examples of off-task behaviors included laying head on desk, drawing pictures, yelling or talking about anything other than the assigned reading, leaving the seat or classroom for nonrelevant reasons, gazing away from the reading assignment, or focusing on the activities of others (Treptow et al., 2007).

Comprehension. Comprehension questions were assessed using the *Read Naturally* comprehension questions at the end of the passage. Comprehension was scored as the number correctly answered out of the total number of questions on the reading assignment. The comprehension questions which followed the reading passages from *Read Naturally* assessed the students' ability to read the passage and then analyze it to respond to the questions. For example, following a short passage about food that comes from farms, a comprehension question asked the student what most of the story is about.

Design and Procedure

After the frustration, instructional, and independent reading levels were established for each student, the researcher randomly selected the order in which reading passages would be presented to each participant. One reading assignment was provided each session. Reading passages were not repeated with any of the participants.

We used a multielement single-subject design to compare any corresponding changes in the participant's on-task behavior and task comprehension when presented reading tasks at the three different difficulty levels. We presented reading materials at the three difficulty levels in random order for a total of 14 sessions (four frustration, five instructional, and five independent). Sessions were chosen at random but were not systematically randomized. Only four sessions were conducted at the frustration level due to the severity of behaviors displayed during these sessions, and we decided that the participants did not need to experience any additional aversive conditions. Sessions took place in the whole-class, general education setting for three participants (Sal, Pete, and Kevin) and in the resource room for one participant (Dan). Students worked independently and were not provided any assistance while completing the reading assignments.

Interobserver Agreement

Interobserver agreement (IOA) was collected for 40% of observations during each phase for each participant. IOA data were collected by a second observer who independently recorded data during these observations. Intervals that were scored identically by both observers were considered agreements. Intervals scored differently were considered disagreements. IOA was calculated using an exact interval-by-interval method in which the total number of agreements was divided by the total number of intervals and multiplied by 100%. IOA averaged 95% (range = 83%–100%) across all observations for all participants. IOA for comprehension questions was calculated by comparing the observer's agreements, dividing by the total number of comprehension questions, and then multiplying by 100%. IOA for all comprehension questions was 100%.

Results

Figures 1 and 2 display the percentages of on-task behavior and task comprehension for each session for each participant. Visual analysis of the trend, level, stability, and overlap of data points was conducted using methods described by J. D. Lane and Gast (2014).

Kevin

When presented with reading tasks during the instructional condition, Kevin engaged in on-task behavior between 25% and 65% (average 50%) of intervals. When presented with tasks in the independent condition, he engaged in on-task behavior between 30% and 45% (average 36%) of intervals. When presented with tasks in the frustration condition, Kevin engaged in on-task behavior between 17% and 46% (average 25.8%) of the intervals. The split-middle method of trend estimation was conducted and indicated that there was an increasing trend during the instructional condition and the frustration condition. There was a slight increasing trend during the independent condition. Data were considered

