Abstract Title Page
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Title: Integrated Literacy for Students with Moderate and Severe Disabilities

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Abstract Body

Limit 5 pages single spaced.

Background / Context:

Description of prior research and its intellectual context.

The goal of education for students with moderate and severe disabilities (MSD) is to provide skills which enable them to live, work, and participate in an integrated community. Active integration requires the ability to access goods and services, and to engage in purposeful and safe mobility. Such engagement requires the ability to discern information in multiple ways. Definitions of literacy that focus solely on reading words provide too narrow a focus, and are functionally insufficient for many students with MSD. A more inclusive definition of literacy is the ability to obtain information from the environment through a variety of modes and to be able to use that information to make decisions, alter the environment, and/or gain pleasure (Alberto, Fredrick, Hughes, McIntosh, & Cihak, 2007). This expanded definition looks at literacy beyond the traditional concept of print to include individual pictures as well as combinations of print and pictures (e.g., logos) as a component of literacy. While the new definition of literacy is more inclusive, the traditional approach to literacy instruction for students with MSD has focused on sight-word instruction (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). The reading ability resulting from this type of instruction has been shown to increase the ability of students with MSD to identify important information and directions within and across settings (Browder & Lalli, 1991; Browder et al, 2006; Browder & Xin, 1998). While sight-word instruction has proven to be an effective approach to increase the reading skills of students with MSD, this approach does not provide generalizable strategies that will enable students to read untaught words. Phonetic decoding is a generalizable strategy for reading words based on three components: (a) letter-sound correspondence, (b) blending, and (c) telescoping (Carnine, Silbert, Kame'ennui, & Tarver, 2004). Although sparse, a number of researchers have proposed that students with MSD can develop generalizable skills such as letter-sound correspondence, phonetic decoding, and contextualized reading (Bracey, Maggs, & Morath, 1975; Hoogeven, Smeets, & Lancioni, 1989; Katims, 1996; Nieptupski, Williams, & York, 1979). Therefore, the word reading goal for students with MSD should include a pool of sight words and sufficient phonics-based word analysis skills to have a high probability of decoding untaught words in their environments, with sufficient fluency for comprehension.

Purpose / Objective / Research Question / Focus of Study:

Description of the focus of the research.

The purpose of this project is to develop and to individually examine the efficacy of three different components of an integrated literacy program. No attempt is made to compare the components of the program to each other. Rather, the goal is to determine the effectiveness of each component of the program on the acquisition of the reading of pictures and logos (visual literacy component), and written text (sight-word instruction component and phonics instruction component). The following are research questions that are addressed (a) For development of the visual literacy instruction component: What specific instructional strategies can be used to teach visual literacy, including (1) instruction of reading individual pictures and sequences of pictures, and (2) contribute to the research base for instruction of logo reading? (b) For development of the sight-word instruction component: What is a basis for (1) an initial set of words to be

taught,(2) instruction of connected text, and (3) further sets of words based on a strategy that will bridge sight-word instruction to phonics instruction. (c) For development of phonics instruction component: What is a basis for (1) use of simultaneous prompting to teaching decoding skills, (2) selecting appropriate phonics skills sequences (3) determining number of examples and levels of necessary and sufficient practice, and (4) determining automaticity and fluency requirements for successful blending of individual words and connected environmental text.

Setting:
Description of the research location.

All research activities take place in the public school setting across five school districts in the southeastern United States. The activities were school-based and teacher implemented to provide in vivo research-based data with which to respond to research questions.

Population / Participants / Subjects:
Description of the participants in the study: who, how many, key features or characteristics.

