

8-2012

Promoting Students' Social and Academic Success Through Teacher Praise

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**PROMOTING STUDENTS' SOCIAL AND ACADEMIC SUCCESS
THROUGH TEACHER PRAISE**

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A DISSERTATION

Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Psychology

(in School Psychology)

The University of Southern Maine

August 2012

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**PROMOTING STUDENTS' SOCIAL AND ACADEMIC SUCCESS
THROUGH TEACHER PRAISE**

By Rebekah S. Bickford, M.S.

Dissertation Advisor: Dr. Rachel Brown-Chidsey

An Abstract of the Dissertation Presented in Partial Fulfillment of the Requirements for
the

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(in School Psychology)

August 2012

Teachers' ratios of positive-to-negative interactions (praise ratios) have been shown to be responsive to instruction and feedback. Likewise, students have demonstrated improvements on multiple dimensions of academic and behavioral outcome measures as a result of increases in teachers' use of praise. The present study investigates the impact of motivational consultation combined with performance feedback and instruction on the praise ratios of teachers in a general education setting. This research examines the impact of increased praise ratios on the silent reading comprehension of students as measured by curriculum-based measures. The impact of increased praise ratios on students' subjective well-being at school is also examined. While teachers' praise ratios did not reach the goal of 5:1, students' scores on a measure of subjective well-being were significantly impacted by the gains that the teachers made.

ACKNOWLEDGEMENTS

I would like to thank Rachel Brown-Chidsey, my advisor and mentor, for shepherding me along every step of this winding path for the last five years. I am also grateful to Pat Red, my kindred spirit and guide, for letting me follow her, literally, into the world of PBIS. The time that I have spent with both of you has been too much fun to be considered work.

I am grateful to all of the members of my committee for their thoughtful feedback on this project. I would also like to thank Heather Alvarez for her support of my research and supervision of my internship. I offer many thanks to Courtney Bartlett, too, for finding the time to do classroom observations for my research. Thank you to the students, teachers, and administrators who allowed me to explore these questions.

Many members of my family have participated in this endeavor, and it has taken our collective effort to make it happen. I would like to extend my deepest gratitude to my parents, Jenny and James Willman, for their unwavering commitment to my education. I am indebted to Patrick and Maria Oncale for countless hours of fun and loving childcare, which have to allowed me time to study. I am grateful Sawyer and Phoebe for their sacrifice, patience, understanding, and ability to entertain themselves.

I could not have taken a single step on this path without the unwavering support of my loving husband, Mark, who did all of the cooking, all of the housework, and most of the parenting while I pursued this dream. Thank you.

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Promoting Students' Social and Academic Success Through Teacher Praise

Praise is an effective and free approach to changing students' academic and social behavior, but is generally underused, misused, and undervalued (Beaman & Wheldall, 2000; Flora, 2000; Sawka-Miller & Miller, 2007). This discrepancy provides a unique opportunity for educators charged with facilitating improvements in student outcomes. By learning how to praise effectively and how to increase and sustain their rates of praise, teachers can promote positive change in the social and academic engagement and performance of students (Chalk & Bizo, 2004; Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008; Sutherland, Wehby, & Copeland, 2000).

A growing body of evidence supports the importance of creating positive classroom environments (Sawka-Miller & Miller, 2007; Simonsen et al., 2008). Increased ratios of positive to negative interactions are associated with improvements in behavior, as well as academic outcomes (Sutherland et al., 2000). In fact, a convergence of evidence supports an ideal minimum ratio of 5:1 positive to negative interactions, which has been demonstrated in varied areas including marital relationships, parent-child relationships, juvenile justice institutions, effective workplaces, classrooms, and schools (Flora, 2000). Specifically, over more than two decades of research, Gottman and colleagues have found that stable marriages have a minimum ratio of 5:1 positive to negative interactions (Gottman, Coan, Carrere, & Swanson, 1998). Similarly, the seminal research on child development conducted by Hart and Risley (1995) found that the amount of praise that the children in their study received from parents was the strongest predictor of vocabulary and IQ gains, despite socioeconomic factors. Likewise, groundbreaking research by Fredrickson and Losada (2005) revealed that thriving

business teams have a minimum ratio of five positive interactions for every negative interaction. In contrast, lower ratios of positive to negative interactions in relationships and institutions have been associated with a variety of problems and poor outcomes for students (Jenson, Olympia, Farley, & Clark, 2004).

The impact of effective praise on social and academic outcomes is especially pertinent for students with emotional and behavioral disorders and developmental disabilities. While students with such designations show tremendous benefit with this intervention (Craft, Alber, & Heward, 1998; Madsen, Becker, & Thomas, 1968; Ollendick, Dailey, & Shapiro, 1983; Sutherland & Wehby, 2001; Sutherland et al., 2000; Sutherland, Wehby, & Yoder, 2002), they are far less likely to receive such praise from teachers (Dobbs & Arnold, 2009). In fact, an inverse relationship has been found between the level of need for praise among students with behavior problems, and their probability of receiving praise. Moreover, when teachers do use praise, it is far more likely to be for academic than social behavior, further reducing accessibility to praise for students with academic and behavior difficulties (Beaman & Wheldall, 2000; Chalk & Bizo, 2004).

Despite decades of evidence supporting praise as an effective intervention, there is little evidence of targeted use of praise in classrooms, and many educators are resistant to the intentional use of any type of reinforcement (Beaman & Wheldall, 2000; Cook, Landrum, Tankersley, & Kauffman, 2003; Maag, 2001; Madsen et al., 1968). A number of myths about the ill effects of reinforcement abound in education circles (e.g., Akin-Little & Little, 2004; Kohn, 1993), making the promotion of praise, and reinforcement more generally, challenging (Jenson et al., 2004; Sawka-Miller & Miller, 2007). Moreover, those teachers willing to use reinforcement often find it difficult to estimate

their own level of positivity, and even more difficult to change their own behavior so as to affect those ratios (Sawka-Miller & Miller, 2007; Sutherland & Wehby, 2001; Sutherland et al., 2000).

Literature Review

Praise is an intervention that can be used to improve student outcomes. The impact of praise on students can be thought of as falling into three broad categories: academics, behavior, and self-concept (Beaman & Wheldall, 2000; Moore Partin, Robertson, Maggin, Oliver, & Wehby, 2010; Sawka-Miller & Miller, 2007). Research has found numerous academic impacts for students with increased use of praise, including completion of more items and more accurate completion of work (Craft et al., 1998; Sutherland & Wehby, 2001). Students also have been found to have increased time on task, more attending behavior, more altruistic behavior, and less disruptive behavior (Chalk & Bizo, 2004; Simonsen et al., 2008; Sutherland et al., 2000). Furthermore, when praise is used effectively, students have been found to rate their own work more favorably, think of themselves more highly, and to be more motivated (Kamins & Dweck, 1999).

In addition, unlike some behavioral interventions that are better suited to specific populations, praise has been found to be effective in improving behavior across general and special education populations (Broden, Bruce, Mitchell, Carter, & Hall, 1970; Chalk & Bizo, 2004; Ferguson & Houghton, 1992). The extent to which praise has desired effects on behavior, however, is dependent on how it is applied (Chalk & Bizo, 2004; Kamins & Dweck, 1999). Praise is most effective when it includes specific information about the behavior that is being praised, comes soon after that behavior, and is focused on

process variables such as effort and perseverance. Praise does not benefit children when it is focused on person-centered variables such as intelligence or aptitude for a particular subject.