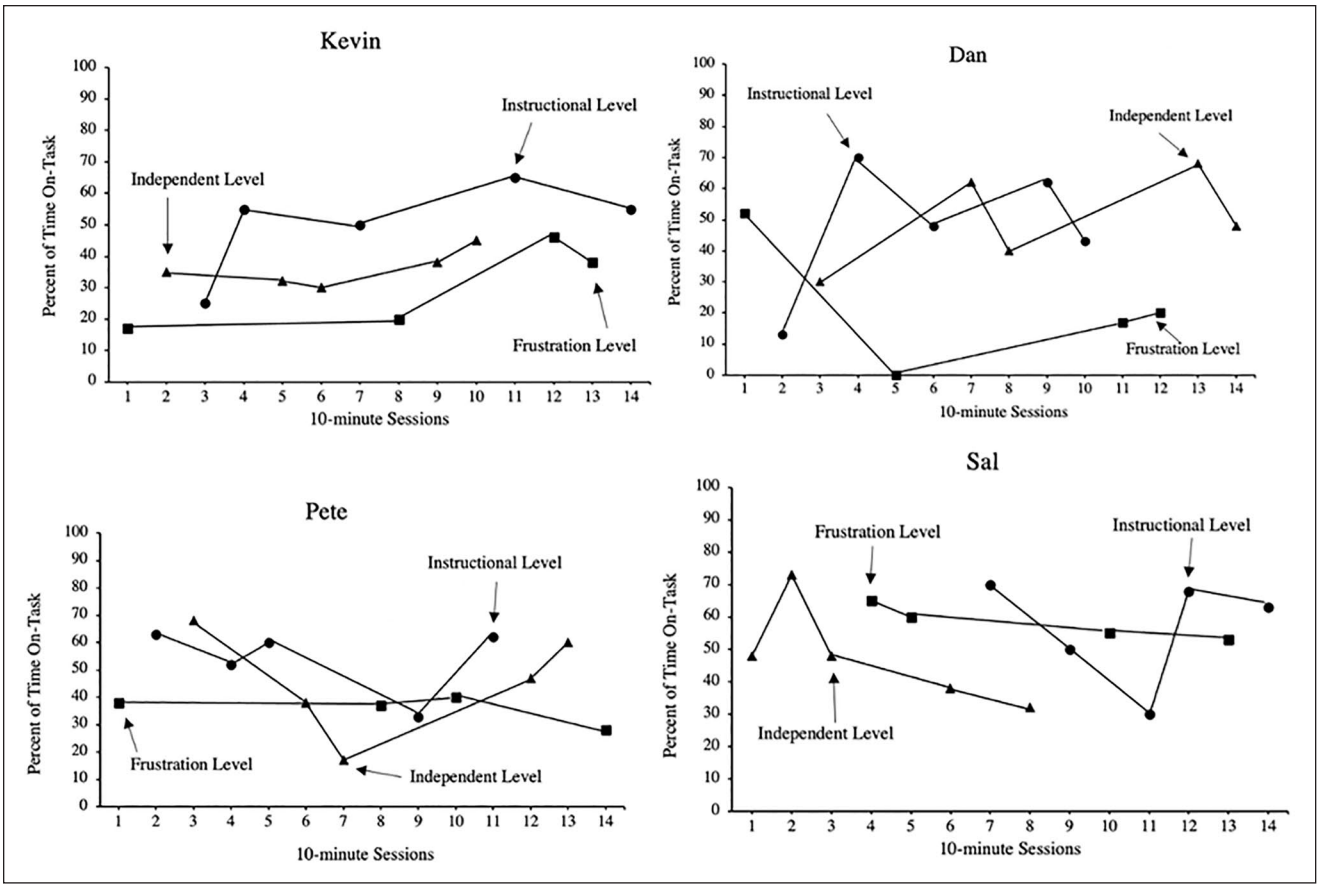

Figure 1. Percentages of time on task at each session for each student.

variable in the instructional and frustration conditions. Data were stable in the independent condition. On-task behavior occurred at higher levels in the instructional condition as compared to the independent and frustration conditions. Finally, calculations of percentage of overlap indicated there was 20% overlap of data between the instructional and independent conditions. There was 50% overlap between the instructional and frustration conditions. There was 100% overlap between the frustration and independent conditions.

Regarding task comprehension, in the instructional condition, Kevin's task comprehension ranged from 38% to 100% (average 77.2%) across the five sessions. His task comprehension in the independent condition ranged from 57% to 100% (average 77%). Task comprehension during the frustration condition ranged from 0% to 33% (average 19.3%) across the four sessions. The split-middle method of trend estimation was conducted and indicated that there was a slightly increasing trend during the independent condition, a decreasing trend during the instructional condition, and zero trend during the frustration condition. Data were considered variable in all conditions. Task comprehension scores were at similar levels during the independent and instructional conditions, and compared to the frustration condition, these levels were much higher. There was considerable overlap between the independent and instructional conditions and 0% overlap with the frustration condition.

