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Running head: DESCRIPTIVE ASSESSMENT

**A Descriptive Assessment of Peer Attention and Problem Behavior in Students
Diagnosed with Autism Spectrum Disorder**

A Thesis Presented

by

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The Department of Counseling and Applied Educational Psychology

In partial fulfillment of the requirement for the degree of

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Northeastern University

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A Descriptive Assessment of Peer Attention and Problem Behavior in Students

Diagnosed with Autism Spectrum Disorder

by

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Submitted in partial fulfillment of the requirements for the degree of Master of Science in
Applied Behavior Analysis in the Bouve College of Health Science Graduate School of
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Table of Contents

A. Abstract.....	4
B. Introduction.....	5
C. Method	8
D. Results	11
E. Discussion	12
F. References	14
G. Table	16
H. Figures	17

Abstract

Peer attention has been cited as a maintaining variable for problem behavior in several studies (e.g., Jones, Drew, and Weber, 2000). However, there is little information on how often and under what conditions peers deliver attention. The purpose of the current study is to evaluate the relative probabilities of different forms of peer attention and problem behavior in a middle school classroom for students diagnosed with an Autism Spectrum Disorder. Observers recorded the occurrence of problem behavior, as well as forms of attention provided by peers. Results indicate that peer attention was more likely to occur following problem behavior than in the absence of problem behavior. Orienting was the most commonly-observed topography of peer attention and loud vocals and destruction were the topographies of problem behavior most likely to be followed by peer attention. Interobserver agreement data were collected for 26% of sessions and averaged 96%.

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Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994) developed a functional analysis (FA) methodology to assess problem behavior and its' function. The FA included four conditions: attention, demand, play, and alone. This approach to assessing problem behavior has been broadly adapted and is the best practice standard for assessment. Several studies have expanded the standard FA methods to address other idiosyncratic variables, such as type or content of attention (Fischer, Ninness, Piazza, & Owen-DeSchryver, 1996) and the person delivering attention (Ringdahl & Sellers, 2000). Ringdahl and Sellers (2000) evaluated the effects of caregivers and staff members as therapists on problem behavior for three participants with developmental disabilities. They conducted an FA using a multi-element experimental design including four conditions (attention, escape, tangible, and control) and alternated the therapist (caregiver and staff members) in a reversal design. For all of the participants, problem behavior was higher when the caregiver was the therapist than when the staff member was a therapist. These results suggested that the person delivering attention may be a relevant variable and should be considered when assessing or treating problem behaviors.

Along those lines, there are several studies that evaluated the effects of peer attention on another child's problem behavior. Northup et al. (1995) conducted a modified FA with two conditions: teacher attention and peer attention. In the teacher attention condition, participants were given easy math worksheets and instructed to do work. The teacher ignored the participant except to deliver a reprimand contingent on disruptive behavior. In the peer attention condition, the same materials were present and a

peer was asked to be the teacher's "helper" and was told to pay attention to the participant and say something if he or she got out of their seat or began talking.

Contingent peer attention resulted in the highest rates of disruptive behavior for all three participants, suggesting that peer attention, specifically, maintained problem behavior.

Northup et al. (1997) conducted an FA with a teacher attention condition, a peer attention condition, and a demand condition, alternating days with and without methylphenidate.

The results showed that the disruptive behavior was maintained by positive reinforcement in the form of peer attention, in the absence of methylphenidate.

Several subsequent studies included the peer attention condition described by Northup et al. (1995), including Broussard and Northup (1997), Flood, Wilder, Flood, and Masuda (2002), and Jones, Drew, and Weber (2000). These studies all demonstrated high rates of problem behavior in the peer attention condition. During the peer attention condition in the Jones et al. (2000) study, the teacher's "helper" (a confederate peer) initially made statements such as "you are not doing your work" following disruptive behavior; over time, those statements transformed into laughing, talking, and imitating of problem behavior. This is interesting to note, because the topography of peer attention included in the peer attention FA condition as described by Northup et al (1995) may differ from what is occurring in the natural environment.