Given the mismatch between the research supporting praise and its application in classrooms, researchers have been searching for ways to determine what the barriers to the use of praise are, and how to help teachers overcome those barriers (Chalk & Bizo, 2004). The findings suggest that the promotion of effective praise is hampered by a number of misconceptions about the appropriate use of reinforcement by teachers (Madsen et al., 1968; Ollendick et al., 1983). One challenge is that, when praise is used, it tends to be given to students who have a pattern of doing what they are supposed to do in school (Dobbs & Arnold, 2009). Likewise, praise is given for academics more than social behaviors, which could leave out our most struggling students (Beaman & Wheldall, 2000). Another barrier is that schools and classrooms often have a preference for high intensity, low frequency approaches to acknowledgement, such as student of the day, week, or month, when research has found that students benefit most from more frequent acknowledgement (Diener & Lucas, 1999).

Perhaps most importantly, there is a myth that is commonly held in education circles that praising students could be harmful to those students. Specifically, many educators believe that using praise will undermine students' intrinsic motivation. This is a myth that has been perpetuated for a couple of decades, and which was popularized in Alfie Kohn's book, *Punished by Rewards* (Kohn, 1993). In fact, research has shown that praise, when used effectively, does not undermine intrinsic motivation, and that it

provides a means of reaching those students who need support with motivation the most (Akin-Little & Little, 2004).

In addition to the challenges presented by teachers' misconceptions about praise, efforts to increase praise in classrooms are also hindered by the challenges associated with behavior change (Hawkins & Heflin, 2011; Myers, Simonsen, & Sugai, 2011; Reinke, Lewis-Palmer, & Merrell, 2008; Sutherland & Wehby, 2001; Sutherland et al., 2000). Teachers must have information about their own use of praise, as well as information about how to use praise effectively. They also must be provided with effective strategies and supports toward changing their own behavior. Despite these challenges, strategies devised to teach teachers to praise effectively show promise.

The Effects of Praise with Varying Populations

Ferguson and Houghton (1992) studied the effects of three teacher's use of praise on the on-task behavior of 24 typically developing students. The teachers, all having seven or more years of experience, were first observed over a period ranging from two to four weeks in order to collect baseline data. They were then trained to deliver praise contingent on the on-task behavior of their students. The behaviors of the students and their teachers were then observed, with students observed for on-task behavior and teachers observed for positive and negative responses to students' academic and social behaviors. Teachers were found to increase their positive to negative interaction ratios following training. Correspondingly, with the exception of one student, the students in this study demonstrated increased levels of on-task behavior.

These findings correspond with earlier results of Broden, Mitchell, Carter, and Hall (1970) who studied the effects of teacher attention on the behavior of two boys

considered to have problem behavior. Both boys were said to be the most disruptive students in their low-SES 2nd grade classroom. After gathering baseline data on the attending behavior of the boys, the teacher received instruction in the use of positive reinforcement in the form of praise. The teacher was asked to deliver praise contingent upon attending behavior to one of the students for seven sessions, and then to do the same for the other student for seven sessions. Both boys showed significant increases in attending behavior during the teacher attention phase. In fact, each boy showed increased attending even when he was not the subject of the teacher's attention. Both boys also exhibited decreased attending when the teacher returned to the baseline phase of not praising attending behavior.

Craft, Alber, and Heward (1998) examined the effects of self-recruited teacher attention on the academic behavior of students as well as on the amount of praise delivered by a teacher. Four students, all of whom had developmental disabilities, were taught to periodically show their work to their teacher and ask how they were doing or point out that they were finished. The students were selected because they were performing below expectations on academic work in a general education setting. Two teachers participated: one general education teacher and one special education teacher. Training in self-recruitment of teacher attention was found to increase all four dependent measures; students recruited praise more frequently, they received praise more frequently, they completed more worksheet items, and their spelling assignments were completed with increased accuracy.

Sutherland and Wehby (2001) studied the effects of a self-evaluation intervention on teachers' rates of praise and students' correct response rates. Twenty-three teachers of

students with emotional and behavioral disorders participated in the study, along with 216 students with Individualized Education Programs (IEPs). The teachers were stratified by grade level, and then randomly assigned to treatment and non-treatment groups. The research was divided into three phases: pretreatment, treatment, and maintenance. The intervention involved audio recordings of teachers and students in the classroom during academic instruction. Teachers were asked to predict their rate of praise, and were then provided with the actual rate observed. They were then given examples of effective use of praise, trained to make audio recordings of themselves, and trained to code their recordings. The teachers were trained to a level of 90% inter-observer agreement with Sutherland. Teachers then listened to a sample of their own instructional behavior every day and determined their own rate of praise. The teachers were asked to set praise-rate goals, and to use self-praise following their daily evaluation. Finally, teachers were taught how to graph their own data.

Teachers in the treatment group showed dramatic increases in their use of praise during the treatment phase, whereas the rate of praise for teachers in the no-treatment group remained steady. A corresponding pattern was seen in students, with the students whose teachers were in the treatment group showing equal increases in mean correct responding per minute; the students whose teachers were in the non-treatment group showed a slight decline in mean correct responding per minute. The target behaviors of both the teachers in the treatment group and their students returned to baseline or near-baseline levels during the maintenance phase of the study.

Best Practices in Praise

Research has demonstrated that all praise is not equal; the dimensions of praise are as important as the strategy itself (Simonsen et al., 2008). Dimensions of praise that impact its effectiveness include whether it is contingent or non-contingent; specific or general; focused on things that are controllable or uncontrollable; and whether it is focused on the person, the outcome, or the process (Brophy, 1981; Chalk & Bizo, 2004; Kamins & Dweck, 1999).

Kamins and Dweck (1999) compared the effects of praising a child (person praise) with those of praising the child's effort (process praise) on children's future response to setbacks. Person praise was defined as any praise focused on a child as a whole or a child's global traits. Due to the global nature of person praise, it was hypothesized to lead to more helpless reactions in the face of challenge. Process praise, on the other hand, was defined as praise that is focused on a child's effort or use of strategies. The study also compared the effects of outcome praise, which encompassed praise that was focused on the quality of the attempt or product. It was hypothesized that children who received process praise would respond to setbacks with a greater sense of mastery than children who received person or outcome praise.

The study included 64 kindergartners, each of whom participated in four role-playing scenarios (Kamins & Dweck, 1999). The scenarios involved dolls representing the children and a teacher. The children pretended that they were working diligently to make or complete something, and that they were successful in their efforts. The four success scenarios were followed by praise feedback, with the children randomly assigned to one of the three conditions (person, process, or outcome praise). Between the third and

fourth scenarios, children were assessed using measures of perceived performance, affect, and self-assessment. Next, the children were exposed to two mistake scenarios in which the child-doll made a mistake and the teacher-doll made a statement about the mistake. Finally, the product rating, self-assessment, affect, persistence, and general beliefs of the students were measured.

