

## The Effects of Praising Qualifying Autoclitics on the Frequency of Reading

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In the current study, tacts with positive qualifying autoclitics for reading were reinforced in order to determine if this procedure would increase the time spent reading by participants. Participants included 5 children, between 9–10 years old. Participants were individually exposed to 4 free operant sessions during which they were instructed to independently choose play activities. During pre- and post-treatment conditions, no consequences were provided for choosing reading. In addition, 4 treatment sessions were conducted on days separate from the free operant session days, during which the experimenter praised each positive reading-related statement emitted by the participant. Following treatment sessions, 4 out of 5 participants increased the time allocated to reading, suggesting that reading could be increased when praise is delivered contingent upon positive reading-related verbalizations.

*Key words:* tact, autoclitic, reading, verbal behavior

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As humans, our own explanations and descriptions of nonverbal behavior are, just like any other behavior, susceptible to reinforcement. If the verbal community arranges contingencies for correspondence between verbal (e.g., self-descriptions) and nonverbal behavior, than what we say may directly change what we do (Catania, 2007). In this sense, one's verbal behavior may become a way for a person to get him- or herself to engage in a particular behavior. The study of self-descriptive verbal behavior seems to be important not only because self-descriptions may serve as antecedent variables for nonverbal behavior, but also because their understanding may give us insight regarding a speaker's awareness of his or her own behavior (Skinner, 1957).

It is known that external instructions can rapidly establish new performance, sometimes more rapidly than if behavior has been gradually shaped (Ayllon & Azrin, 1964). Therefore,

there seems to be no reason to consider self-instructions to be functionally different than external instructions (Ono, 1994); they should both exert control over behavior in a similar fashion. Self-instructions, or what is said about behavior, may also be shaped by repeated exposure to environmental contingencies. In a classic study by Catania, Matthews and Shimoff (1982), participants were exposed to two concurrent schedules of reinforcement for button presses, and then required to fill out guess sheets describing what they needed to do to obtain points. When experimenters shaped participants' guesses by assigning points to each guess, performance changed according to these descriptions. When participants were told what to guess (no shaping involved) however, there was little correspondence between verbal descriptions and response rates. In a related study (Catania, Shimoff, Matthews, 1989) when participants' verbal behavior about the operating contingencies (as opposed to description of their performance) was shaped, their nonverbal behavior did not change accordingly. In other words, while participants' accurate description of their behavior changed their performance, accurate description of task contingencies did not. As suggested by Catania (2007), this correspondence between shaped self-descriptions and related nonverbal behavior may be a product of our history of reinforcement when learning to speak. We typi-

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cally learn to describe (i.e., tact) our own performances and to behave according to our descriptions. After repeated exposure to such contingencies, a bi-directional relation (Horne & Lowe, 1996) between verbal and nonverbal behavior may be established, in that changes to one may produce changes in the other. These results seem to suggest that shaping verbal behavior could be used as a strategy to change related nonverbal performance.

When analyzing the relation between verbal and nonverbal behavior, it may be important to discuss a specific type of verbal behavior, the *autoclitic*. According to Skinner (1957), "the term autoclitic is intended to suggest behavior which is based upon or depends upon other verbal behavior" (p. 315).

In the case of the *descriptive autoclitic*, the speaker emits collateral responses describing the controlling relations upon his or her behavior (i.e., tacting one's own behavior or feelings). The autoclitic permits the speaker to organize, select, and modify his or her own verbal behavior. We know very little about how descriptive autoclitics are learned, how they can be taught, or their effects upon nonverbal behavior.

Skinner (1957) considered that one possible function of the autoclitic is to exert more precise control over the listener's behavior. He commented that a speaker is not a mere spectator of what she/he says, but is active in organizing and arranging sequences and the content of statements. If somebody says, for example, "I read and I like it," the tact of reading (*I read*) is modified by the autoclitic (*I like it*) that characterizes reading in a positive way (positive qualifying autoclitic), giving the listener information regarding the possible reinforcing value of the speaker's tacted behavior. In this sense, autoclitics modify the effects that verbal stimuli have upon the listener. For example, in the following sentences: "*I believe I am going to São Paulo*," the speaker emits a tact of his future action and informs the listener of the probability of occurrence of this action (*I believe*). In this way, the autoclitic indicates the strength of the following statement "I am going to São Paulo" and increases the precision of verbal control over the listener's behavior. In the sentence "*I am glad to be in São Paulo*," the tact about being in São Paulo is modified by the autoclitic *I am glad* that characterizes this event in a positive way, indicating to the listener the possible feelings (or reports of feelings) that may influence the

