This exhibit provides an overview of Teaching Language and Communication Skills to Students with Autism (SPED 5329). I have included:

1. A syllabus which has been annotated with embedded comment boxes to highlight how teaching occurred in class, outside of class and even after the course was completed. For example, please see comment box 6.

2. An example of an in-class activity is provided to highlight how I encourage students to collaborate and share ideas in class.

3. A class project that resulted in a peer-reviewed publication with multiple graduate student co-authors is provided. The 6th comment box describes how this was accomplished. Ultimately, the students discovered a way to reduce a dangerous form of problem behavior by teaching communication to a child with autism. Previous research had only used punishment to treat this particular behavior and my students were successful with only positive reinforcement. I hope this can be considered significant impact benefitting both the students and the children with autism these students will serve when they graduate.

NOTE: Because the comment boxes in the annotated syllabus have small font, I have included the text of those boxes numbered in the order they appear in the syllabus.

1. Students teaching other students (i.e., a group of other professionals) is an instructional approach in all my classes. I believe a student must know a concept very well to teach it to someone else.

2. Students are encouraged to collaborate instead of compete in coursework and research because the collaboration model best represents the expectations of clinical/teacher professionals in our field.

3. The emphasis on research is interwoven with content on professional practice. Instead of being told what treatment or how to provide treatment to children with autism, students are taught how to select treatment options based on an analysis of the existing research (see also 8th goal below).

4. My courses must be appropriate for students who want to work in a variety of different settings. This is accomplished, in part, by asking students who want to work in one setting how they would adapt a concept to be appropriate for people working in a different setting.

5. Nearly 100% of my students are working towards becoming Board Certified Behavior Analysts. The Behavior Analyst Certification Board (BACB) requires that the following concepts be listed directly in the syllabus where they are addressed. The numbers correspond to the BACB Task List.

*6. Most of the small groups worked with children receiving services in CARES to complete this project. One of the small groups discovered that there was not a sufficient research base to address the specific needs of the child they were working with. They did what they could during the semester but they were motivated to do more. I continued meeting with them after the

semester ended as part of the optional SPED 5329 Independent Study in Autism Research Course I offer (see narrative). We collaborated for months to finish the project and the resulting work was published as a case study in the most prestigious journal in the field of Applied Behavior Analysis. The resulting publication is included in this exhibit. This example demonstrates the alignment between CARES clinical work, research and coursework as well as the extent to which my teaching is not bound by the context of any one course or the typical semester time frame.

7. The sample in-class activity provided after the syllabus was conducted on this day.

8. On these days students share information about their ongoing intervention projects conducted outside of class. We sit in a circle and everyone provides input and commentary for all projects. By the end of the course all students have learned from the experience of all the projects. I facilitate the conversations but I do not give my opinion or input until it is clear that it is needed. I prefer for students to practice problem solving intervention obstacles together as professionals before I am involved.

TEXAS STATE UNIVERSITY
COLLEGE OF EDUCATION
Special Education 5329
Teaching Language/Communication Skills to Students with Autism and Other Developmental Disabilities
Course Syllabus
Class Time: 5:00 to 6:20 Tues and Thurs

Instructor: Dr. Russell Lang, Ph.D., BCBA-D
Office: EDB 3008A
Office Hours: 1 hour before or after class or by appointment
Email: russlang@txstate.edu

CATALOG DESCRIPTION:

This course covers language intervention for individuals with autism and other developmental disorders involving speech language delays. Topics include Skinner's Analysis of Verbal Behavior and research-based interventions designed to improve language and communication skills. Prerequisite: SPED 5327 or consent of the instructor.

REQUIRED TEXT:

Fitzer, A., & Sturmey, P. (2009). Language and Autism: Applied Behavior Analysis, Evidence, and Practice. (Abbreviated "ASD" in Course Schedule)

***Suggested/Recommended (not required)*:**
Skinner, B. F. (1957). Verbal Behavior.

COURSE GOALS AND OBJECTIVES:

Upon successful completion of this course, students will be able to:

1. Implement effective research-based communication intervention with a child with ASD and present data from this intervention project to a group of professionals
2. Describe the language characteristics of individuals at different points along the autism spectrum
3. Present information related to the education and treatment of individuals with Dev. Dis. to a group of other professionals
4. Work well within a team of other professionals
5. Identify the characteristics of research-based communication interventions for individuals with ASD and other Dev. Dis.
6. Use the electronic databases to find research articles and other scholarly works from peer-reviewed journals
7. Describe how effective communication intervention may be implemented within a inclusion classroom setting

Commented [LR1]: Students teaching other students (i.e., a group of other professionals) is an instructional approach in all my classes. I believe a student must know a concept very well to teach it to someone else.