Statistical analyses confirmed the authors' hypotheses, revealing significant differences between children exposed to person praise and those exposed to process praise on all of the dependent measures (Kamins & Dweck, 1999). Children who received person praise rated their product lower, had lower self-assessments, had more negative affect, demonstrated lower persistence, and were more likely to endorse beliefs associated with helplessness, than children who received process praise. Those children who received outcome praise fell between the other two groups on those measures, resulting in outcomes more similar to the person praise group on some measures and more similar to the process praise group on others.

Building on the work of Dweck and colleagues on the impact of praise on children's self-theories, motivation, and performance (for example, Dweck, 1999; Kamins & Dweck, 1999; Mueller & Dweck, 1998), Chalk and Bizo (2004) compared the effects of positive praise with those of specific praise on students' academic self-concept, self-rated enjoyment of numeracy, and on-task behavior. Both positive and specific praise were defined as positive, but specific praise was differentiated as focused on behavior, effort, or strategy. The authors hypothesized that students exposed to specific praise would be on-task more, enjoy numeracy more, and have greater improvements in their academic self-concepts than students receiving positive praise.

Four teachers and 109 students ages 8- and 9-years participated in the study (Chalk & Bizo, 2004). The study began with the collection of baseline data on the students' levels of on-task behavior. Teachers were then trained to give either positive praise or specific praise. Teachers in the positive praise pair were taught to praise social and academic behaviors, but were given no instruction on the particular content that the praise should include. Those in the specific praise pair were taught to provide informative and specific praise that was targeted toward students' effort and use of strategies. In addition to being observed, teachers tracked their own praise rates with a tally system. Teachers in both conditions increased their levels of praise according to both self-recording and observation measures (Chalk & Bizo, 2004). As would be expected, those teachers in the specific praise condition had much higher rates of specific praise than those in the positive praise condition.

While students exposed to both types of praise increased their levels of on-task behavior, only those increases reached in the specific praise condition were significant (Chalk & Bizo, 2004). Likewise, students in the specific praise condition showed a significant average increase in their academic self-concept, while those in the positive praise condition showed only a small increase. There was no difference, however, in the two groups' increase in numeracy enjoyment.

Myth and Misinformation in Classroom Management

Classrooms are complex environments that involve social relationships, instructional variables, scheduling and organization of the physical environment, and management of students. A number of myths abound about effective ways to manage student behavior within classrooms. Many teachers believe that having classroom rules

should be sufficient in managing student behavior (Madsen et al., 1968). Others attempt to manage the problem behavior of some students by attending to the appropriate behavior of other students (Ollendick et al., 1983). Still others contend that reinforcement should be avoided altogether, lest we risk undermining the intrinsic motivation of those students who are believed to have it (Akin-Little & Little, 2004).

In one of the earliest investigations of teacher praise, Madsen, Becker, and Thomas (1968) examined the effects of teaching teachers how to employ behavioral principles on the behavior of teachers and students. This study compared the effects of having rules with the effects of pairing classroom rules with planned ignoring and praise. Two general education teachers participated in the study, one a kindergarten teacher and the other a second grade teacher. Following the collection of baseline data, both teachers attended a workshop on applying basic principles of behavior. Along with their teachers, two students from one classroom and one student from the other participated in the study. All three students were chosen because they were considered to have problem behavior.

The students were rated by observers according to a list of appropriate and inappropriate behaviors. Teacher behavior was observed in relation to student behavior. The behavior of the teachers was categorized as approval following appropriate behavior, approval following inappropriate behavior, disapproval following appropriate behavior, disapproval following inappropriate behavior, timeout procedures, and academic recognition. The classrooms were subjected to a multiple-baseline across conditions method with reversal. Baseline data collection was followed by a rules only condition, a rules plus ignoring condition, and then a rules plus ignoring and praise condition. The

classrooms were returned to baseline, and then once again to rules plus ignoring and praise.

In both classrooms, rules alone did not improve the level of problem behavior seen in the identified students. The level of problem behaviors for all three students increased in the rules plus ignoring condition. The level of problem behavior decreased significantly, though, when praise was added to the intervention. The reversal design affirmed the findings, with problem behaviors increasing with return to baseline, and then dropping off again with return to rules plus ignoring and praise.

Ollendick, Dailey, and Shapiro (1983) examined the effect of vicarious reinforcement on the behavior of 48 4- and 5-year old students, who were randomly assigned to same-sex pairs. A student in each pair was randomly assigned to receive direct praise. The partners were further divided, with half receiving no praise, and the other half receiving praise on an intermittent schedule. The pairs of students were presented with puzzles over three sessions of ten 1-minute trials. Students were praised, not praised, or intermittently praised after each trial, according to their assigned condition.

Students were evaluated based on their puzzle performance. When compared with students receiving praise, the performance of students receiving no praise was comparable on the first two trials of the first session. The no-praise students' performance was significantly below that of their partners for most of the remaining trials of the first session. During the second session, the two groups of students began on a par. Interestingly, those students in the no-praise condition then significantly out-performed their praised counterparts for one trial, and then dropped off to a level significantly below

that of their partners. Finally, the third session saw a consistent and significant difference in the performances of the two groups, with the praised students significantly outperforming both their partners and their own prior performances. Thus, while vicarious reinforcement appeared to be in effect for the no-praise students initially, the effect was not sustained.

The researchers then compared the effect of providing consistent and intermittent praise (Ollendick et al., 1983). During the first session, the mean performance of the intermittently praised students was significantly higher than that of the consistently praised students. The intermittently praised students continued to outperform their partners in the second and third sessions, though not at a significant level. This finding suggests that intermittent praise can be at least as effective in promoting student success as continuous praise.

Improving Teacher and Student Outcomes Through Consultation

Given the demonstrated effectiveness of praise in improving student outcomes, the question becomes one of how best to support teachers in implementing and sustaining increased use of praise. Just as adopting and posting rules is not effective in improving students' behavior (Madsen et al., 1968), asking teachers to implement any practice – and even providing professional development toward that end – is not likely to result in the desired outcome (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). In fact, teachers, like their students, are more likely to be successful with behavior changes when provided with ongoing support.

For more than half a century, consultation has been recognized in the field of psychology as a means of providing services to clients indirectly by improving the skills

of individuals who work directly with those clients (Erchul & Martens, 2010). This triadic model of service delivery became increasingly important in school settings with the passage of legislation that required schools to educate students with disabilities, and to do so in least restrictive environments (the Education for All Handicapped Children Act of 1975 and subsequent Individuals with Disabilities Education Acts). With these changes, the role of school psychologists shifted from primarily one of evaluation to one that includes both direct intervention with students and indirect intervention on behalf of students through consultation with their teachers (Fagan & Wise, 2000). This shift was necessitated by a growing recognition that, in order to have the greatest impact on the greatest number of students, school psychologists must provide their services to students indirectly by shifting their focus to increasing the skills of teachers (Noell, Witt, Gilbertson, Ranier, & Freeland, 1997).

Consultation has been shown to be an effective means of supporting behavior change in consultees, as well as in improving the ecologies of the systems in which they work (Sheridan, Welch, & Orme, 1996). Consultation is most effective when it occurs within the context of a collaborative relationship (Zins & Erchul, 2002). In addition, effective consultation employs a problem-solving process that includes defining and analyzing the problem, collaboratively exploring intervention options and selecting an intervention, specifying the procedures for implementation, and delineating responsibilities for those procedures. The chosen intervention is then implemented and evaluated for effectiveness. Finally, the consultant follows-up with the consultee to assess maintenance of the intervention and make adjustments if necessary.