A few studies have evaluated whether consequences implemented in FAs occur in the natural environment. Thompson and Iwata (2001) conducted a descriptive assessment (DA) to determine the extent to which the consequences delivered during FAs were observed following problem behavior in the natural environment. Antecedent events associated with problem behavior were identified as events occurring within the previous

or same 10-s interval as the problem behavior and consequent events were identified as occurring in the same or following 10-s interval as the problem behavior. It was found that attention was the most frequent natural consequence followed by escape from demands, and that access to tangibles rarely occurred. Peer attention was observed during only three sessions; however, peers were not present during many of the observations. McKercher and Thompson (2007) conducted DAs to identify response-consequence contingencies and to determine if the consequences delivered during FAs occurred naturally in a preschool setting. Attention was the most common consequence observed following problem behavior, followed by access to tangible items and escape from demands. Data on peer attention were not reported in this study.

Although several studies identified peer attention as a maintaining variable for problem behavior (e.g., Flood et al., 2002, and Northup et al., 1995), there isn't much information available on how common peer attention is as a consequence. Further, most of the studies to date on peer attention included children with Attention Deficit Hyperactivity Disorder (ADHD) as participants. Thus, it is unclear how commonly peer attention may be delivered within the developmentally delayed population.

One exception is a study by Roberts and Sassi (2010), which consisted of a DA on the prevalence of peer attention and the topographies of attention delivered by peers. In Study 1, observations were conducted of students with developmental disabilities in an academic classroom. The probability of peer attention occurring following problem behavior (conditional probability) and the probability of peer attention occurring independent of problem behavior (unconditional probability) were compared. The conditional probability of peer attention was higher than the unconditional probability of

peer attention for eight of the nine participants, indicating that peer attention was more likely to occur following problem behavior than otherwise. In Study 2, the topographies of attention following problem behavior were identified. Laughing was the most common topography of attention delivered following problem behavior, followed by orienting, imitating, and clapping. Statements about the behavior infrequently occurred and reprimands never occurred. This is interesting because the consequence delivered during the attention condition of an FA is a reprimand, yet this topography of attention doesn't appear to occur among peers.

Given that there is relatively little information available about the prevalence of peer attention as a consequence, and that the few existing studies have focused on a specific population (students with ADHD), more information on the prevalence of peer attention as a consequence might be informative to both clinicians and researchers. The purpose of the current study was to investigate the prevalence of various topographies of peer attention following problem behavior. Further, information about the various topographies of problem behavior and the relative probability of peer attention as a consequence will also be presented.

Method

Participants and Setting.

Participants were nine students attending an academic classroom at a school for students with Autism Spectrum Disorders (ASD). Andrew was a 13-year-old boy diagnosed with Pervasive Developmental Disorder (PDD), and he communicated vocally. Scott was a 15-year-old boy diagnosed with ASD. Nathan was a 14-year-old boy diagnosed with ASD, and he communicated with a combination of vocall word

approximations, sign language, and using a computerized device or Picture Exchange Communication System (PECS). Justin was a 13-year-old boy diagnosed with PDD and ASD, and he communicated vocally. Josh was a 15-year-old boy diagnosed with ASD, and he communicated vocally. Casey was a 16-year-old girl diagnosed with ASD, and she communicated vocally. Pam was a 12-year-old girl diagnosed with ASD and Oppositional Defiant Disorder, and she communicated vocally. Gwen was a 16-year-old girl diagnosed with Smith-Magenis Syndrome, and she communicated vocally. Chris was a 15-year-old boy diagnosed with ASD, and he communicated vocally. All students were residential students (i.e., lived in group homes) except for Justin and Chris. All participants have some receptive and expressive language. Observations were conducted in a middle school classroom at the participant's school. The activities underway during observation included both academic work and leisure activities.

Response Measurement and Interobserver Agreement

Two categories of responses were measured: problem behavior and peer attention. Problem behavior included self injurious behavior (SIB), aggression, property destruction, and loud/inappropriate vocals. SIB was defined as any forceful contact between the student's hand and body or any instance of contact between student's body and environment from more than 10 centimeters. Aggression was defined as any instance of hitting, kicking, scratching, or pinching another individual. Property destruction was defined as any sweeping, kicking, or banging of materials not intended as part of their functional use. Loud/inappropriate vocals included any instance of yelling, screaming, or talking above conversation level (could be heard from more than 1.2 meters away) and any instance of cursing, bodily function conversation, or talking about inflicting harm on