Commented [LR2]: Students are encouraged to collaborate instead of compete in coursework and research because the collaboration model best represents the expectations of clinical/teacher professionals in our field.

Commented [LR3]: The emphasis on research is interwoven with content on professional practice. Instead of being told what treatment or how to provide treatment to children with autism, students are taught how to select treatment options based on an analysis of the existing research (see also 8th goal below).

Commented [LR4]: My courses must be appropriate for students who want to work in a variety of different settings. This is accomplished, in part, by asking students who want to work in one setting how they would adapt a concept to be appropriate for people working in a different setting.

8. Synthesize and analyze research literature in order to determine the evidence-base for a given communication intervention

BACB TASK LIST:

Commented [LR5]: Nearly 100% of my students are working towards becoming Board Certified Behavior Analysts. The Behavior Analyst Certification Board (BACB) requires that the following concepts be listed directly in the syllabus where they are addressed. The numbers correspond to the BACB Task List.

This course is part of the required course sequence for the Board Certification in Behavior Analysis. The following items from the BCBA task list will be covered in this course.

1-8 Use the most effective assessment and behavior change procedures within applicable ethical standards taking into consideration the guideline of minimal intrusiveness of the procedure to the client.
1-9 Protect confidentiality.
1-11 Ensure that the dignity, health and safety of one's client are fully protected
1-12 Give preference to assessment and intervention methods that have been scientifically validated, and use scientific methods to evaluate those that have not yet been scientifically validated.
3-1 Define and provide examples of behavior/response/response class.
3-2 Define and provide examples of stimulus and stimulus class.
3-7 Define and provide examples of stimulus control.
3-8 Define and provide examples of establishing operations.
3-9 Define and provide examples of behavioral contingencies.
3-10 Define and provide examples of functional relations.
3-16 Define and provide examples of mands.
3-17 Define and provide examples of tacts.
3-18 Define and provide examples of intraverbals.
4-1 State the primary characteristics/rationale for conducting a descriptive assessment.
4-2 Gather descriptive data.
4-2 a Select various methods.
4-2 b Use various methods.
4-3 Organize and interpret descriptive data.
4-3 a Select various methods.
4-3 b Use various methods.
5-1 Systematically manipulate independent variables to analyze their effects
7-1 Select a data display that effectively communicates quantitative relations.
8-3 State target intervention outcomes in observable and measurable terms.
8-4 Make recommendations to the client regarding intervention strategies based on such factors as: client preferences, task analysis, current repertoires, supporting environments, constraints, social validity, assessment results and best available scientific evidence.
8-5 Make recommendations to the client regarding behaviors that must be established, strengthened, and/or weakened to attain the stated intervention outcomes.
9-2 a Identify and use reinforcers.
9-2 b Use appropriate parameters and schedules of reinforcement.
9-2 c Use response-deprivation procedures (e.g., Premack principle).
9-4 Use extinction.

9-4 a Identify possible reinforcers maintaining behavior and use extinction.
9-4 b State and plan for the possible unwanted effects of the use of extinction.
9-5 Use response-independent (time-based) schedules of reinforcement.
9-6 Use differential reinforcement.
9-7 Use discrimination training procedures.
9-8 Use prompt and prompt fading.
9-9 Use instructions and rules.
9-10 Use modeling and imitation.
9-11 Use shaping.
9-13 Use incidental teaching techniques.
9-14 Use Direct Instruction.
9-15 Use precision teaching.
9-16 Use personalized system of instruction (PSI).
9-17 Use discrete trials.
9-19 Use token economy procedures, including levels systems.
9-23 Use behavioral momentum.
9-24 Use the matching law and recognize factors influencing choice.
9-25 Use language acquisition programs that employ Skinner's analysis of verbal behavior (i.e., echoics, mands, tacts, intraverbals).
9-26 Use language acquisition/communication training procedures.
9-28 Use behavior change procedures to promote stimulus and response generalization.
9-29 Use behavior change procedures to promote maintenance.