Sutherland, Wehby, and Copeland (2000) investigated the effects of an intervention geared toward improving teachers' rates of behavior specific praise on a teachers' praise rates and nine students' on-task behavior. After the collection of baseline data, a special education teacher was provided with verbal feedback about his rate of behavior-specific praise as recorded by an observer during small group social skills instruction. The teacher was given examples of behavior-specific praise, and was told about the benefits of using behavior-specific praise to promote the on-task behavior of students. This feedback and training intervention was ongoing throughout the study. Meaningful improvements were seen in all three dependent measures: non-behavior-specific praise statements, behavior-specific praise statements, and percentage of on-task intervals for students. The intervention phase was followed by a withdrawal phase, during which all three measures dropped, but not to baseline levels. Improvements returned during a reintroduction phase.

Improving Implementation Fidelity Through Performance Feedback

In addition to consultation, performance feedback is a strategy that research has affirmed as effective in supporting change in teachers' intervention implementation (Noell et al., 2005). Performance feedback is a method of promoting implementation and maintenance of new behaviors by providing information or data about the recipient's behavior (Mortenson, 1998; Myers et al., 2011). When compared with other conditions intended to promote treatment implementation, such as brief weekly interviews and weekly interviews in which implementation commitment was emphasized, performance feedback has had the greatest impact (Noell et al., 2005). Performance feedback is typically verbal, visual, or both, and can include audio or video recordings (Keller,

Brady, & Taylor, 2005; Sutherland et al., 2000). In addition, performance feedback typically, though not always, occurs within the context of consultation (Reinke, Lewis-Palmer, & Martin, 2007). Finally, performance feedback can include praise for successful implementation of the targeted intervention (Cossairt, Hall, & Hopkins, 1973; Myers et al., 2011). Feedback may serve the function of providing information to prompt correct future behavior, and also the function of reinforcement to increase the likelihood of the response occurring in the future.

The effect of visual performance feedback (VPF) on teachers' use of behavior specific praise was examined by Reinke, Lewis-Palmer, and Martin (2007). Participants included three 3rd grade general education teachers who had been recommended by the building principal due to having students with challenging behavior in their classrooms. In addition, two students in each of their classrooms, who were identified as having problem behavior, were included in the study. Observation data included teachers' use of general praise, as well as their use of behavior specific praise for the academic engagement of the student-participants. Observation data were also collected for those students' disruptive behavior. In order to assess the impact of VPF specifically, VPF was provided daily, and in the absence of the individual consultation provided in other studies. Rather, teachers were provided with three 30-minute group consultations, which included training and support for the use of effective praise, but which did not include VPF.

The group consultation provided in this study had no meaningful effect on the teachers' use of praise (Reinke et al., 2007). The introduction of VPF resulted in an initial increase in the use of behavior specific praise with the target students, but that increase

was followed by a downward trend for two of the three teachers. Still, teachers' overall use of praise with their students as a whole increased slightly, as did their use of behavior specific praise. The disruptive behavior of students decreased during the intervention, including both target students and their classmates.

Hawkins and Heflin (2011) applied an innovative approach to providing teachers with performance feedback by including both visual performance feedback (VPF) and video self-modeling (VSM). Their research included three teachers of high school students with emotional/behavioral disorders, and was intended to help them improve their use of behavior specific praise statements (BSPS). The study employed a multiple-baseline across participants with embedded withdrawal design, followed by assessment for maintenance. Baseline data were used to determine a goal for each teacher. Intervention included brief feedback meetings, which comprised a brief description of behavior-specific praise, as well as both VPF and VSM. Intervention meetings continued until mastery was achieved, and was then withdrawn for five days. Intervention was reintroduced, and withdrawn a second time, with a maintenance probe occurring 10 days later. The results suggest that the combination of visual performance feedback and video self-modeling was successful in improving teachers' use of praise, though maintenance was mixed. The authors noted that video self-modeling was not a universally appealing intervention for teachers, with one teacher embracing the practice, one teacher rejecting it, and the third teacher finding it unpleasant to see herself on video.

Myers, Simonsen, and Sugai (2011) also employed both visual performance feedback and consultation in their effort to increase teachers' use of praise, and decrease students' time spent engaged in off-task and disruptive behavior. For this study, VPF was

applied within a multi-tiered system of support for teachers. Specifically, the principles of response-to-intervention (RTI), which have demonstrated effectiveness with students (Brown-Chidsey & Steege, 2010), were applied to the skill development of teachers. Just as it is used with students, this application of RTI comprised a universal system of support for all, targeted support for those still struggling, and individualized support for those with the greatest need.

Four special and general education middle school teachers in a school employing schoolwide positive behavior supports (SWPBS) participated in the study (Myers et al., 2011). Would-be teacher-participants self-nominated, and were selected for participation if they had received the SWPBS training offered in the school (the universal system of support), and they knew the expectations of the school and how to teach them to students. Baseline data on praise ratios and praise frequency confirmed the four participants as non-responders to the universal system and as good candidates for additional support. Teachers' specific, contingent praise, general praise, and negative interactions were targeted for improvement. Three students in each classroom were observed for academic engagement, off-task behavior, and disruptive behavior.

Criteria were developed for use in determining teachers' response to intervention (Myers et al., 2011). Secondary and tertiary levels of intervention represented increasing frequency and intensity of support, and were provided to the teachers as needed. The secondary-level intervention comprised brief consultation to introduce and provide the rationale for the use of specific, contingent praise; weekly VPF; and weekly contingent, behavior-specific praise for teachers' improved use of specific, contingent praise. At the tertiary-level, teachers received feedback after every observation in person and via email,

were provided with scripts and ideas for self-prompts, were provided with modeling of specific and contingent praise, and had the opportunity to discuss their feedback.

While two teachers responded to Tier 2 intervention, the other two required Tier 3 intervention (Myers et al., 2011). Though there were variations in patterns of response, all four teachers improved their use of praise in response to this continuum of support. Correspondingly, students' off-task and disruptive behavior declined. These findings lend support to the approach of providing multi-level systems of support for teachers who are in the process of adopting and implementing new practices, as well as additional support for VPF as an effective means of supporting behavior change in teachers.

Cultivating Praise Through Motivational Classroom Consultation and Performance Feedback

Renewed consideration of the most effective means of promoting change in adult behavior has spanned the fields of school psychology, clinical psychology, and public health over the last decade (Noell, 2008). Researchers across those disciplines have been engaged in an investigation of the factors that promote and impede successful intervention with adult clients. Factors such as the characteristics of the interventionist (Durantini, Albarracín, Mitchell, Earl, & Gillette, 2006), the characteristics of the intervention (Noell et al., 2005), and the process of change itself (Pantalon & Swanson, 2003) have been explored as possible contributors to client outcomes.