Dan

When presented with reading tasks during the instructional condition, Dan engaged in on-task behavior between 13% and 70% (average 47.2%) of intervals. When presented with tasks in the independent condition, he engaged in on-task behavior between 30% and 68% (average 49.6%) of intervals. When presented with tasks in the frustration level, Dan engaged in on-task behavior between 0% and 52% (average 22.3%) of the intervals. The split-middle method of trend estimation was conducted and indicated that there was a decreasing trend during the instructional condition and the frustration condition. There was an increasing trend during the independent condition. Data were considered variable in all conditions. On-task behavior occurred at similar levels in the instructional and independent condition and much lower levels in the frustration condition. Finally, calculations of percentage of overlap indicated there was 80% overlap of data between the instructional and independent conditions.

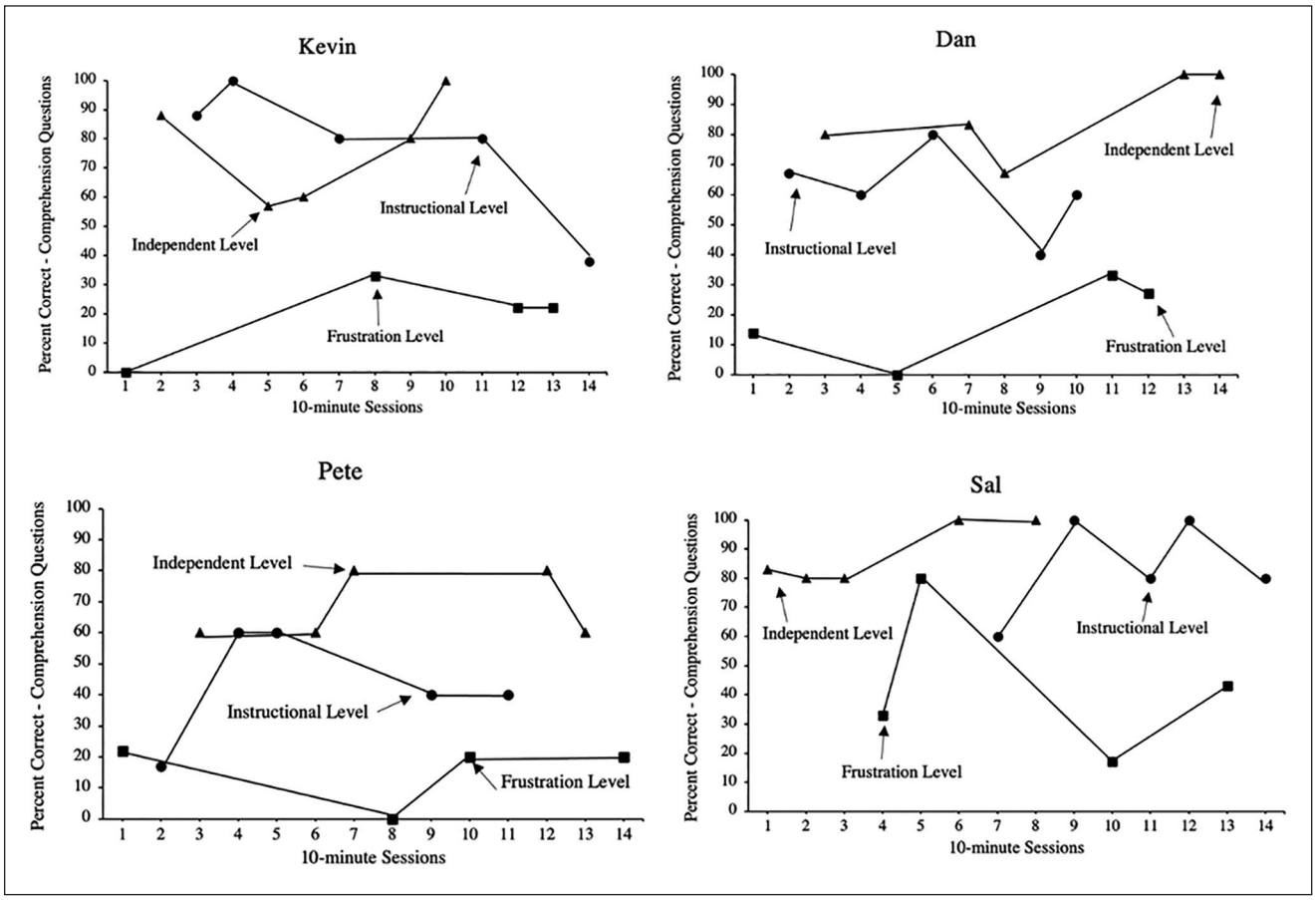

Figure 2. Percentages of comprehension questions correctly answered in each session for each student.

There was 40% overlap between the instructional and frustration conditions. There was 40% overlap between the frustration and independent conditions.

Dan's task comprehension during the instructional condition ranged from 40% to 80% (average 61.4%) across the five sessions. His task comprehension in the independent condition ranged from 67% to 100% (average 86%). Task comprehension in the frustration condition ranged from 0% to 33% (average 18%) across the four sessions. The split-middle method of trend estimation was conducted and indicated that there was a decreasing trend during the instructional condition. There was an increasing trend during the independent condition and the frustration condition. Data were considered variable in the independent and instructional conditions, but stable in the frustration condition. Task comprehension scores were highest during the independent condition and lowest during the frustration condition. Finally, there was overlap between the independent and instructional conditions and 0% overlap with the frustration condition.

Pete

When presented with reading tasks in the instructional condition, Pete engaged in on-task behavior between 33% and 63% (average 54%) of intervals. When presented with tasks in the independent condition, he engaged in on-task behavior between 17% and 68% (average 46%) of intervals. When presented with tasks in the frustration condition, Pete engaged in on-task behavior between 28% and 40% (average 35.8%) of the intervals. The split-middle method of trend estimation was conducted and indicated that there was a decreasing trend during the instructional condition. There