behavior(s) of the listener in relation to the behavior(s) of the speaker. Likewise, if the speaker and listener are the same person, a speaker's autoclitic may increase the precision of verbal control over his/her own nonverbal behavior. The purpose of the current study was to assess whether praising tacts with positive qualifying autoclitics for reading would increase time spent reading (i.e., the corresponding nonverbal behavior) during a free-operant situation. Although the effects of shaping verbal behavior upon nonverbal behavior have not yet been systematically demonstrated in the applied setting, this seems at least conceptually feasible.

Reading behavior was selected because of its generally low frequency among Brazilian youth. In Brazil, 20% of school children are unable to conclude their studies (INEP, 2006). Possible causes of this outcome include controllable factors such as failures in the current technology of teaching.

## METHOD

### *Participants*

Participants were five typically developing children (two girls and three boys), between 9 and 10 years old. They were recruited from a local private school in São Paulo, SP, Brazil. According to reports from parents and teachers, none of the children enjoyed reading (i.e., participants actively avoided reading and vocally protested during reading); however, all were able to read and comprehend text.

Participants' reading comprehension levels were first evaluated during a formal assessment procedure (Santos, 1996). Participants quietly read two texts (appropriate to their grade level) during a 15-minute session and answered 5-6 written questions in the presence of an instructor to demonstrate their understanding of the text. None of the children exhibited difficulties in understanding the texts (i.e., all children scored 80% or above on the assessment questions).

### *Setting and Materials*

An experienced psychologist conducted all sessions individually for each participant. During free-operant (i.e., pre- and post-treatment) sessions, the experimental room con-

tained a bookshelf with the following materials: books, magazines, glue, scissors, paper, crayons, eraser, chalk, colored pencils, clay, paints, brushes, and games. Items varied across sessions, but there was always one “familiar” game, one “novel” game, one familiar book, and one novel book present in the room during free-operant sessions. This helped control for the possibility that changes in the frequency of reading behavior were due to the novelty or familiarity of a specific book. During treatment sessions, all materials except the table, chairs, and camera were removed from the room. Treatment sessions were held in the same room as pre- and post-treatment sessions, but conducted on different days. Data were collected on average two days per week, depending on participants’ availability.

#### *Data Collection and Dependent Variable*

Sessions were recorded using a video camera. Data were scored from these videotapes by trained observers at a later date. When scoring videotapes, observers recorded total duration of reading behavior. Reading behavior was defined as participants’ orienting responses and/or page-turning responses with regard to the available books. This may or may not have also included statements made related to the books.

#### *Experimental Design*

The experimental design was a single-case, repeated measures design with pre- and post-treatment sessions.

#### *Procedure*

*Pre- and Post-Treatment Sessions.* Children were individually exposed to four free-operant sessions (one pretreatment session and three post-treatment sessions) over a 2-week time period (range of duration for each session: 12–22 min). Prior to each session, participants were instructed to choose which activities they would like to engage in (e.g., doing nothing, playing, painting, drawing, gluing, or reading). No consequences were programmed for participants’ choice behavior. At the beginning of the pre- and post-treatment sessions, the experimenter read

aloud the following script (in Portuguese) to the participants:

The bookshelf contains various materials: It has crayons, colored pencils, and papers. If you want, you can draw. It has books so you can look at the pictures and read stories. There are papers, pencils, and brushes. Here are some games. You can choose to play any of them. There is also glue and scissors, so you can cut and glue, if you want to. Now you can choose any of these items and play. If you get bored you can choose another activity. Go play for 20 minutes with whatever you like.

During pre- and post-treatment sessions no instruction was given. Also no verbal interaction between participants and experimenter occurred, except the reading of the above text.

*Treatment Sessions.* Participants were exposed to four treatment sessions (range of duration for each session: 13–15 min) during which the experimenter prompted a discussion about the advantages of reading, by saying,

Today we are going to talk about reading. It’s important to me to hear about a book that you liked.