DESCRIPTION OF INSTRUCTIONAL METHODOLOGIES:

This class will consist of lectures, group discussions/debates, and in-class activities. Additionally, students will present information related to the treatment and progress of individuals with ASD receiving a communication intervention.

Students are expected *to take responsibility for their own learning* by completing all assigned readings, participating in discussion, and asking questions when concepts are unclear. All students are encouraged to share their opinion, expertise, and relevant personal anecdotes with the class.

GRADING CRITERIA:

A = 90-100%; **B** = 80-89%; **C** = 70-79%; **D** = 60-69%; **F** = <60%

Masters-seeking students must maintain a GPA of 3.0 (with no more than 2 grades of C). Students in the Autism/ABA concentration who make a grade of C in this course will be advised to retake the course.

ASSESSMENT OF STUDENT LEARNING:

Reading Quizzes (30%): Following each assigned reading, a quiz covering that reading will be given at the beginning of class. These quizzes will be averaged together and will account for 40% of the total grade in the course.

Intervention Overview Presentation (20%): Each student will select a specific communication intervention approach and will give a presentation to the class describing that approach. The presentation will cover: a) how to implement the intervention, b) the proposed mechanism of action, c) an overview of the research-base supporting that intervention, and a classification of "research-based" or "not researched-based".

Communication Intervention Project (20%): Students will be required to work with a child who has a communication delay in need of communication intervention. Each small grou (2 to 3 students) will give updates in class regarding the progress of their child. Additional details regarding this assignment will be given in class.

Commented [LR6]: Most of the small groups worked with children receiving services in CARES to complete this project. One of the small groups discovered that there was not a sufficient research base to address the specific needs of the child they were working with. They did what they could during the semester but they were motivated to do more. I continued meeting with them after the semester ended as part of the optional SPED 5329 Independent Study in Autism Research Course I offer (see narrative). We collaborated for months to finish the project and the resulting work was published as a case study in the most prestigious journal in the field of Applied Behavior Analysis. The resulting publication is included in this exhibit. This example demonstrates the alignment between CARES clinical work, research and coursework as well as the extent to which my teaching is not bound by the context of any one course or the typical semester time frame.

Final Exam (30%): An exam covering the BCBA task list, readings, and material presented in class will be given in class.

IMPORTANT COURSE INFORMATION:

All work must reflect graduate level performance, including writing and professionalism. Please use person-first language, avoid grammar and spelling errors. Use APA style.

ANY evidence of academic dishonesty will result in penalties (e.g., an F in the course). Academic dishonesty includes cheating, turning in another person's work as if it were your own, and plagiarism. Students should consult the Texas State University website for more information on the student code of conduct. I am required to report all forms of academic dishonesty to the University office of Student Affairs.

Students with documented disabilities who are registered with the Office of Disability Services on campus may make requests for accommodations and modifications with appropriate documentation from the ODS. For more information, please contact the ODS at 245-3451.

Attendance is expected. Students should be on time and prepared for class each week, and plan to stay the entire class period. Those who are habitually late, leave early, or who are absent more than 3 times may be reported to the College of Education through a Fitness for the Teaching Profession referral, and may lose up to one letter grade at the end of the semester.

Class participation is expected and encouraged.

Turn off cell phones (unless given permission under unusual circumstances)

Use Laptops only for work related to the course

COURSE SCHEDULE:

Date	Class Agenda	Readings Done Before Class	Assignment Due
2/15	Course Overview Plan for Intervention Projects Demonstration of how to access peer reviewed research Assign topics for Intervention Overview Presentations	NA	Please bring a copy of this syllabus to class
2/17	Reading Quiz Lecture: Language and Communication Characteristics in ASD	Chapter 1: Language Problems in Autism Spectrum Disorders Language Acquisition in ASD (TRACS)	Reading Quiz
2/22	Reading Quiz Lecture: Behaviorism and Language Acquisition	Chapter 3: Behavioral theory and language acquisition	Reading Quiz
2/24	Reading Quiz Lecture: Introduction to Verbal Operants Presentations on Intervention Projects	Chapter 2: Principles of ABA and Language Acquisition Benefits of Verbal Behavior (TRACS)	Reading Quiz
2/29	Reading Quiz Review of reading Updates on Intervention Projects	Chapter 4: Efficacy of interventions to promote language	Reading Quiz Be ready to talk about intervention project progress
2/31	Reading Quiz Review of reading Updates on Intervention Projects	Chapter 5: General Intervention Approaches for Teaching Speech and its Prerequisites	Reading Quiz Be ready to talk about intervention project progress
2/5	Reading Quiz Review of reading Updates on Intervention Projects	Chapter 6: Teaching Mands to Individuals with Autism Spectrum Disorders	Reading Quiz Be ready to talk about intervention project progress
2/7	Reading Quiz Review of reading Updates on Intervention Projects	Chapter 7: The Natural Language Paradigm and Incidental Teaching	Reading Quiz Be ready to talk about intervention project progress