was zero trend during the frustration condition and independent condition. Data were considered variable in the instructional and independent conditions. Data were stable in the frustration condition. On-task behavior occurred at similar levels in all three conditions. Finally, calculations of percentage of overlap indicated there was 100% overlap of data between the instructional and independent conditions. There was 20% overlap between the instructional and frustration conditions. There was 40% overlap between the frustration and independent conditions.

Pete's task comprehension during the instructional condition ranged from 17% to 60% (average 43.4%) across the five sessions. His task comprehension in the independent condition ranged from 60% to 80% (average 68%). Task comprehension in the frustration condition ranged from 0% to 22% (average 15.5%) across the four sessions.

The split-middle method of trend estimation was conducted and indicated that there was a slightly increasing trend during the independent condition and the instructional condition. There was zero trend during the frustration condition. Data were considered variable in the independent and instructional conditions but stable in the frustration condition. Task comprehension scores were highest during the independent condition and lowest during the frustration condition. Calculations of percentage of overlap indicated that there was 40% overlap of data between the instructional and independent conditions. There was 20% overlap between the instructional and frustration conditions. There was 0% overlap between the frustration and independent conditions.

Sal

When presented with reading tasks in the instructional condition, Sal engaged in on-task behavior between 30% and 70% (average 56.2%) of intervals. When presented with tasks during the independent condition, he engaged in on-task behavior between 32% and 73% (average 47.8%) of intervals. When presented with tasks during the frustration condition, Sal engaged in on-task behavior between 53% and 65% (average 58.25%) of the intervals. The split-middle method of trend estimation was conducted and indicated that there was zero trend during the instructional condition, a decreasing trend during the independent condition and frustration condition. Data were considered variable in the instructional and independent conditions. Data were stable in the frustration condition. On-task behavior occurred at similar levels in all three conditions. Finally, calculations of percentage of overlap indicated there was 80% overlap of data between the instructional and independent conditions. There was 20% overlap between the instructional and frustration conditions. There was 20% overlap between the frustration and independent conditions.