Motivational Interviewing. Motivational Interviewing (MI) is an approach to behavior change designed to overcome ambivalence and resistance to change (Miller & Rollnick, 2002). While developed as a means of promoting addiction recovery, the broader utility of the approach has been recognized and incorporated into change-

promoting practices with an array of populations, as well as in medical, mental health, and judicial settings. The critical features of MI include a sensitivity to and facilitation of the change process, and a spirit of collaboration. Practitioners of MI presume that clients possess the motivation and ability to change, and that such desire and potential can be evoked. Additionally, MI recognizes that the client has a right to and capacity for autonomy. In practice, motivational interviewing involves supporting the change process by employing four general principles: expressing empathy, developing discrepancy, rolling with resistance, and supporting self-efficacy. Together, these concepts allow practitioners to facilitate the change process while averting resistance.

Application of the MI approach in school settings is a recent development (Kaplan, Engle, Austin, & Wagner, 2011). Much like the uses of MI in other settings, MI initiatives in schools have been used with adolescents to address substance abuse, tobacco use, conduct, and academic performance. In addition, some effort has been made to teach the principles and practice of MI to secondary staff and students in an attempt to raise awareness and understanding of the process of change (Rae & Smith, 2009). Other efforts include specific application of MI in school mental health initiatives, including promoting parents' commitment to their children's treatment, improving parenting behavior, and improving the school adjustment of students with aggressive and antisocial behavior (Frey et al., 2011).

Classroom Check-Up. Reinke, Lewis-Palmer, and Merrell (2008) incorporated both performance feedback and motivational practices into their approach to teacher consultation titled The Classroom Check-Up (CCU). Participants included four general education teachers who had requested classroom management support, and their students.

Daily 10-minute observations were conducted to record the occurrences of teacher praise, teacher reprimands, and student disruption. Like Chalk and Bizo (2004), Reinke and colleagues assessed the impact of their intervention on both general praise and behavior specific praise.

The CCU intervention applied in this study comprised five steps: (1) an assessment of the classroom (a teacher interview, classroom ecology checklist, and classroom observations), (2) feedback to the teacher regarding the assessment findings, (3) collaborative development between the consultant and the teacher of a menu of classroom intervention options, (4) intervention selection by the teacher and intervention support by the consultant, and (5) self-monitoring of treatment integrity by the teacher (Reinke et al., 2008). In addition, daily visual performance feedback was provided to teachers in the form of a line graph depicting the observed rates of teacher praise and student disruption. Finally, teacher participants self-monitored their own treatment integrity.

A single-subject, multiple-baseline across classrooms design was employed in this study (Reinke et al., 2008). Teacher data and aggregated student data revealed higher rates of student disruption than rates of teacher praise across all four classrooms. There were no meaningful changes in this trend with the introduction of teacher self-monitoring of treatment integrity. The trend reversed across settings, however, during the visual performance feedback phase. As rates of teacher praise increased, rates of student disruption decreased, with praise rates ultimately exceeding rates of disruption. Moreover, despite the fact that teachers did not receive feedback regarding behavior specific praise *per se*, the effects of visual performance feedback for general praise

appear to have generalized such that behavior specific praise increased as a proportion of overall praise. Likewise, teachers' use of reprimands decreased during the visual performance feedback phase of the study.

Using Praise to Enhance Student Satisfaction

Teachers' use of praise has been shown to enhance students' school outcomes in multiple ways. Students have been observed to show academic (Craft et al., 1998; Ollendick et al., 1983; Sutherland & Wehby, 2001; Sutherland et al., 2000) as well as behavioral improvements (Broden et al., 1970; Chalk & Bizo, 2004; Ferguson & Houghton, 1992; Madsen et al., 1968) when praise is used intentionally. Less clear is how teacher praise affects students' general sense of subjective well-being, especially their satisfaction with school. Subjective well-being is a multidimensional construct that includes influences from all parts of a student's life: family, friends, self, living environment, and school (Huebner & Diener, 2008). School satisfaction is one dimension of subjective well-being and has been found to be distinct from overall life satisfaction (Park & Huebner, 2005). Prior studies have shown that student measures of subjective well-being have adequate reliability and validity for use in schools (Huebner & Diener, 2008). Moreover, multi-dimensional measures containing a school satisfaction subscale allow for the specific measurement of students' school satisfaction. An untested hypothesis is whether increased teacher praise results in greater student satisfaction with school.

Conclusion

Counter to common practice, the findings of Kamins and Dweck (1999) and Chalk and Bizo (2004) support the use of specific (or process) praise, rather than global

(or person) praise (Chalk & Bizo, 2004). The findings from the latter study demonstrated that teachers' praise levels were responsive to training. Similarly, the studies conducted by Sutherland, Wehby, and Copeland (2000) and Sutherland and Wehby (2001) support the use of training and feedback in the promotion of teacher praise. These findings suggest that teacher praise can impact students' academic and social behavior, but that more effort is needed to help teachers maintain their own behavior changes. Moreover, the teachers studied by Chalk and Bizo (2004) were far more likely to praise students for academic behaviors than for social behaviors, which is consistent with previous findings (Beaman & Wheldall, 2000).

The results of prior research are mixed regarding vicarious reinforcement. While Broden, et al. (1970) found some benefit, Ollendick, et al. (1983) found a negative impact. In fact, the results from the latter study suggested that students who were denied praise appeared to demonstrate an extinction burst, which was subsequently followed by greatly diminished effort, resembling what has come to be known as learned helplessness (Seligman & Weiss, 1980).

More recently, Hawkins and Heflin (2011) were successful in improving teachers' use of behavior specific praise by employing both visual performance feedback and video self-modeling. Some of the teachers did not like seeing themselves via video self-modeling, though, and they struggled to maintain the gains that they made during intervention. Myers, Simonsen, and Sugai (2011) were also successful in improving teachers' use of praise. The intervention for their study included consultation, visual performance feedback, and contingent praise, and was delivered according to a response to intervention continuum.

Reinke, Lewis-Palmer, and Martin (2007) were somewhat successful in their efforts to increase teachers' use of behavior specific praise. Their intervention was based primarily on visual performance feedback, and included group, but not individual, consultation. They found that visual performance feedback resulted in an initial increase in the use of behavior specific praise, but that increase was not sustained by two of the three teachers. Nevertheless, slight gains were made in overall use of praise and use of behavior specific praise.

Problem and Research Hypotheses

The goal of this study was to design an intervention that would take into account the benefits of, and barriers to, using praise, and that would support teachers in using praise in the most effective way. Although prior research has demonstrated that training and feedback can impact teachers' use of praise, as mentioned above two of the more compelling studies to date have focused exclusively on special educators (Sutherland & Wehby, 2001; Sutherland et al., 2000). Given the current efforts to move toward more responsive and preventative approaches (Brown-Chidsey & Steege, 2010), it is paramount that the effectiveness of strategies likely to promote improved academic and behavioral outcomes for students be assessed in the general education setting. Based on the robust results of research with special educators, it was hypothesized that general educators would also demonstrate improved positive-to-negative interaction ratios in response to training and feedback. Following training, and given consultation and visual performance feedback, it was anticipated that the teachers' praise ratios would reach 5:1, or on be a trajectory toward that optimal minimum ratio. Moreover, it was hypothesized that resulting increases in praise ratios would result in significant increases in students'

reading skills. Finally, it was hypothesized that measures of students' subjective well-being would reflect improved school satisfaction as a result of teachers' increased praise ratios.