During the current year of the grant a total of 36 students participated in the program with an attrition rate of an additional 11 students. Students were lost because of moving to new schools where the program was not available or because their teacher left. No students were dropped from the program because they could not succeed in one of the components. Across each of the three components the primary criterion for inclusion was functioning at the moderate to severe level of intellectual disability. This is operationalized as meeting the criteria of the Georgia Department of Education: IQ measured by an individual assessment instrument in the range of 40 to 55 (with some students with IQs between 30 and 40 for some items), associated with deficits in adaptive behavior as measured by a standardized instrument; and placement in a class for this population of students in a Georgia school district. Beyond these inclusion requirements, teachers recommended students based on students' current reading performance and recent past educational experiences with reading. The research team then observed the students recommended by the teachers and assigned students to one of the three components based on teacher input and their own observations of students' reading behaviors. Included in the participants are students at elementary, middle, and high school age range.

Intervention / Program / Practice:
Description of the intervention, program or practice, including details of administration and duration.

Students were assigned to one of three curricular components: (a) visual literacy, (b) sight-word instruction, or (c) phonics instruction. During visual literacy students were taught to read and demonstrate comprehension of individual pictures and sequences of pictures. Prior to instruction each day, the teacher walked the students through a wordless book. The teacher discussed what was happening in the picture book while asking wh-questions and prediction questions. This activity taught various emergent literacy skills. After working with the wordless book each day, students were taught to read visual sequences. Students began with one-step sequences in which they turned over a card and identified the student pictured on the card and then gave the card to the student pictured on the card. Students moved from one-step sequences through longer and longer sequences up to eight-step sequences. In all sequences students identified the student, any materials, and the activity pictured in the sequence and then enacted the sequence to demonstrate

comprehension. During instruction the teacher began by reviewing the pictures to be taught and then presented each student with a picture and asked the student to identify who and/or what the student saw in the picture before asking the student to demonstrate comprehension. We employed an antecedent—response strategy for visual literacy instruction, response prompting and correction procedures (Snell & Brown, 2006; Wolery, Ault, & Doyle, 1992). There is a large body research that verifies that direct, systematic instruction is the most effective and efficient way to teach skills to students with moderate and severe disabilities (Snell & Brown; Wolery & Schuster, 1997). Students participated in approximately 20-30 minutes of instruction each day with instruction occurring approximately three times per week. Instruction was designed to be provided daily; however, it was not always possible for teachers to implement instruction daily.

For both the sight-word and phonics instructional components, the teachers began class each day with an interactive storybook session. During interactive storybook time, the students played with puppets and objects from the stories while the teacher read the storybooks and asked the students comprehension and language-expansion questions. The storybooks were written by the researchers and contained a controlled vocabulary; that is, they contained all the sight or blending words that were being taught. The purpose of the controlled vocabulary in the storybooks was to ensure that the sight or blending words to be learned were in the students' receptive vocabulary by the time they received instruction for those words.

In both the sight-word and phonics components the researchers employed simultaneous prompting. Simultaneous prompting is a response prompting strategy with a growing body of research literature. During simultaneous prompting the instructional cue and controlling prompt are presented concurrently, with probes conducted prior to each instructional session to measure skill acquisition (Gibson & Schuster, 1992; Schuster, Griffen, & Wolery, 1992). Simultaneous prompting has been employed to teach a variety of discrete tasks, but has predominately been used to teach sight words (Waugh, Alberto, & Fredrick, in press). During sight-word instruction, students were systematically taught to read individual words composed of various parts of speech, to read connected text, and to provide a motor demonstration of comprehension. During instruction and probes for individual words taught, each sight word was presented three times with previously learned sight words presented once. During probes for connected text phases, each phase was presented once to measure acquisition. During instruction, each connected text phase was presented twice.

During phonics instruction, the teachers conducted one probe session prior to each daily teaching session in order to evaluate how much information the students retained from previous teaching sessions. Probes sessions were conducted with individual students and were the source of daily data collection. The student was presented with a sound or word card and asked to touch the card as a joint-attention prompt. Then the teacher asked *What sound?* For correct student responses the teacher praised the student and repeated the correct response. For incorrect student responses the teacher provided the student with the correct response. The same procedures were followed for word cards, and only correct responses counted toward mastery for that particular phase. After each probe session, teachers conducted a teaching session in either a 1:1 or small-group format during which simultaneous prompting procedures were used and no data were collected. After a sound or word card was presented and the student touched the card, the teacher provided the controlling prompt simultaneously with the instructional cue (i.e., *The word is ___. What*

word?) and then modeled for the students by providing the correct response. The teacher then provided the controlling prompt simultaneously with the instructional cue and asked the students to respond with her as a lead step. Finally, the teacher provided the controlling prompt simultaneously with the instructional cue and asked individual students to respond. These steps were repeated for all sound cards and word cards until students responded correctly and independently.