During the instructional condition, Sal's task comprehension ranged from 60% to 100% (average 84%) across the five sessions. His task comprehension in the independent condition ranged from 80% to 100% (average 88.6%). Task comprehension in the frustration condition ranged from 33% to 80% (average 43.3%) across the four sessions. The split-middle method of trend estimation was conducted and indicated that there was an increasing trend during the instructional condition and the independent condition. There was a decreasing trend during the frustration condition. Data were considered variable in the instructional and frustration conditions, but stable in the independent condition. Overall, the level of task comprehension was lower during the frustration condition as compared to the other two conditions. The level of task comprehension was similar in the instructional and independent conditions. Finally, there was a calculated 80% overlap of data between the instructional and independent conditions. There was 20% overlap between the instructional and frustration conditions. There was 40% overlap between the frustration and independent conditions.

Summary

In summary, changes in the difficulty level of the reading tasks made a clearer difference in task comprehension for all students, but the corresponding changes in on-task behavior were less robust. Overall, three out of four participants (Kevin, Pete, Sal) demonstrated the highest rates of on-task behavior when presented with reading materials at their instructional level (see Figure 1). Three of the four students (Pete, Dan, Kevin) demonstrated the lowest on-task behavior when presented with reading materials at their frustration level. Sal demonstrated the lowest on-task behavior during the independent level. Kevin and Dan had some overlap between the independent and instructional conditions. Pete and Sal had overlap between all three conditions. Overall, all four students maintained relatively low rates of on-task behavior in each condition. Percentage of time on-task never exceeded 73% for any of the four students, even when at their instructional level.

Comprehension scores were highest for each student at the independent level and lowest at the frustration level (see Figure 2). There was some overlap within the data for each student at the instructional and independent levels. There was no overlap at the frustration level for Kevin and Dan, but some was observed for Pete and Sal.

Discussion

The purpose of this study was to assess the impact of adjusting the difficulty level of instructional materials on the time on-task and task comprehension of individual students identified as EBD. Participants were identified in part because of low rates of on-task behavior during reading assignments. Three of the four participants demonstrated the highest level of on-task behavior when presented with reading materials at their instructional level and the lowest on-task behavior when presented with reading material at their frustration level. Comprehension scores were highest for all four students at the independent level and lowest at the frustration level.

The results of this study contribute to the literature in several ways. First, the findings are consistent with previous research which examined the effects of adjusting the difficulty level of instructional materials for students without disabilities and a student with a learning disability (Gickling & Armstrong, 1978; Treptow et al., 2007). Students with EBD exhibited the same basic pattern of responding to the different instructional levels as the students in the previous research, although our findings were

less robust. This study extends that research by examining the comprehension of students with EBD when presented with reading passages at different levels of difficulty. This finding has implications for teaching students with EBD, because reading comprehension is essential in all academic areas. If a student with EBD is presented with academic material that is at his frustration level, we can expect his comprehension will be low, and that behavioral issues will likely occur. Interventions focused on presenting appropriate levels of difficulty to students with EBD may have significant effects both on behavior and on academic achievement in the classroom.

In addition, this study provides data to support the work of K. L. Lane and colleagues (2008), which showed that students' externalizing behaviors are predictive of low performance in academic tasks. In the study conducted by Treptow and colleagues (2007), the participants' time on-task was always greater than 60%, regardless of the condition. In comparison, the students with EBD in this study were on-task at much lower levels than the students in previous studies. Even when they were at their proper instructional level, students with EBD exhibited lower levels of on-task behavior. This finding suggests that students with EBD may have behavioral problems that require more intensive academic accommodations.

Limitations

Certain limitations should be noted. Experimental conditions were presented in a random order and rapidly alternated, which may have influenced the performance of students under different conditions. This feature of the multielement designs can create multiple treatment interference (Ledford & Gast, 2018). It is possible that certain conditions improved or hindered performance in other conditions. In addition, this study examined students' behavior only four times during the frustration level and only five times during the instructional and independent levels. In the future studies, it would be interesting to examine whether students' on-task behavior would rise above 50% to 70% if they were working at their instructional level for longer periods of time (e.g., several weeks or months).