During the ensuing conversation, the experimenter praised each positive reading-related statement (i.e., each descriptive, reading-related autoclitic statement) emitted by the participant. Examples of these statements included: “That book helped me to create ideas for my drawings.” Nonexamples included: “I do not like reading.” Instances of praise included statements of approval, such as “It’s good to hear that you like reading,” “It’s cool that you read the book and liked it,” and rephrasing or paraphrasing the positive reading-related statements emitted by participants (“Oh, I see, what you told me was that the book was great!”). Non-reading-related statements were ignored.

#### *Interobserver Agreement*

Interobserver agreement (IOA) was assessed on 100% of sessions. Agreement for reading duration (defined as agreement for the total number of minutes spent reading) averaged 100% for all participants. Interobserver agreement was calculated by dividing the total num-

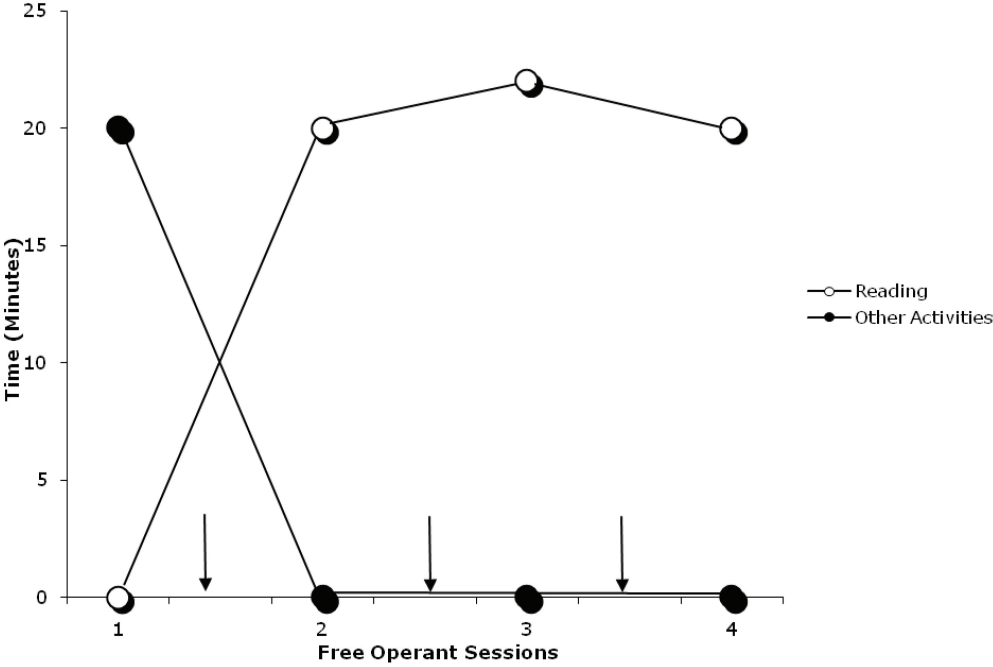


Figure 1. Total time spent reading and engaging in other activities during free-operant sessions for Participant 1 (P1). Arrows indicate treatment sessions.