During phonics instruction students were taught to (a) produce and hold individual sounds, (b) identify letter-sound correspondences, (c) practice retrieval and production of individual sounds through one-minute timed automaticity probes, (d) blend previously taught sounds to read VC and CVC words, and (e) apply previously taught skills to novel words.

Research Design:
Description of research design (e.g., qualitative case study, quasi-experimental design, secondary analysis, analytic essay, randomized field trial).

The primary research strategy of this project was single-case methodology. Of the extant literature relevant to the three components of this project, single-case research is the preferred and most used paradigm. The repeated measures feature of single-case methodology allows for the ongoing ability to make adaptations to implementation of the independent variable based on individual student performance. Of the single-case research designs, a changing criterion design and/or ABC design was embedded in a multiple baseline design across groups or word sets.

Data Collection and Analysis:
Description of the methods for collecting and analyzing data.

Classroom teachers conducted all probe and instructional sessions which included collecting all data on student responses across the various components and phases of the program. Due to the nature of the data collected and the research designs employed, visual analysis of each group's data was conducted.

Findings / Results:
Description of the main findings with specific details.

Visual literacy: Data confirm a functional relation between the curriculum phases and the students' ability to employ visual literacy skills to read and demonstrate comprehension of logos, individual pictures, and sequences of pictures. A representative sample of the data being collected is found in Figure 1 which shows a multiple-baseline design across three instructional groups from baseline through generalization. The phases of this figure each represent one of learning goals for visual literacy.

See Figure 1

Sight-word instruction: Data confirm a functional relation between the simultaneous prompting procedures and student achievement across all phases of individual words and connected text. A representative sample of the data being collected is found in Figure 2 which shows a multiple-baseline design across three instructions groups from baseline through connected text across 5

parts of speech in which a changing-criterion design is embedded to depict the five parts of speech.

See Figure 2

Phonics instruction: Data confirm a functional relation between the instructional strategies used across phases and the mastery of letter sounds, letter-sound correspondences, automaticity of letter-sound retrieval, blending of letter sounds into CVC words, and generalization of learned sounds to read untaught words. A representative sample of the data being collected is found in Figure 3 which presents data from one student learning three sets of sounds leading to the generalization of blending skills to read untaught words made up of taught sounds.

See Figure 3

Conclusions:

Description of conclusions, recommendations, and limitations based on findings.

> Data from this project confirm that students with moderate intellectual disabilities can develop literacy skills though visual literacy instruction, sight-word instruction, and phonics instruction with different components appropriate as starting points for different students based on their reading abilities at the start of instruction. Multiple approaches to teaching literacy make evidence-based instruction available to students with a wide range of abilities. That is, teachers have options when choosing an approach to literacy instruction to the extent that one of these approaches is likely to be effective based on individual student abilities. Additionally, students may begin with one type of literacy instruction and after mastery of the skills within that instruction, be prepared for instruction in a more advanced instructional approach. That is, more than one component of literacy instruction may be effective within and across individual students. Of particular importance is the focus on reading and demonstrating comprehension of sequential pictures in visual-literacy instruction and reading and demonstrating comprehension of connected text within sight-word instruction. Further the well-documented problem of teaching phonics to students with moderate intellectual disabilities is the difficulty they have blending sounds into words. The automaticity component of the phonics instruction required students to practice rapid retrieval of previously learned letter-sound correspondences and this practice facilitated the master of blending skills as evidenced by students' ability to read untaught words made up of previously taught sounds.

Appendices

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Appendix A. References

References are to be in APA version 6 format.