A subsequent limitation was that we did not systematically randomize the order in which the reading assignments were presented. This resulted in one participant (Sal) experiencing the same condition three sessions in a row before he ever experienced another condition. To correct this, a future study should present the conditions in a counterbalanced order.

A potential concern is that participants were presented with reading tasks at their frustration level. During this condition, there was an increase in the severity of problem behaviors. To minimize the participant's exposure to aversive conditions, we conducted fewer sessions at the frustration level. All sessions were 10-minute long, so exposure to aversive conditions was minimal. In addition, participants were typically presented with academic assignments at their frustration level prior to the start of the study, so this condition was similar to their natural environment and not out of the ordinary. The results of the study also provided information to the teachers related to their student's appropriate instructional levels so adjustments could be made to their typical reading assignments.

Future Directions

Future research should examine the effects of providing appropriate academic tasks to students with problem behaviors. Adjusting the level of a student's academic assignment is a fairly simple antecedent manipulation that was overlooked for all four of the students in this study. It is important for teachers to consider whether tasks are too difficult or too easy for students. Teachers have been found to provide less instruction and instruction at a lower level to students with behavioral problems, as compared to students without behavior problems (Carr et al., 1991; Wehby et al., 1998). If students are working at their instructional level, they are more likely to exhibit appropriate behaviors that will be reinforced by teachers.

Despite the limitations, the findings from this study extend the work of Treptow and colleagues (2007) by demonstrating that students with EBD are on-task and evidence better comprehension when presented with material at their proper instructional level. Prior to the study, none of the students were being provided reading materials at the correct instructional level. In addition, all four were exhibiting problem behaviors in the classroom. This has implications for teachers and other school personnel to ensure that students are receiving academic materials at an appropriate level as this may affect students' behavior.

At its core, this study is about instructional matching, not reading instruction. Reading was used as the instructional context simply to match the conditions employed in previous work by Gickling and Armstrong (1978) and by Treptow et al. (2007). It would be worthwhile to examine the impact of instructional matching across math, writing, and other curricular areas and instructional contexts. It would also be worthwhile to assess the long-term effects of consistently monitoring and teaching to the verified instructional level of each student with EBD. These studies could cover long periods of time, that is, months or even years, rather than just a few days. Together, these studies should provide a better understanding of the interactions between instructional practices and counterproductive classroom behavior.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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References

Bradley, R., Doolittle, J., & Bartolotta, R. (2008). Building on the data and adding to the discussion: The experiences and outcomes of students with emotional disturbance. *Journal of Behavioral Education*, *17*(1), 4–23. https://doi.org/10.1007/s10864-007-9058-6

Burns, M. K. (2002). Comprehensive system of assessment to intervention using curriculum-based assessments. *Intervention in School and Clinic*, *38*(1), 8–13. https://doi.org/10.1177/10534512020380010201

Burns, M. K. (2007). Reading at the instructional level with children identified as learning disabled: Potential implications for response-to-intervention. *School Psychology Quarterly*, *22*(3), 297–313. https://doi.org/10.1037/1045-3830.22.3.297

Burns, M. K., Tucker, J. A., Frame, J., Foley, S., & Hauser, A. (2000). Interscorer, alternate-form, internal consistency, and test-retest reliability of Gickling's model of curriculum-based assessment for reading. *Journal of Psychoeducational Assessment*, *18*(4), 353–360. https://doi.org/10.1177/073428290001800405

Carr, E. G., Taylor, J. C., & Robinson, S. (1991). The Effects of severe behavior problems in children on the teaching behavior of adults. *Journal of Applied Behavior Analysis*, *24*(3), 523–535. https://doi.org/10.1901/jaba.1991.24-523

DePaepe, P. A., Shores, R. E., Jack, S. L., & Denny, R. K. (1996). Effects of task difficulty on the disruptive and on-task behavior of students with severe behavior disorders. *Behavioral Disorders*, *21*(3), 216–225. https://doi.org/10.1177/019874299602100301