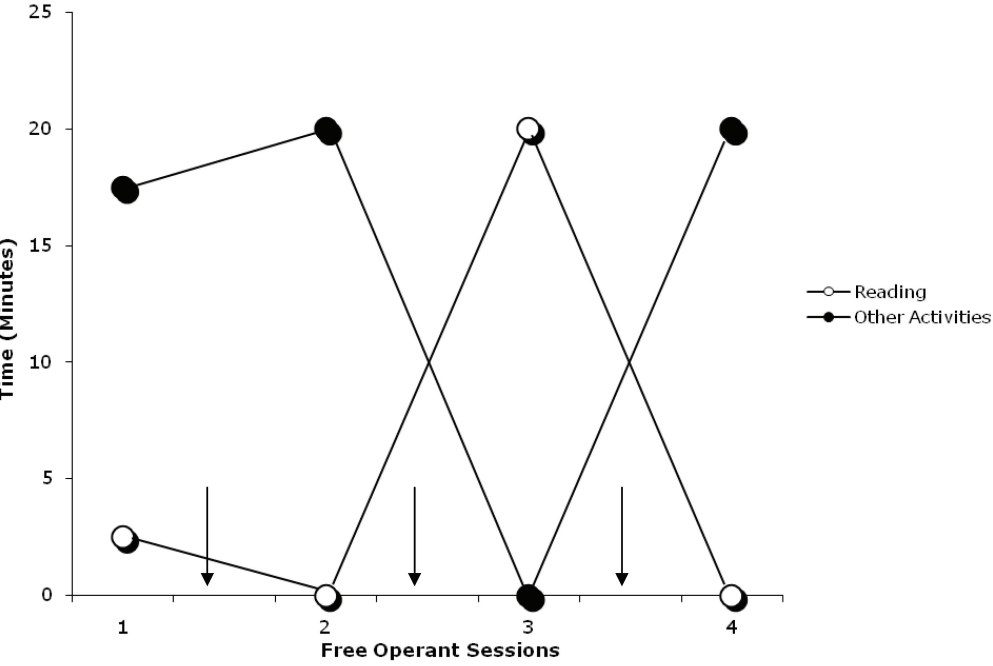


Figure 2. Total time spent reading and engaging in other activities during free-operant sessions for Participant 2 (P2). Arrows indicate treatment sessions.

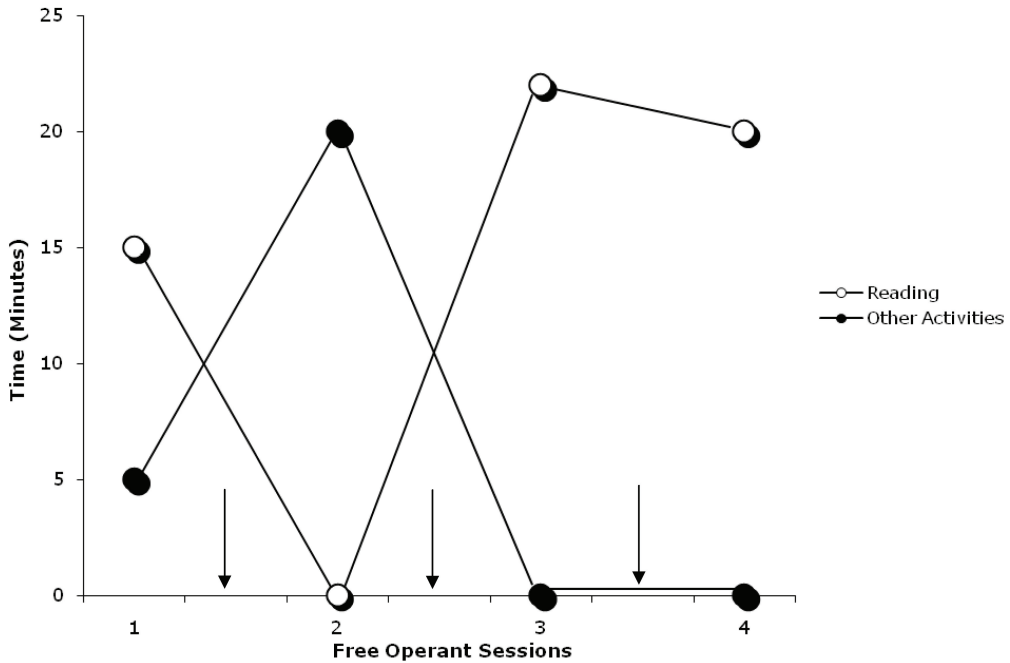


Figure 3. Total time spent reading and engaging in other activities during free-operant sessions for Participant 3 (P3). Arrows indicate treatment sessions.

ber of agreements by the number of agreements plus disagreements, then multiplying by 100.

#### *Treatment Integrity*

Treatment sessions were videotaped and all verbalizations were transcribed. Transcriptions were analyzed by the authors to determine the number of reading-related verbalizations made by participants during treatment sessions and to determine the number of instances of praise delivered appropriately by the experimenter. Appropriate praise was defined as praise delivered immediately following a reading-related verbalization made by the participant. All participants received multiple praise statements (as described above). These data are summarized below as a percentage of appropriate delivery of praise. The data were analyzed for at least 25% of treatment sessions per participant. On average, across participants, the experimenter accurately delivered praise 89% of the time. In addition, on 11 occasions (78% of occasions), the experimenter *prompted* (asked some questions) reading-related verbalization instead of *praising* it, but this happened only for Participant 2.