Commented [LR7]: The sample in-class activity provided after the syllabus was conducted on this day.

2/12	Reading Quiz Review of reading EMT Video Updates on Intervention Projects	TRACS Article: Enhanced Milieu Teaching	Reading Quiz Be ready to talk about intervention project progress
2/14	Reading Quiz Review of reading Updates on Intervention Projects	Chapter 8: Facilitating language in learners with autism: Stimulus control technology	Reading Quiz Be ready to talk about intervention project progress
2/19	Reading Quiz Review of reading Updates on Intervention Projects	Chapter 9: Language Learning: The Formation and Elaboration of Stimulus Classes	Reading Quiz Be ready to talk about intervention project progress
2/21	Reading Quiz Class Discussion on Readings Presentations on Intervention Projects	Chapter 10: Speech Prosody Intervention in Autism	Reading Quiz Be ready to talk about intervention project progress
2/26	Reading Quiz Class Discussion on Readings Presentations on Intervention Projects	Chapter 11: Reducing Inappropriate Verbal Behavior in People with Pervasive Developmental Disabilities	Reading Quiz Be ready to talk about intervention project progress
2/28	Reading Quiz Class Discussion on Readings Presentations on Intervention Projects	Chapter 12: A Functional Approach to Reducing Disruptive and Destructive Behavior and Increasing Appropriate Communication	Reading Quiz Be ready to talk about intervention project progress
3/5	Intervention Overview Presentations	Intervention Overview Presentations	Intervention Overview Presentations
3/7	Intervention Overview Presentations	Intervention Overview Presentations	Intervention Overview Presentations
3/12	**SPRING BREAK**	**SPRING BREAK**	**SPRING BREAK**
3/14	**SPRING BREAK**	**SPRING BREAK**	**SPRING BREAK**
3/19	Class Discussion	TRACS Article: Chomsky's review of Skinner's Verbal Behavior	Reading Quiz

		TRACS Article: Review of Chomsky's Review by MacCorquodale	
3/21	Intervention Project Group Discussions and Presentations		
3/26	Intervention Project Group Discussions and Presentations		
3/28	Intervention Project Group Discussions and Presentations		
4/2	Intervention Project Group Discussions and Presentations		
4/4	Intervention Project Group Discussions and Presentations		
4/9	Intervention Project Group Discussions and Presentations		
4/11	Intervention Project Group Discussions and Presentations		
4/16	Intervention Project Group Discussions and Presentations		
4/18	Intervention Project Group Discussions and Presentations		
4/23	Intervention Project Group Discussions and Presentations		
4/25	Intervention Project Group Discussions and Presentations		
4/30	Final Exam Prep	No Reading	Bring Questions about Reading Quizzes
5/2	**FINAL EXAM**	**FINAL EXAM**	**FINAL EXAM**

Commented [LR8]: On these days students share information about their ongoing intervention projects conducted outside of class. We sit in a circle and everyone provides input and commentary for all projects. By the end of the course all students have learned from the experience of all the projects. I facilitate the conversations but I do not give my opinion or input until it is clear that it is needed. I prefer for students to practice problem solving intervention obstacles together as professionals before I am involved.