Gickling, E. E., & Armstrong, D. L. (1978). Levels of instructional difficulty as related to on-task behavior, task completion, and comprehension. *Journal of Learning Disabilities*, *11*(9), 559–566. https://doi.org/10.1177/002221947801100905

Gickling, E. E., & Thompson, V. P. (1985). A personal view of curriculum-based assessment. *Exceptional Children*, *52*(3), 205–218. https://doi.org/10.1177/001440298505200302

Gunter, P. L., Denny, R. K., Jack, S. L., Shores, R. E., & Nelson, C. M. (1993). Aversive stimuli in academic interactions between students with serious emotional disturbance and their teachers. *Behavioral Disorders*, *18*(4), 265–274. https://doi.org/10.1177/019874299301800405

Kauffman, J. M., & Landrum, T. J. (2017). *Characteristics of emotional and behavioral disorders of children and youth* (11th ed.). Pearson.

Lane, J. D., & Gast, D. L. (2014). Visual analysis in single case experimental design studies: Brief review and guidelines. *Neuropsychological Rehabilitation*, *24*(3–4), 445–463. https://doi.org/10.1080/09602011.2013.815636

Lane, K. L., Barton-Arwood, S. M., Nelson, J. R., & Wehby, J. (2008). Academic performance of students with emotional and behavioral disorders served in a self-contained setting. *Journal of Behavioral Education*, *17*(1), 43–62. https://doi.org/10.1007/s10864-007-9050-1

Lane, K. L., Wehby, J., & Barton-Arwood, S. M. (2005). Students with and at risk for emotional and behavioral disorders: Meeting their social and academic needs. *Preventing School Failure: Alternative Education for Children and Youth*, *49*(2), 6–9. https://doi.org/10.3200/PSFL.49.2.6-9

Ledford, J. R., & Gast, D. L. (2018). *Single case research methodology: Applications in special education and behavioral sciences*. Routledge.

Losinski, M., Sanders, S., Katsiyannis, A., & Wiseman, N. (2017). A meta-analysis of interventions to improve the compliance of students with disabilities. *Education and Treatment of Children*, *40*(4), 435–463. https://doi.org/10.1353/etc.2017.0020

Nelson, J. R., Benner, G. J., Lane, K., & Smith, B. W. (2004). Academic achievement of K-12 students with emotional and behavioral disorders. *Exceptional Children*, *71*(1), 59–73. https://doi.org/10.1177/001440290407100104

Read Naturally, Inc. (2019). *Read Naturally master's edition teacher's manual*. Author.

Reynolds, C. R., & Kamphaus, R. W. (2015). *Behavior assessment system for children* (3rd ed.) [Assessment instrument]. Pearson.

Treptow, M. A., Burns, M. K., & McComas, J. J. (2007). Reading at the frustration, instructional, and independent levels: The effects on students' reading comprehension and time on task. *School Psychology Review*, *36*(1), 159–166.

Umbreit, J., Lane, K. L., & Dejud, C. (2004). Improving classroom behavior by modifying task difficulty: Effects of increasing the difficulty of too-easy tasks. *Journal of Positive Behavior Interventions*, *6*(1), 13–20. https://doi.org/10.1177/10983007040060010301

Wadsworth, J. P., Hansen, B. D., & Wills, S. B. (2015). Increasing compliance in students with intellectual disabilities using functional behavioral assessment and self-monitoring. *Remedial and Special Education*, *36*(4), 195–207. https://doi.org/10.1177/0741932514554102

Wehby, J. H., Symons, F. J., Canale, J. A., & Go, F. J. (1998). Teaching practices in classrooms for students with emotional and behavioral disorders: Discrepancies between recommendations and observations. *Behavioral Disorders*, *24*(1), 51–56. https://doi.org/10.1177/019874299802400109

Ysseldyke, J., Scerra, C., Stickney, E., Beckler, A., Dituri, J., & Ellis, K. (2017). Academic growth expectations for students with emotional and behavior disorders. *Psychology in the Schools*, *54*(8), 792–807. https://doi.org/10.1002/pits.22030