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Appendix B. Tables and Figures

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Figure 1. Visual Literacy Instruction

Figure 2. Sight-Word Instruction

Figure 3. Initial Phonics

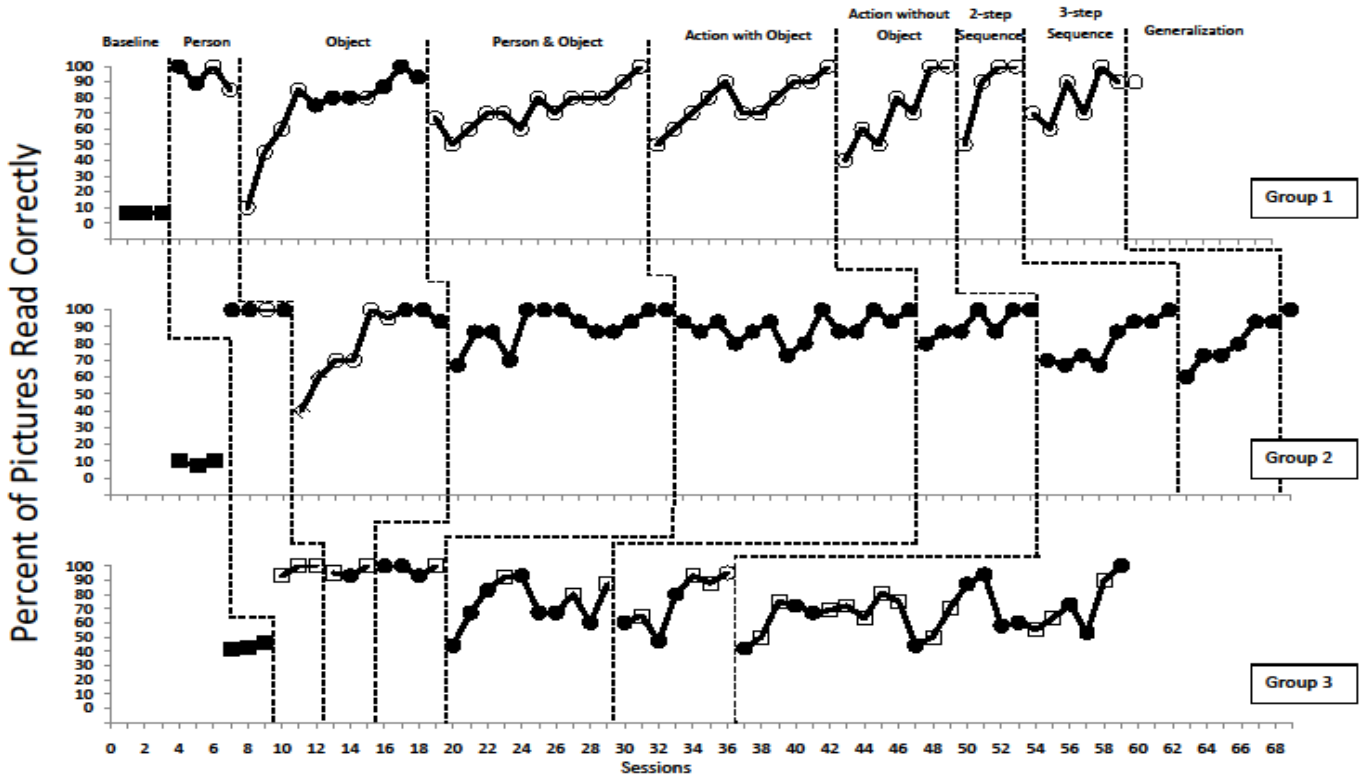

Figure 1. Percent of correct responses for three groups of students during visual literacy instruction. Data are presented as an ABC design embedded within a multiple baseline design across groups.