Communication Interventions for Presentations:

Pivotal Response Training
Picture Exchange Communication System
Functional Communication Training
Facilitated Communication
Rapid Prompting Method
Alternative & Augmentative Communication (SGD / VOCA)
Enhanced Milieu Teaching
Discrete Trial Training
Relationship Development Intervention
Sensory Integration Therapy

The pictures on this slide correspond to some of the "inside jokes" that arose the semester this particular slide was shown. Every semester a class will develop a set of funny anecdotes from working with children, errors made in class, or other similar sources. For example, the "Seriously." is in reference to an in class activity from a previous week that I had promised would be really cool but that the class informed me was "less cool than laser guided scissors". I try and use humor to build class camaraderie because I find it helps students feel comfortable asking questions, challenging others (including me) when they see a mistake, and sharing opinions in a group setting. Although this slide may look silly or irrelevant, it was meaningful in the context of that semester.

Steps to Complete the R.A.I.C.A.

- Pair up in groups of 2 or 3 such that each group has a device they can use to create a PowerPoint.
- I will select a topic for you or allow you to select a topic from this list →
- Prepare a 5 min to 8 min lesson to teach the class about your topic (you'll be cut off at 8)
- You have 40 min to prepare
- You can ask me (or better yet, another group) for help, if needed.
- Teach the class about your topic using that PowerPoint I just mentioned

- Explain the concepts of chaining and shaping and give an example of how these procedures might be used to teach some form of communication.
- Teach the difference between expressive and receptive communication and explain why receptive communication is conceptualized differently by behavior analysts.
- Explain the difference between positive and negative reinforcement and identify 4 ways (or more) to ensure that "reinforcers" are effective within communication intervention programs.
- Explain **why** motivating operations are so important to consider when planning a communication intervention session and give examples of **how** MOs would be used to facilitate communication intervention.
- Explaining Prompting and Prompt Fading and give examples of specific prompts and prompt fading hierarchies.
- Compare and contrast extinction and punishment and discuss when and how these intervention components might be used in a communication intervention.

This is an example of an in class activity that involved students working in teams (i.e., collaborating with other professionals) and teaching other students. I specifically encourage them to seek out the support of other groups before asking me for help. They learn, in part, by trying to answer the questions of classmates.

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FUNCTIONAL ANALYSIS AND TREATMENT OF DIURNAL BRUXISM

RUSSELL LANG

TEXAS STATE UNIVERSITY–SAN MARCOS, CLINIC FOR AUTISM RESEARCH EVALUATION AND SUPPORT AND UNIVERSITY OF TEXAS AT AUSTIN'S MEADOWS CENTER FOR THE PREVENTION OF EDUCATIONAL RISK

AND

KATY DAVENPORT, COURTNEY BRITT, JENNIFER NINCI, JENNIFER GARNER, AND MELISSA MOORE

TEXAS STATE UNIVERSITY–SAN MARCOS, CLINIC FOR AUTISM RESEARCH EVALUATION AND SUPPORT

An analogue functional analysis identified attention as a function for a 5-year-old boy's bruxism (teeth grinding). Functional communication training resulted in a reduction of bruxism and an increase in alternative mands for attention. Results were maintained 3 weeks following the intervention.

Key words: bruxism, autism, functional analysis, functional communication training, intervention

Diurnal bruxism is a self-injurious behavior that involves clenching or grinding one's teeth while awake (Barnoy, Najdowski, Tarbox, Wilke, & Nollet, 2009). Chronic bruxism may cause damage to teeth, bone, and gums and is associated with oral-facial pain, headaches, and tooth loss (Lang et al., 2009). Although prevalence data are limited, bruxism appears to occur more often in individuals with developmental and intellectual disabilities than in the general population (Cocchi & Lamma, 1999; DeMattei, Cuvo, & Maurizio, 2007; Dura, Torsell, Heinzerling, & Mulick, 1988).

Lang et al. (2009) reviewed research on the assessment and treatment of bruxism in individuals with developmental disabilities, and found that positive punishment was the most commonly used operant-based intervention (e.g., Blount, Drabman, Wilson, & Stewart, 1982; Gross & Isaac, 1982). Only Barnoy et al. (2009) included an assessment to determine the operant function for bruxism. In that study, results of an indirect assessment using the Questions about Behavioral Function scale (Matson & Vollmer, 1995) suggested that bruxism was maintained by automatic reinforcement. This current study extends previous research by reporting a case in which an analogue functional analysis identified attention as the reinforcer that maintained the bruxism of a 5-year-old boy with autism. Further, we evaluated a function-based intervention that did not involve punishment (i.e., functional communication training; FCT).