another individual. Peer attention was categorized as either vocal or physical. Vocal forms of peer attention included reprimands (commands to cease behavior or indicating dislike for the target behavior), contingency statements (statements indicating a possible consequence for behavior), demands (a statement providing direction to complete a specified action), and questions regarding the behavior. Physical forms of attention included orienting (turning body or head 90 degrees to face target student, lifting chin 45 degrees if already facing student, pointing, gesturing towards student, or handing something to target student), laughing (audible laugh, snort, body shake, or shrug, covering mouth), clapping (hands come together with an audible sound), and touching (body-to-body contact between peer and target student). Observers' data were compared on an interval-by-interval basis and the total number of agreement intervals was divided by the total number of intervals. Interobserver agreement (IOA) was collected for 24% of observations. The mean IOA was 100% for Nathan and Casey and 98% (range 96-100%) for Scott, Andrew, Pam, and Josh. The mean IOA for Justin was 96% and for Chris was 99% (range 98-100%). IOA was not taken for Gwen due to her early removal from the classroom.

Procedures

Target students were seated facing their peers with the observer behind them. The observer was oriented so that all students were within sight. All observations were scored live using Instant Data on a laptop for 10 minutes. Data was collected across 60 partial intervals (10 seconds each). Observations were completed until five instances of problem behavior were observed per participants with a minimum of four observations. Observations were discontinued if no problem behavior was observed during eight 10-

min observations. During the study, Scott and Gwen were removed from the classroom that observations were being conducted due to problem behavior and therefore observations were discontinued after only four observations each.

Data Analysis

The conditional probability of peer attention was calculated by taking the number of intervals in which problem behavior occurred and peer attention followed in the same or following interval 10-s interval (totaling 20-s intervals), divided by the total number of intervals in which problem behavior occurred. The unconditional probability of peer attention was calculated by dividing the total number of 20-s intervals (in which peer attention occurred by the total number of 20-s intervals in the observation. To calculate the conditional probability of a specific topography of peer attention, the number of intervals that included the specific topography of peer attention was divided by the total intervals in which peer attention occurred. To calculate the conditional probability of a specific topography of problem behavior, the number of intervals with a specific topography of problem behavior followed by peer attention was divided by the total intervals of problem behavior.

Results

Peer attention in the absence of problem behavior was observed for eight of the nine participants (Figure 1). Problem behavior was observed for seven of the nine participants. For six of those seven, the conditional probability of peer attention was much higher than the unconditional probability. For the other participant, the conditional probability of peer attention was lower than the unconditional probability; however, only one interval with problem behavior was observed (Table 1). Only four topographies of

peer attention were observed following problem behavior (Figure 2). Orienting was the most common topography observed, followed by laughing, touching, and pointing. No other topographies of peer attention were observed. Four topographies of problem behavior were observed (Figure 3): property destruction, loud vocals, aggression, and SIB. The conditional probability of peer attention for loud/ inappropriate vocals and destruction were roughly equal and relatively high (0.83), whereas the probability of attention following aggression was lower (0.5). SIB was never followed by attention.

Discussion

The results of this study indicated that peer attention does occur amongst individuals with developmental disabilities. Further, peer attention appears to follow problem behavior on a somewhat frequent basis. The relative probabilities of peer attention and peer attention following problem behavior suggest that problem behavior increases the likelihood that peer attention will occur, and provide tentative evidence towards a possible relation. The setting in which these observations were conducted may limit the generality of these results to other environments that are not as structured. It would be interesting to see if the prevalence of peer attention is similar across other environments that peers are present.

The most common topography of peer attention was orienting. The other topographies observed were laughing, touching, and pointing. No vocal topographies of peer attention were observed. It is possible that this finding could be related to language and social skills deficits characteristic of those diagnosed with autism. However, it is important to note that all participants did have a vocal communication repertoire, so one might have expected some vocal forms of attention. It is also possible that vocal

topographies of attention were not observed because these types of responses (vocal attention for peers' problem behavior) were targeted in the peer's behavior program. For example, some students' programs reflected that they earned tokens for having a quiet voice in general, while other students had a program to target "minding their own business".

All topographies of problem behavior targeted were observed; however, not all were followed by peer attention. The topographies of problem behavior most likely to be followed by peer attention were loud vocals and destruction, followed by aggression. SIB was never followed by peer attention. It is possible that loud vocals and destruction were more likely to be followed by peer attention because these responses are more salient – louder, more disruptive, or more highly visible to the peers. The instances of aggression observed in the current study may have been less salient, as they were hits that occurred under the table and may not have been visible to others. The SIB observed was discrete and not as disruptive as the other problem behaviors observed. It would have been interesting to have gained information on the function of the target student's behavior, as it would allow you to make some guesses as to whether peer attention might have functioned as a reinforcer.