Baseline
4-member group
3-member group
2-member group
Individual instruction

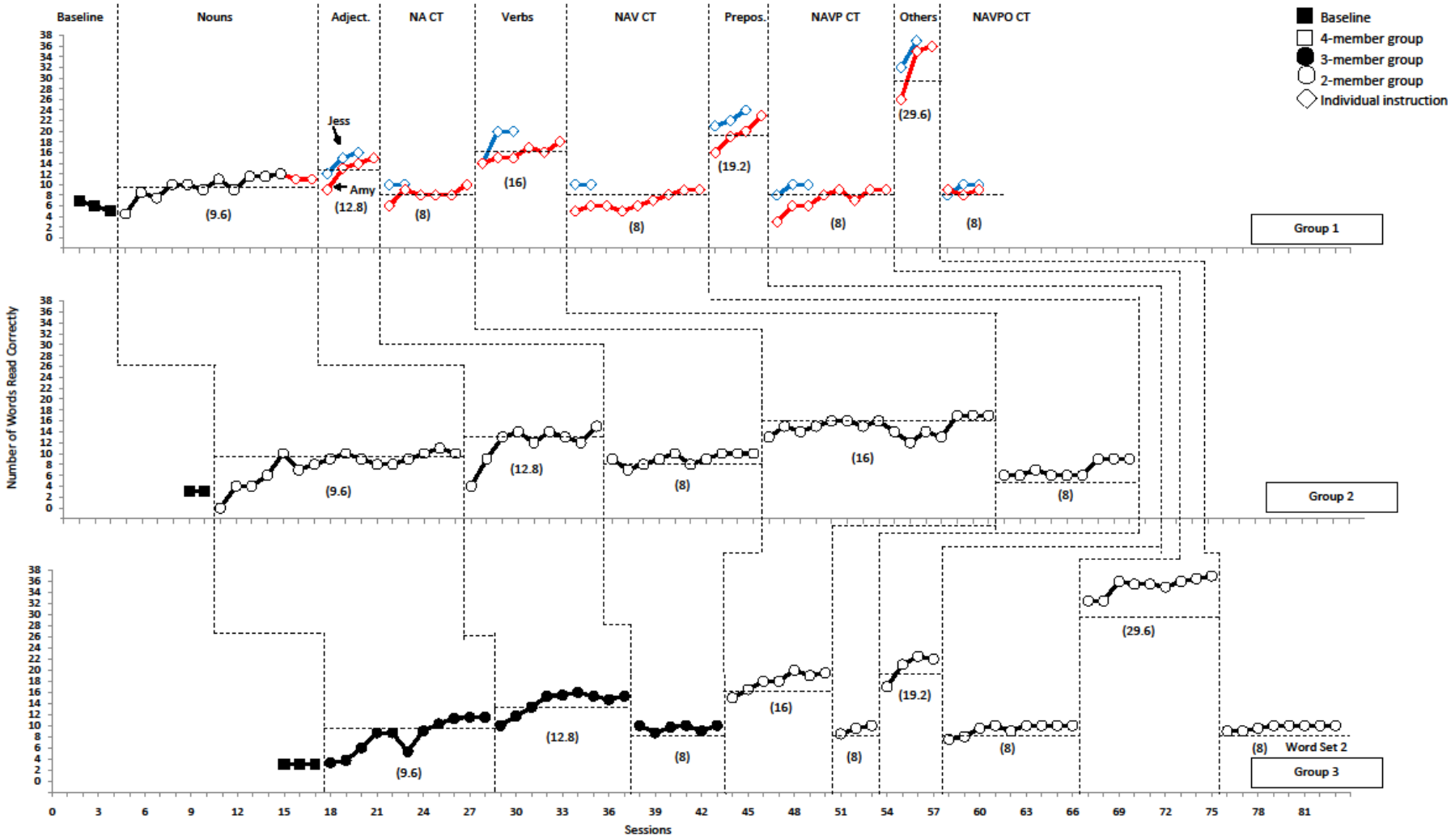

Figure 2. Number of words read correctly for three groups of students during sight-word instruction. Data are presented as a changing criterion embedded in a multiple baseline design across groups.