## RESULTS

Figure 1 shows that Participant 1 (P1) engaged in activities other than reading during the first free-operant session, spending the entire time playing with toys and drawing. In each of the sessions after treatment, P1 read for the entire session.

Figure 2 shows that Participant 2 (P2) engaged in activities other than reading during the first free-operant session, spending only 2.5 minutes on reading and the remainder of the time playing with toys and drawing. In the first post-treatment session, P2 engaged in activities other than reading for the entire session. In the third post-treatment session, the participant read for the whole session (20 minutes). P2 did not read in the final session. However, she asked the researcher to loan her a book at the end of the session.

Figure 3 shows that Participant 3 (P3) read in the first pretreatment session for 15 (out of 20) minutes. In the first post-treatment session, P3 engaged in activities other than reading for the entire session. In the third post-treatment session, P3 engaged in reading for 22 (out of 22)

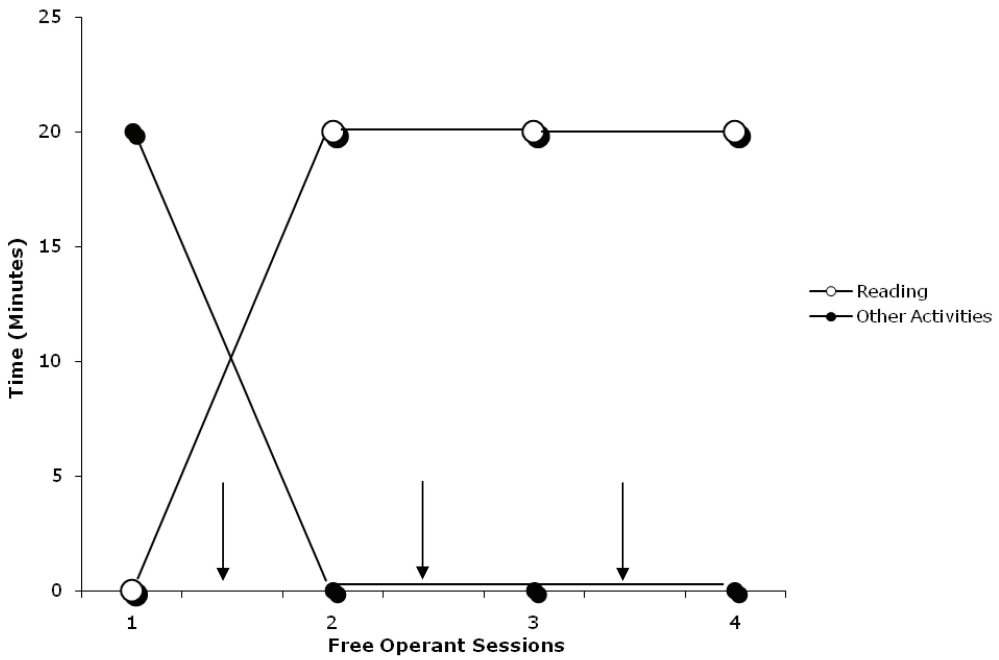


Figure 4. Total time spent reading and engaging in other activities during free-operant sessions for Participant 4 (P4). Arrows indicate treatment sessions.