Peer attention was a fairly common consequence for problem behavior. This suggests it may play a role in maintaining some problem behavior. This information might inform future experimental research using peer attention as a consequence. If researchers are unsuccessful at getting differentiated results in an FA, it may be useful to do an attention assessment including a peer attention condition. The most common topography of peer attention following problem behavior was orienting. No reprimands

or vocal forms of attention were observed. Typically in an FA, the topography of peer attention being delivered is a reprimand. It may be important to identify the topography of attention occurring in the natural environment and include an FA condition with that topography as the consequence. Also, if a treatment is not effective in the natural environment it may be necessary to look into the role of peer attention and include it in your treatment.

References

- Broussard, C. & Northup, J. (1997). The use of functional analysis to develop peer interventions for disruptive classroom behavior. *School Psychology Quarterly, 12*, 65-76.
- Fischer, W. W., Ninness, H. A. C., Piazza, C. C., & Owen-DeSchryver, J. S. (1996). On the reinforcing effects of the content of verbal attention. *Journal of Applied Behavior Analysis, 29*, 235-238.
- Flood, W. A., Wilder, D. A., Flood, A. L., & Masuda, A. (2002) Peer-mediated reinforcement plus prompting as treatment for off-task behavior in children with attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis, 35*, 199-204.
- Iwata, B. A., Dorsey, M. F., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1994). Toward a functional analysis of self-injury. *Journal of Applied Behavior Analysis, 27*, 197-209.
- Jones, K. M., Drew, H. A., & Weber, N. L. (2000). Noncontingent peer attention as treatment for disruptive classroom behavior. *Journal of Applied Behavior Analysis, 33*, 343-346.
- Kodak, T., Northup, J., & Kelley, M. E. (2007). An evaluation of the type of attention that maintain problem behavior. *Journal of Applied Behavior Analysis, 40*, 167-171.
- McKerchar, P. M. & Thompson, R. H. (2004). A descriptive analysis of potential reinforcement contingencies in the preschool classroom. *Journal of Applied Behavior Analysis, 37*, 431-444.

Northup, J., Broussard, C., Jones, K., George, T., Vollmer, T. R., & Herring, M. (1995).

The differential effects of teacher and peer attention on the disruptive classroom behavior of three children with a diagnosis of attention deficit hyperactivity disorder. *Journal of Applied Behavior Analysis, 28*, 227-228.

Northup, J., Jones, K., Broussard, C., DiGiovanni, G., Herring, M., Fusilier, I., &

Hanchev, A. (1997). A preliminary analysis of interactive effects between common classroom contingencies and methylphenidate. *Journal of Applied Behavior Analysis, 30*, 121-125.

Ringdahl, J. E. & Sellers, J. A. (2000). The effects of different adults as therapists during

functional analyses. *Journal of Applied Behavior Analysis, 33*, 247-250.

Roberts, K. & Sassi, J. (2010). *A descriptive assessment on the prevalence and*

qualitative characteristics of peer attention (Master's Thesis). Northeastern University, Boston, MA.

Thompson, R. H. & Iwata, B. A. (2001). A descriptive analysis of social consequences

following problem behavior. *Journal of Applied Behavior Analysis, 34*, 169-178.

Table 1
Comparison of participants' raw data from observations and IOA

Participants	# of Observations	# Intervals with Problem Behavior	# Intervals with Attention after Problem Behavior	# Observations with IOA	IOA
Scott	4	1	0	1	98%
Andrew	3	9	6	1	98%
Gwen	4	3	2	N/A	N/A
Nathan	8	0	N/A	1	100%
Casey	8	1	1	2	100%
Pam	8	3	2	2	98%
Josh	5	25	11	1	98%
Justin	7	6	4	1	96%
Chris	8	0	N/A	2	99%