Method

Participants and Setting

All of the general education teachers in a public elementary school comprised of grades 4 and 5 in the Northeast were invited to participate in the study. Eight of the ten teachers in the school volunteered, six teachers were randomly selected from the pool of volunteers, and five of those teachers selected participated in all phases of the study; the sixth teacher had scheduling constraints that prevented her from being available for participation as scheduled. The research was conducted with each participant in his or her respective classroom. The students in each of the participating classrooms constituted the student-participants.

Three of the participating teachers were tenured veterans, while two were in the beginning of their teaching careers. Four of the five teachers had classroom acknowledgement systems in place that were well-articulated and that they used frequently throughout the day. The fifth teacher had a system that was used infrequently. This teacher expressed concerns about students perceiving disparity in the presence of a frequently used acknowledgment system. Teacher demographics are displayed in Table 1.

Table 1

Teacher Demographics

Teacher	Total Years in Education	Years Teaching	Status	Grade Taught	Classroom Management System
A	4	1	Long-Term Substitute	4	yes
B	28	13	Tenured	4	yes
C	21	21	Tenured	4	yes
D	10	2	Probationary	5	no
E	25	25	Tenured	5	yes

Research Design

A mixed method design utilizing both single-subject and group comparisons was used to evaluate the effects of teacher praise on students' reading skills and self-ratings of school satisfaction. All study procedures were reviewed and approved by the University of Southern Maine Institutional Review Board (IRB) before data were collected.

Single Subject Comparisons. A multiple-baseline across participants component was used to assess the effects of the intervention on teachers' positive to negative interaction ratios. The eight teacher volunteers' names were recorded on slips of paper, and six were drawn at random to participate. Three 10-minute observations were conducted in each classroom to assess baseline levels of praise and negative interactions. The intervention then began with the teacher whose name was drawn first, while baseline observations continued for the remaining teachers. The intervention was initiated with four of the remaining teachers according to the relative stability of their data and school schedules.

Group Comparisons. A group component was used to assess the effects of positive to negative interaction ratios on students' subjective well-being and academic

outcomes. All students in grades 4 and 5 classrooms throughout the school completed reading and well-being measures before and after the intervention. Students' reading skills were measured with a pre- and post-intervention curriculum-based measure (CBM) of silent reading known as the maze task. Students' levels of subjective well-being were assessed using the Multidimensional Students' Life Satisfaction Scale (MSLSS; Huebner & Gilman, 2002; see Appendix A).

Intervention Procedure

The intervention employed a motivational interviewing model of consultation, and targeted increasing teachers' praise ratios. Specifically, this approach was inspired by the Classroom Check-Up (CCU) model (Reinke, Herman, & Sprick, 2011), with the addition of instruction in behavior specific, process praise, and specific targeting of that skill (Reid et al., 2003; Reinke, Herman, & Sprick, 2011). The first intervention component consisted of a classroom assessment. Assessment included a teacher interview, during which the teacher and consultant-researcher discussed the teacher's history, practices, management style, and goals for change. Concurrent with the teacher interviews, observations were conducted by two other observers (see below) to determine baseline interaction ratios.

During a second meeting with the teacher, the consultant provided a brief training that consisted of a review of the evidence in support of the use of behavior-specific praise and of a 5:1 positive to negative interaction ratio to improve students' academic and behavioral outcomes. This training included how to use praise effectively, with an emphasis on contingent, behavior-specific, process praise. The consultant also provided

feedback on the teacher's positive to negative interaction ratio observed during baseline observations.

Following training, the consultant and teacher discussed the positive-to-negative interaction goal of 5:1. A range of options for how to attain that goal (visual and auditory reminders, tracking systems, various methods of self-monitoring, etc.) were discussed collaboratively in terms of what would appeal to and be the best fit for the teacher. Each teacher then decided the course of action that he or she would take. Implementation began immediately following training. During implementation, the consultant met with the teacher twice weekly and provided implementation support, including problem-solving support and visual performance feedback based on observation data. Visual performance feedback comprised a graph that included the number of positive interactions, number of negative interactions, and positive to negative interaction ratio at each observation. Also included were the teacher's positive to negative interaction ratio average, and a line reflecting the goal of a 5:1 ratio. The graph was explained to teachers during the meeting in which it was initially introduced, and then reviewed with teachers during subsequent consultations. Classroom observations took place two to three times per week throughout the intervention period.

Operational definitions. General praise is defined as “a verbal statement or gesture that indicates approval of a desired behavior” without providing specific feedback about student behavior (Reinke et al., 2011, p. 92). Examples of general praise include thumbs-up and high-five, as well as statements such as: awesome, good job, excellent, nice work, thank you, and very good. Behavior specific praise is defined as any verbalization made by a teacher and directed toward a student or students that conveys

approval about a specific behavior, such as “Thank you for following directions.”

Negative statements are defined as any verbalization from a teacher to a student or students that conveys corrective feedback, a reprimand, or criticism, such as “Stop calling out,” or “How many times do I have to ask you to stop that?” Finally, neutral statements encompass all verbalizations from a teacher to a student or students that have neither negative nor positive valence, such as repetition of an answer, as well as “okay” or “please take your seats.”

Measurement and Interobserver Agreement

Assessment of positive to negative interaction ratios. Two to three 10-minute observations were conducted with each participant during each week of the study that followed his or her training, for a total of 21 sessions. Data were collected, and ratios calculated, using a data collection form designed for this purpose (see Appendix B; Sawka-Miller & Miller, 2007). The data were collected by count of general praise, specific praise, and negative statements. Ratios were calculated by comparing the total number of praise statements to the number of negative statements. The subsequent ratios were then graphed as a quotient of the number of positive statements per single negative statement.

A faculty member and a doctoral student in school psychology served as observers. The observers were trained to identify behavior-specific praise and negative statements. IOA was monitored throughout the study, with 30% of observations being completed independently by both observers. IOA was calculated by dividing the total number of agreements by the total number of agreements plus disagreements, and

multiplying by 100. The range of IOA for classroom observations of positive to negative interaction ratios was 25 – 100%, and the IOA average was 80%.

Assessment of reading skills. Prior to and at the conclusion of intervention, all students in grades 4 and 5 completed a silent reading assessment known as the maze task. AIMSWeb[®] Maze items designed for the respective grades were used (NCS Pearson, 2012). The maze task, which is considered a measure of reading comprehension, requires students to read silently for 3 minutes from a passage in which every seventh word has been deleted. In place of the deleted words are three word choices, and the student circles the correct word choice while reading. The resulting score is the number of correct words circled in 3 minutes. Prior research on the maze has revealed reliability estimates of .81, as well as strong predictive validity and sensitivity to growth (Brown-Chidsey, Davis, & Maya, 2003; Shin, Deno, & Espin, 2000).

Thirty percent of the maze tasks were co-scored to ensure scoring fidelity. As with the observations of positive to negative interaction ratios, IOA for the maze tasks was calculated by dividing the total number of agreements by the total number of agreements plus disagreements, and multiplying by 100. The IOA average for the maze tasks was 99%.