METHOD

Participant and Setting

Bennett was a 5-year-old boy who had been diagnosed with autism. He scored a 30.5 on the Childhood Autism Rating Scale (Schopler, Reichler, Devellis, & Daly, 1980) which indicated mild to moderate autistic symptoms. At the time of this evaluation, Bennett had been engaging in diurnal audible bruxism (grinding sound could be heard) for more than 2 years. His

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parents reported that he began engaging in bruxism when he was 2 years old during a period of severe ear infections. The ear infections were resolved successfully, and subsequent dental and medical screenings identified no physical etiology for his bruxism.

Functional analysis and intervention sessions were conducted in a university-based autism clinic. The clinic room included a table, chairs, and a shelf that contained toys and instructional materials. The clinic room also contained a video camera and a ceiling-mounted microphone.

Response Measurement and Interobserver Agreement

Previously trained data collectors observed all sessions from a separate room via the clinic's video and audio surveillance equipment. During all phases of the study, 10-s partial-interval recording was used to quantify the occurrence of bruxism. Partial-interval data were converted to a percentage by dividing the number of intervals with bruxism by the total number of intervals and then multiplying by 100. Because bruxism was difficult to observe, the occurrence of the grinding sound was recorded. This sound could be heard easily through the surveillance equipment. Alternative mands were defined as the unprompted occurrence of verbal approximations of the two therapists' names. For example, "Ca," "Co," and "Co-ney" were accepted for the therapist named Courtney and "J," "Je," and "Je-fer" were accepted for Jennifer. During each FCT session, the therapist created opportunities for Bennett to mand for her attention by turning and moving away from him. The percentage of these opportunities in which Bennett said the therapist's name was calculated by dividing the number of alternative mands by the number of total opportunities and multiplying by 100.

Data on interobserver agreement were collected for bruxism and alternative mands during 50% of functional analysis and FCT sessions. For bruxism, agreement was calculated by dividing the number of intervals with agreement by the total number of intervals (i.e., agreements plus disagreements) and converting the result to a percentage. For bruxism, mean agreement was 96% (range, 80% to 100%). For alternative mands, agreement was calculated by dividing the number of opportunities to mand in which the data collectors agreed on the occurrence or nonoccurrence of the alternative mand by the total number of opportunities presented by the therapist in each session and converting the result to a percentage. Mean agreement for alternative mands (saying the therapist's name) was 100%.

Procedure

Functional analysis. Alone, attention, demand, and play conditions were conducted in a manner similar to those described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994). Conditions were presented in a multielement design, and all sessions lasted 5 min. Three or four sessions were conducted daily. During the alone condition, Bennett was in the room by himself and there were no programmed consequences for bruxism. During the attention condition, the therapist said "you play by yourself while I work" and then began another activity. The therapist provided brief attention by moving closer and asking Bennett to "stop grinding" contingent on bruxism. During the demand condition, the therapist used a three-step prompting sequence to present demands continuously and, contingent on bruxism, removed the demand materials for 10 s. During the play condition, there were no programmed consequences for bruxism, Bennett had access to toys that were identified as preferred via a free-operant preference assessment (Roane, Vollmer, Ringdahl, & Marcus, 1998) prior to the study, and the therapist provided attention on a fixed-time 5-s schedule.

FCT evaluation. Prior to beginning this study, Bennett was receiving discrete-trial training in our university-based autism clinic to improve communication and adaptive and academic skills. During a typical training session, Bennett was given a 5-min break from instructions

approximately every 10 min. During the break, he was expected to play independently with a set of preferred toys. This break also was used by the therapist to prepare materials for subsequent instruction. Observation prior to this study revealed that this 5-min break was the time in which bruxism was most likely to occur. Therefore, baseline and FCT sessions were conducted during this regularly scheduled break and lasted 5 min. The effects of the intervention were evaluated in a multiple baseline across his regular therapists.

In baseline, the therapist implemented a physical cue procedure in which the therapist told Bennett to "stop grinding" while lightly touching his bottom jaw contingent on bruxism. This procedure was selected for baseline because it is supported by previous research (e.g., Barnoy et al., 2009) and was the intervention used by caregivers at the inception of this study. However, it is important to note that the inclusion of the physical cue (i.e., light touch on bottom jaw) in baseline differed from the procedures used in the attention condition of the functional analysis.