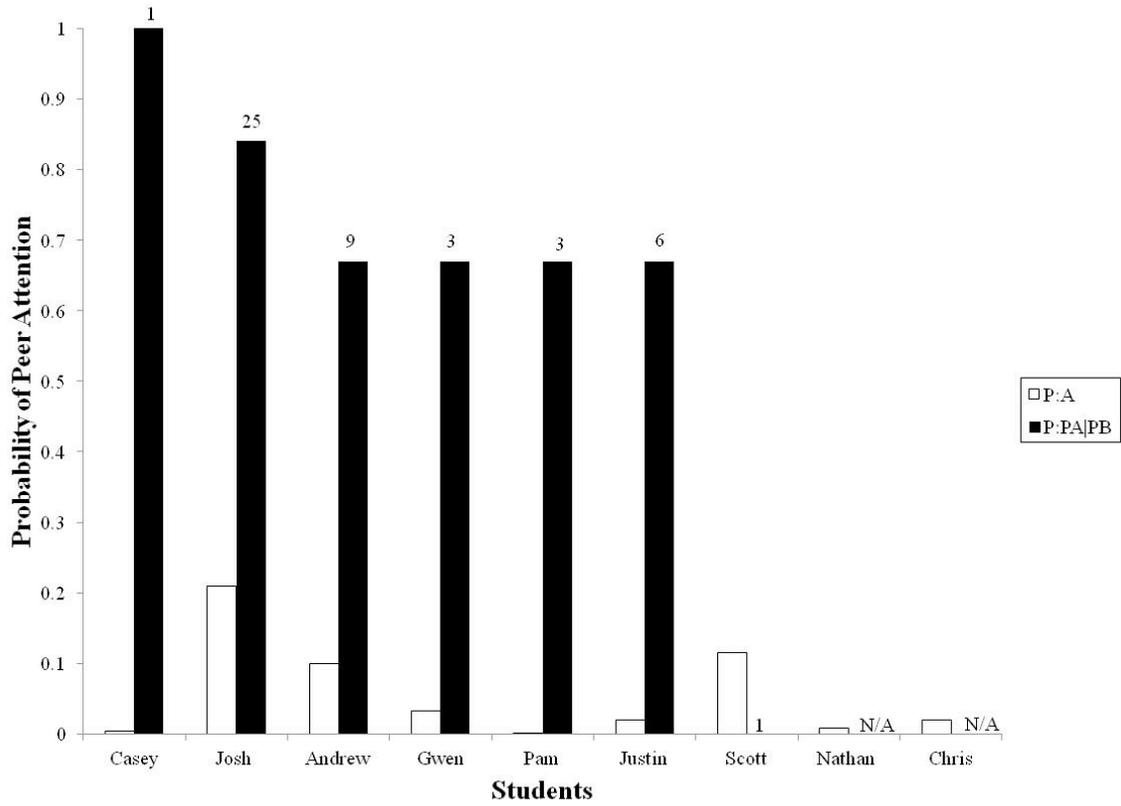


Figure 1. Conditional and unconditional probabilities of peer attention; numbers above bars indicate the number of intervals in which problem behavior was observed.