Assessment of subjective well-being. The MSLSS was used to measure subjective well-being, and was completed by all students in grades 4 and 5. This measure includes 40 items, which comprise 5 scales: family, friends, living environment, self, and school (Huebner, 1994). Prior research on this measure revealed that it has adequate reliability and validity measures, and that it accurately measures global life satisfaction as well as the five specific subdomains of subjective well-being (Huebner & Gilman, 2002).

Research has also demonstrated that the MSLSS is sensitive to changes in subjective well-being, and that it is suitable for research with students in grades 3 – 12. For this study, the school satisfaction scale was of specific interest, and the eight questions that comprise that scale were the only items scored (see Appendix A, items 3, 6, 9, 13, 20, 22, 25, and 26).

Informal assessment of social validity. Upon review of the research findings, it was determined that informal feedback from the teacher-participants could provide information about the acceptability of the intervention and determine areas for improvement and future research (Miramontes, Marchant, Heath, & Fischer, 2011). The participating teachers were asked to respond to questions about the praise study 7-weeks after final data collection. Five of the six teachers agreed to answer 10 questions, which were derived from measures of social validity used in prior research on teachers' use of praise (Hawkins & Heflin, 2011; Myers et al., 2011). This feedback was not part of the formal research study.

Results

Impact on Teachers

The findings of this research were expected to replicate previous research, which demonstrated that teachers' praise levels were responsive to training and feedback (Hawkins & Heflin, 2011; Myers et al., 2011; Reinke et al., 2008; Sutherland & Wehby, 2001; Sutherland et al., 2000). This study was intended to explore that principle within the general education setting using a relatively efficient intervention. The teachers who participated in this study were expected to have baseline praise ratios below the 5:1

quotient found to be most conducive to flourishing student-teacher relationships (Flora, 2000).

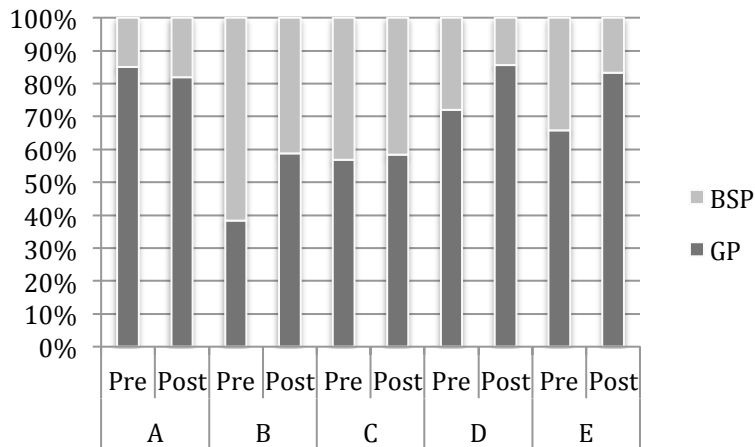
The results of teachers' baseline, intervention, and overall praise ratios are displayed in Table 2. All of the five teachers who participated in this study had variable praise ratios, both during baseline and during intervention. The teachers baseline praise ratios ranged from 1.2:1 to 5.4:1. Overall, three teachers showed a slight mean gain in their use of praise, while two teachers decreased their use of praise. A comparison of teachers' use of behavior specific praise and general praise is displayed in Figure 1. Overall, teachers did not increase their use of behavior specific praise in response to the training provided on that topic, and in some cases their use of behavior specific praise declined.

Table 2

Average Ratios at Baseline and During Intervention

	Classroom				
	A	B	C	D	E
Baseline Ratio	1.2:1	5.4:1	4.4:1	2.2:1	2.9:1
Intervention Ratio	3.5:1	2.7:1	2.2:1	2.7:1	3.7:1
Overall Praise Ratio	2.4:1	4:1	3.3:1	2.5:1	3.3:1
Pre/Post Difference	2.3:1	-2.7:1	-2.2:1	.5:1	.8:1

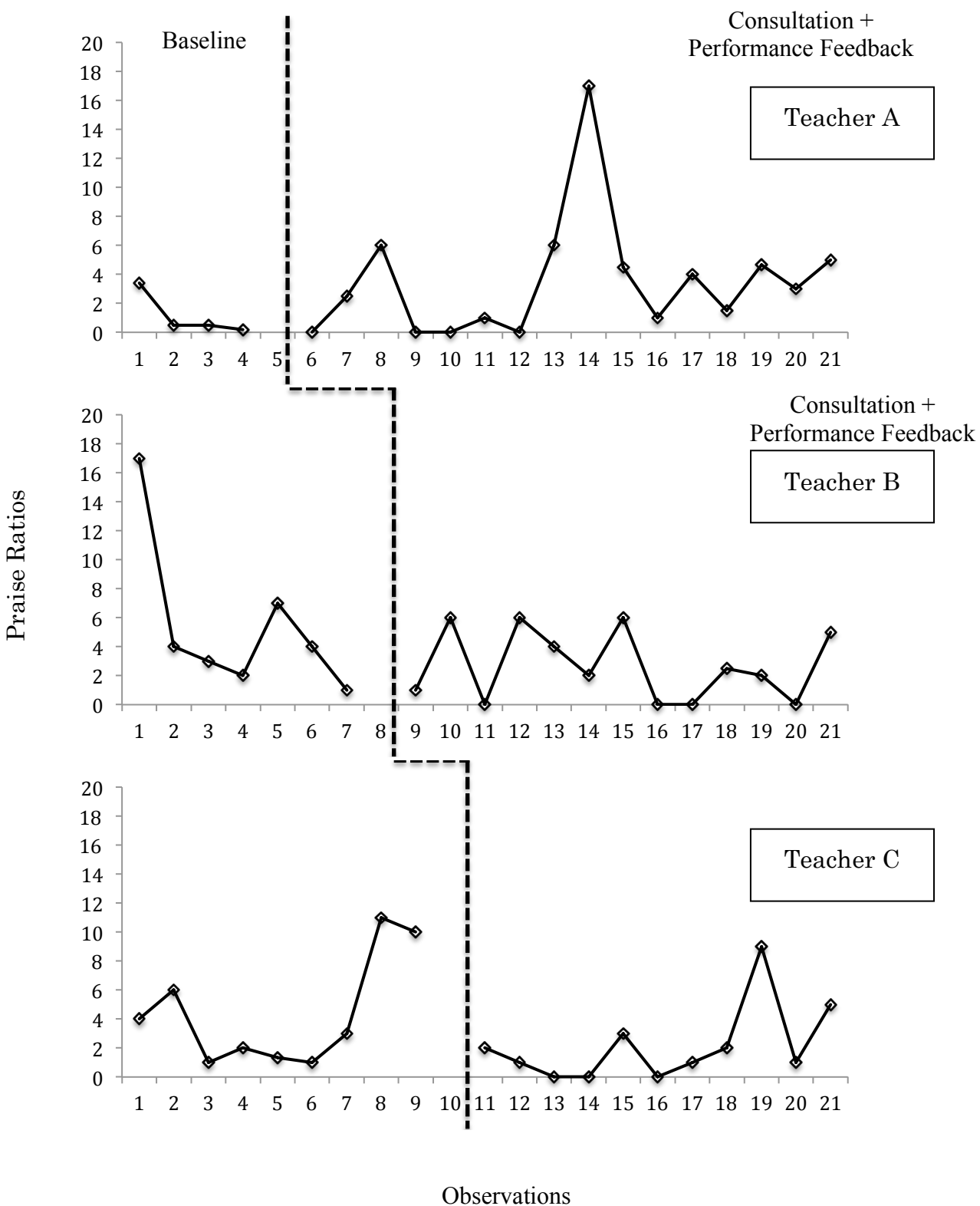
Figure 1. Teachers' use of behavior specific praise and general praise during baseline and consultation plus performance feedback conditions.