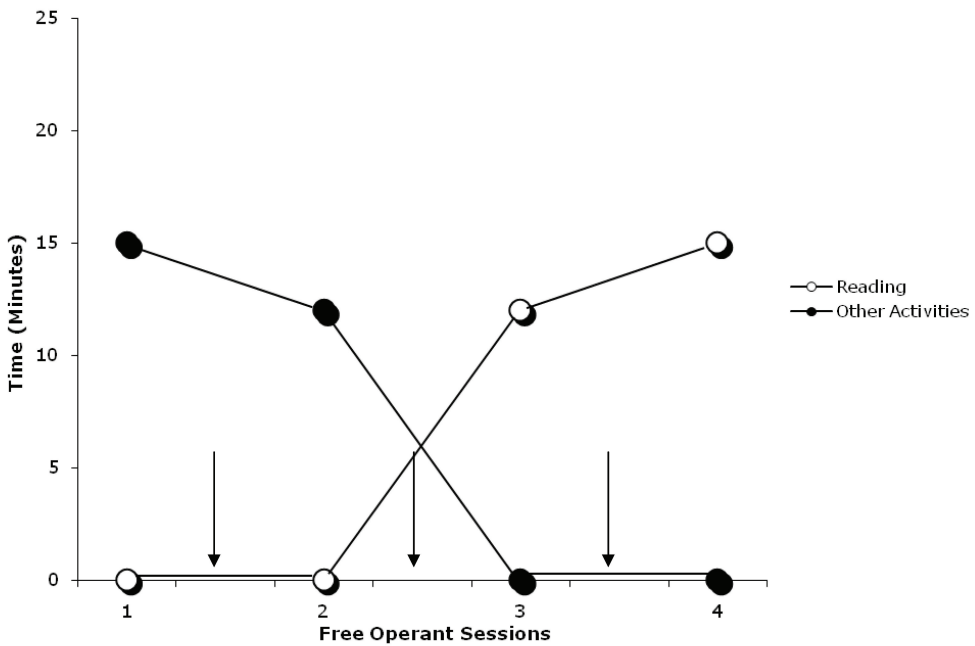


Figure 5. Total time spent reading and engaging in other activities during free-operant sessions for Participant 5 (P5). Arrows indicate treatment sessions.

minutes and in the fourth post-treatment session, P3 engaged in reading for 20 (out of 20) minutes.

Figure 4 shows that Participant 4 (P4) engaged only in activities other than reading during the first pretreatment session. However, in the remaining 3 post-treatment sessions, P4 engaged only in reading.

Figure 5 depicts that Participant 5 (P5) chose activities other than reading for the first pretreatment session and for the first post-treatment session. However, in the second and third post-treatment sessions, P5 engaged only in reading.

## DISCUSSION

The data suggest that time allocated to reading among children can be increased when praise is delivered contingent upon positive reading-related verbalizations. Of note, these treatment sessions were conducted on days *preceding* free-operant testing sessions. These results suggest that we may be able to change reading behavior by shaping what is said about it. Unlike previous studies (e.g., Catania et al., 1982), this effect was demonstrated in an applied clinical setting.

Exactly which minimal verbal units were affected by experimenter praise remains a question for further study. For example, if a child says, "I read a book and I liked it," this statement involves both a tact (*I read a book*) and an autoclitic (*I liked it*). In this study, the experimenter would have delivered praise immediately following such a statement, but it is unclear if the praise affected the tact, the autoclitic, or some combination of the two. Despite the fact that there may have been different verbal operants in any given participants' statements, the experimental protocol specified that praise would be delivered only when positive reading-related autoclitics occurred.

Conceptually speaking, the results of the study could be explained through the process of contingent praise (as reinforcement) increasing the probability of positive reading-related statements. Those new statements, in turn, could have served as function-altering events (Schlinger & Blakely, 1987) by increasing the probability of reading in the presence of books as well as increasing the reinforcing value of reading activities. According to Skinner (1957), autoclitics increase the precision of verbal control of the speaker over a listener. It follows that, if the speaker and listener are the same person, a

speaker's autoclitics can increase the precision of verbal control over nonverbal behavior. In this study, when a child said "I like to read," such a statement (i.e., an autoclitic) could have affected reading behavior due to increased precision of verbal stimulus control over this related nonverbal behavior.

The results of the current experiment corroborate the previous literature on correspondence between verbal and nonverbal behavior (Lloyd, 2002; Ribeiro, 1989) in which children tend to show a higher degree of correspondence than adults.

Two important limitations of the study are worth noting. First, the study employed what is essentially an AB design, with just a few measures of treatment effects and only one baseline measure, all conducted over a short period of time. Future research should use a more rigorous research design, over a longer period of time to assess the durability of treatment effects. Second, given participants' previous histories with adults/teachers, it is possible that the presence of the experimenter served as an antecedent variable controlling the emission of reading behavior. The presence of adults can either be correlated with availability of reinforcement, functioning as a discriminative stimulus, or correlated with punishment for nonacademic behaviors, functioning as a reflexive motivating operation. Future studies should attempt to control for this interference by collecting baseline data over a more extensive period of time.

Reading behavior is exceedingly rare among children in Brazil (and indeed, of children around the world, INEP, 2006). Irrespective of its conceptual underpinnings, this study suggests that a cost-effective and easy-to-implement procedure may be useful in promoting reading among children. Future research should further explore the current methodology as well as other verbal-behavior based strategies to increase choice for reading as well as time spent reading.

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