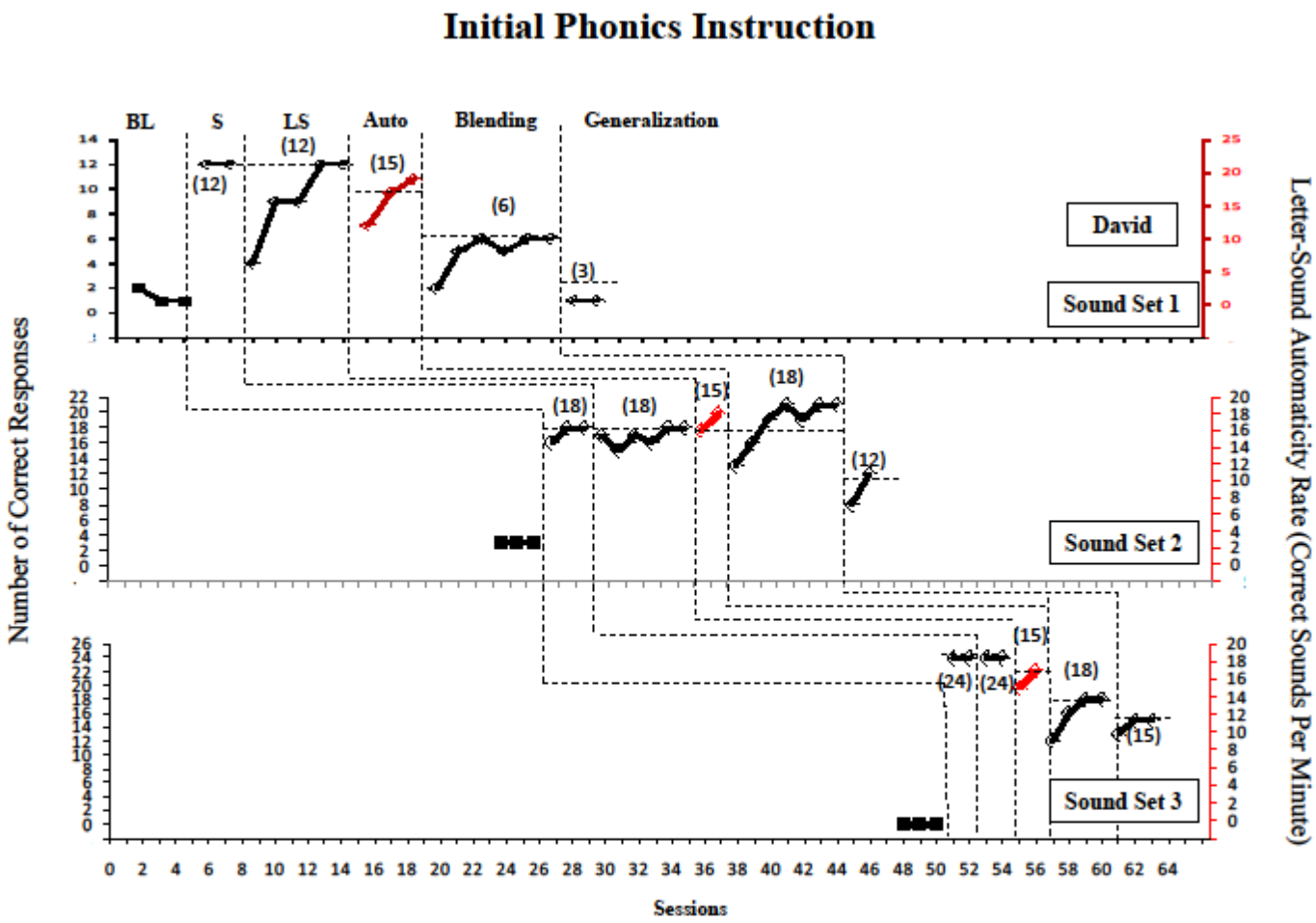

Figure 3. Number of correct responses for David across three sound sets. Data are presented as Changing Criterion across (not within) sounds sets embedded within a Multiple Baseline design. Red data path indicates the rate of correct sounds per minute for the automaticity phase of instruction.