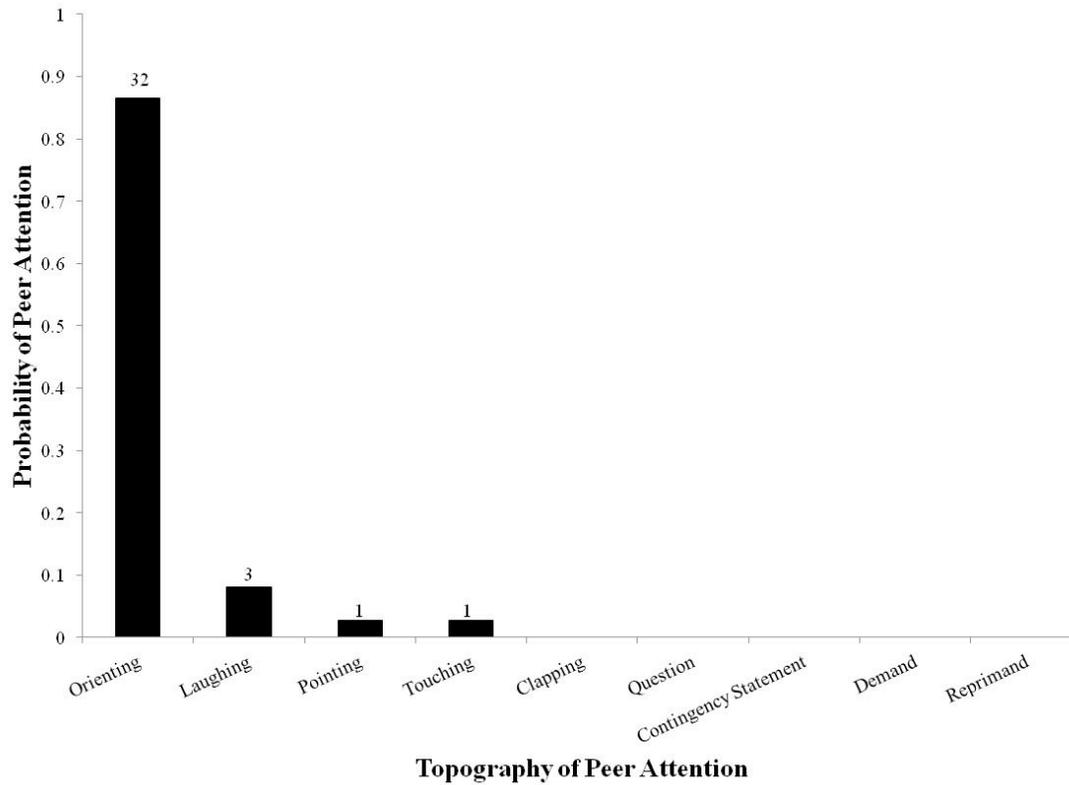


Figure 2. Probability of topography of peer attention following problem behavior; numbers above the bars indicate the number of intervals in which the topography of peer attention was observed.

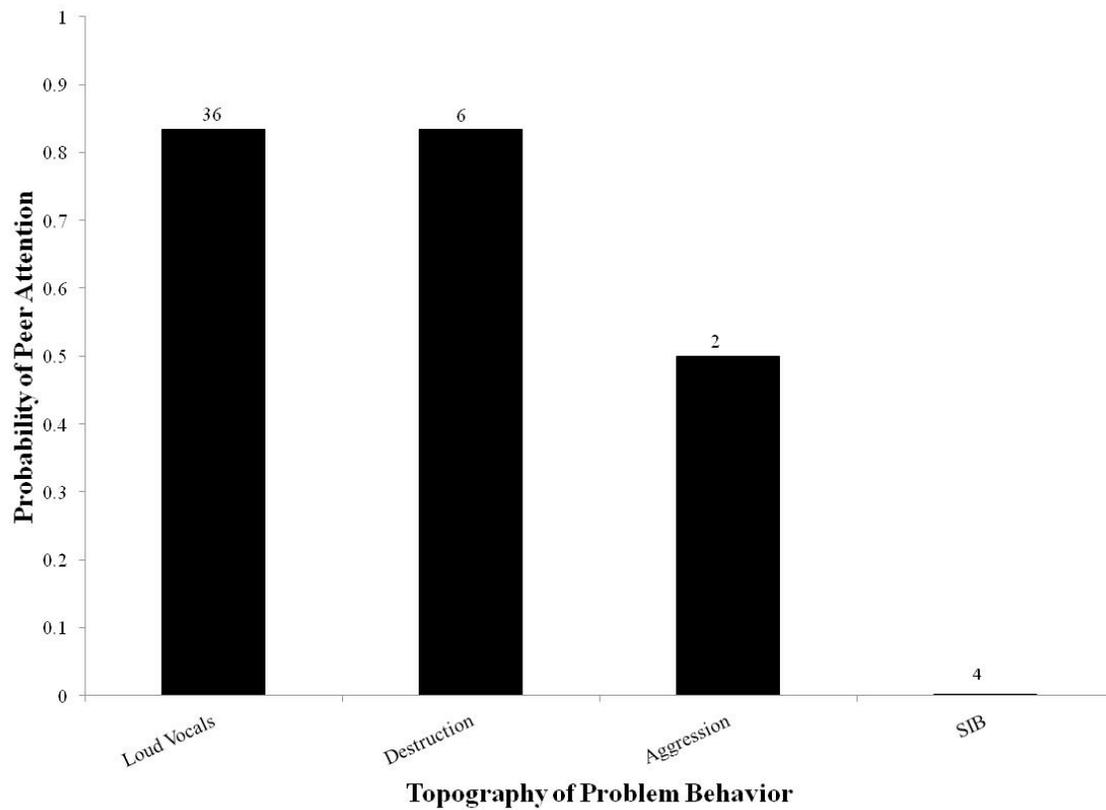


Figure 3. Probability of topography of problem behavior followed by peer attention; number above the bar indicate number of intervals in which problem behavior was observed.