Following baseline, FCT was implemented. First, a most-to-least prompting hierarchy was used to teach Bennett to say (or verbally approximate) the therapists' names. Prompting began with a combination of a gesture prompt that involved pointing to a name tag being worn by the therapist and a simultaneous verbal prompt (e.g.,"say, 'Courtney'"). After five consecutive occurrences of the alternative mand, this combined prompt was faded to a gesture prompt (i.e., pointing to name tag) only. Before beginning each FCT session, Bennett was prompted to say the therapist's name until only the gesture prompt was required. When the 5-min session began, the therapist said, "If you need me, just say my name." To present Bennett with an opportunity to mand for attention, the therapist then moved away from Bennett to prepare materials. Contingent on the first occurrence of bruxism in each session, the therapist prompted the alternative mand again and delivered minimal attention (i.e., "Good job saying my name."). The therapist ignored all subsequent occurrences and provided no further prompts for mands. When Bennett said the therapist's name without being prompted, the therapist provided 5 s of social interaction consisting of verbal praise (e.g., "Good job saying my name!") and physical touch (e.g., pats on the back, hugs, or tickles). The therapist then turned away from Bennett to present another opportunity to mand for attention. If he did not mand after the therapist had turned away for 30 s, the therapist moved back toward the table briefly and then moved away again to present another opportunity.

Maintenance sessions began 3 weeks after the conclusion of FCT. The therapist provided no prompts, ignored all occurrences of bruxism, and delivered attention contingent on mands.

RESULTS AND DISCUSSION

Figure 1 (top) displays the results of the functional analysis. Bruxism occurred most often in the attention (M = 44% of intervals) and escape conditions (M = 16% of intervals). The lowest rates of bruxism were recorded in the play (M = 6% of intervals) and alone (M = 9% of intervals) conditions. Overall, these data support both an attention and an escape function. However, the attention condition contained the highest levels of bruxism relative to the control condition; thus, an attention-based intervention was implemented.

Figure 1 also depicts the results of the FCT evaluation. During baseline, the mean occurrence of bruxism was 16% and 17% of intervals for Therapist 1 (middle) and Therapist 2 (bottom), respectively. Alternative mands for attention were not observed with either therapist. During FCT, levels of bruxism dropped to a mean of 2% of intervals with both therapists, and the mean of unprompted alternative mands for attention increased to 40% and 33% of opportunities with Therapists 1 and 2, respectively. During the maintenance phase, the mean percentage of intervals with bruxism was 0% and 1% with

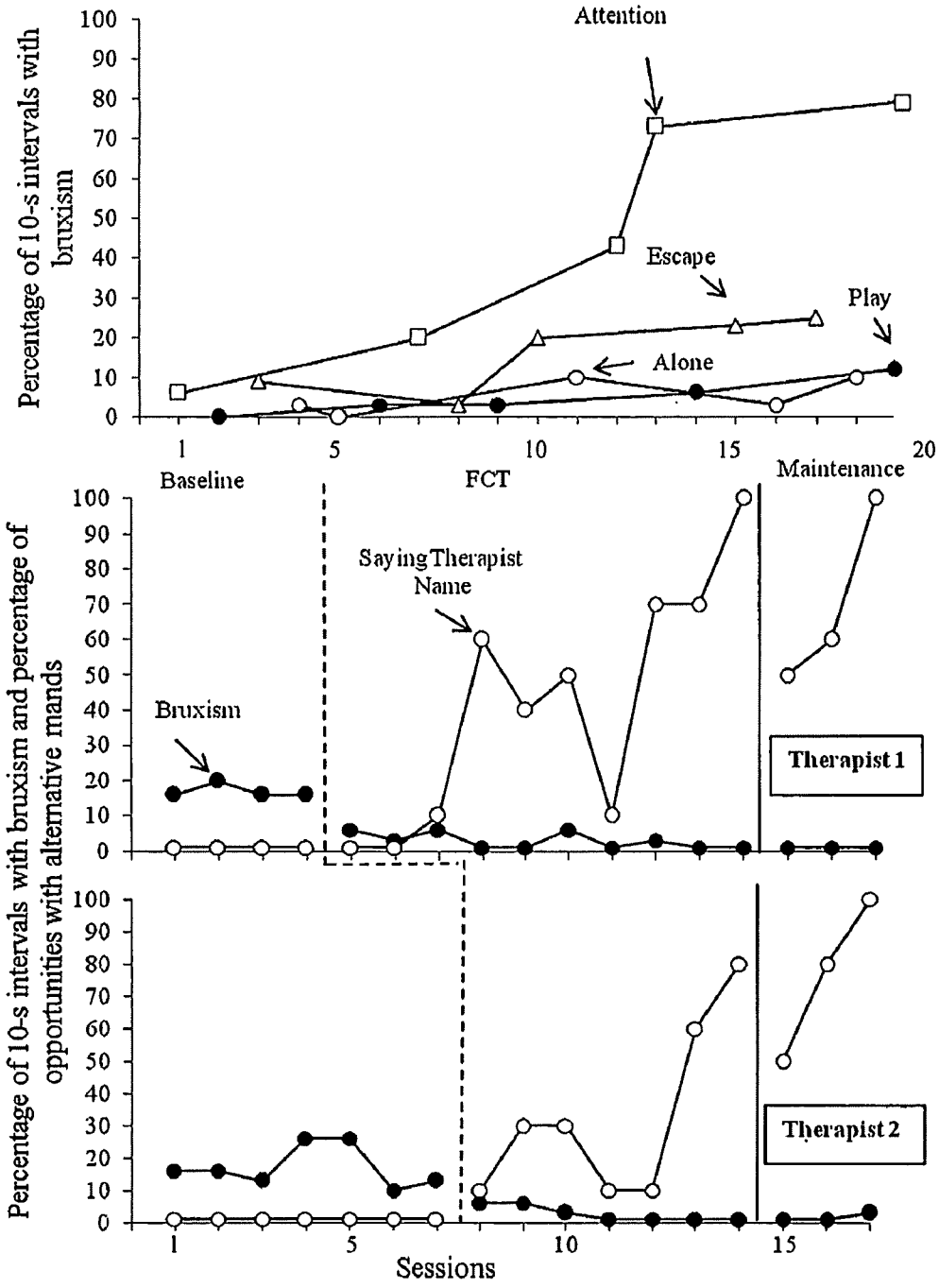

Figure 1. Percentage of 10-s intervals with bruxism during the functional analysis (top) and with Therapist 1 (middle) and Therapist 2 (bottom). Percentage of opportunities with alternative mands with Therapist 1 and Therapist 2.

Therapists 1 and 2, respectively. Alternative mands for attention averaged 70% and 77% of opportunities with Therapists 1 and 2, respectively.

Previous authors have suggested two potential etiologies for this behavior: dental-medical or psychological issues (Glaros & Rao, 1977; Lang et al., 2009). In terms of medical-dental issues,

individuals may grind their teeth because of malocclusion or as a side effect of certain medications (Glaros & Rao, 1977). When psychological causes of bruxism are considered, the most common assumption is that bruxism is related to anxiety or is maintained by automatic reinforcement (Glaros & Rao, 1977; Lang et al., 2009). The current results provide a demonstration of bruxism maintained by socially mediated consequences and replicate previous research in which response topography is an inadequate predictor of operant function (e.g., Kennedy, Meyer, Knowles, & Shukla, 2000).

It is possible that the physical cue provided contingent on bruxism during baseline functioned as a punisher (Barnoy et al., 2009) and may explain why levels of bruxism were substantially lower in baseline than in the attention condition of the functional analysis (in which the physical cue was absent). However, the physical cue had been in place in Bennett's home and school for more than 6 months, and bruxism persisted during that time. Bruxism was not reduced until an alternative means of obtaining attention was taught. In addition, it is important to note that there were topographical similarities between bruxism and the alternative mand (i.e., both involved using the mouth to form the response), which could have altered the effort associated with engaging in one response over the other.

A potential limitation is that the alternative mand was reinforced on a continuous schedule, which may be impractical in some settings. Also, during the functional analysis, different reinforcement intervals were arranged across test conditions (i.e., 5-s attention, 10-s escape). Unequal durations of reinforcement across conditions may alter the relative occurrence of problem behavior and influence the interpretation of functional analysis results (Fisher, Piazza, & Chiang, 1996). Third, the functional analysis data suggested that bruxism also served an escape function, which was not addressed in this study. Despite these limitations, this study appears to be the first to demonstrate a socially mediated function for bruxism and to treat bruxism successfully using positive reinforcement-based procedures.

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