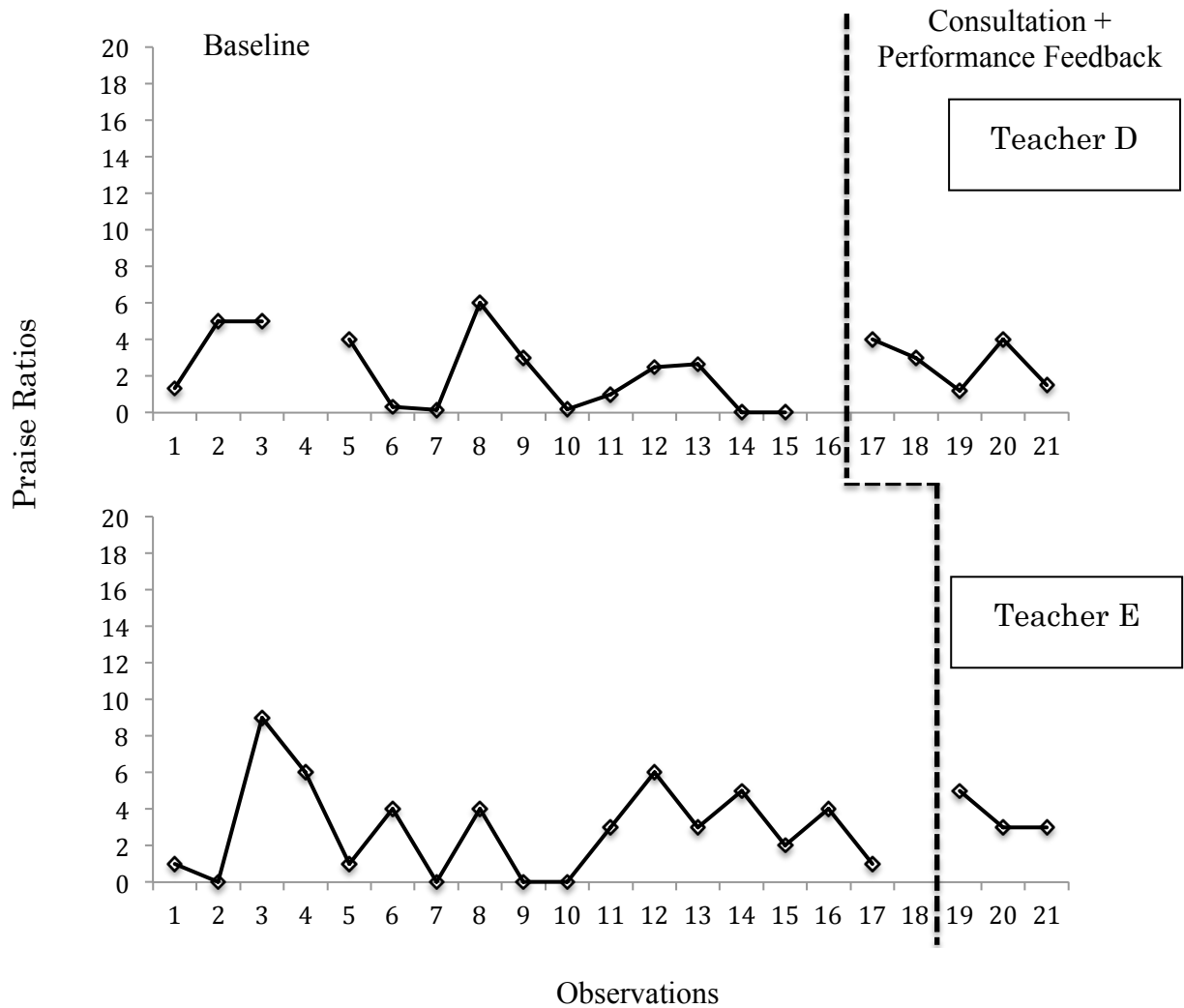


Teachers' baseline and intervention praise ratios are depicted in Figure 2.

Teacher A had a baseline praise ratio of 1.2, with 4 general praise statements for every behavior specific praise statement. Following initiation of the intervention, that ratio was generally increased but variable. While the percentage of non-overlapping data was just 44%, the average ratio increased to 3.5. During the initial interview, this teacher reported that she was having an exceptional year, as she had a “dream class.” Shortly after intervention began, a student was transferred into the class. Teacher A found his behavior difficult to manage, and believed that he upset the tranquil balance of the class. The precipitous drop in Teacher A's praise ratio followed this change, and also corresponded with a change in the observation schedule that resulted in observers visiting her classroom during non-instructional times. She reflected on this during a consultation meeting, and the observation schedule was adjusted to allow the observations to take place during instruction.

Figure 2. Praise ratios during baseline and consultation plus performance feedback conditions. Ratios are graphed as the quotient of the number of praise statements per negative statement.





Teacher B had an average baseline praise ratio of 5.4. She was observed to use a great deal of behavior specific praise, with an average of 3.7 behavior specific praise statements and 2.3 general praise statements per observation during baseline. Those numbers dropped to 1.4 and 2, respectively, during intervention. The praise ratio in this classroom was dropping just prior to the start of intervention, and coincided with a serious family medical emergency for the teacher. That emergency necessitated some absences, and Teacher B was upset that the students in Classroom B were not well-

behaved for their guest teacher (i.e., substitute). That situation was ongoing throughout the remainder of the study.

Teacher C had a baseline average praise ratio of 4.4, with a near-even balance of behavior specific and general praise. Teacher C was pleased to see her numbers during her initial performance feedback. Her average praise ratio dropped to 2.2 during intervention, which coincided with a scheduling change. She explained during subsequent consultation sessions that observations were taking place in her classroom during non-instructional times. Observation records confirmed that the scheduled observation period occurred primarily during low-interaction activities such as seatwork. Although it may not be possible to compare the baseline phase with the consultation plus performance feedback phase due to the confound of instructional and non instructional time, it is apparent that the ratio trend in the consultation plus feedback phase increased overtime. This suggests that the feedback may have had some effect when classroom structure was constant.

Teacher D had a baseline average praise ratio of 2.2, with 3 general praise statements for every behavior specific praise statement. During the initial interview at the start of intervention, Teacher D announced his resignation from his current teaching position, although he committed to remain in the study. When presented with a number of options for increasing his praise ratio, he explained that parents would call and complain if the students perceived any real or imagined discrepancy in the distribution of acknowledgement or praise in the classroom. As such, his stated goal was to just “keep things neutral.” Teacher D was offered a strategy for ensuring balance. Namely, he was encouraged to place a seating chart on a clipboard and record delivered praise, allowing

him to track and evenly distribute his praise. Teacher D did not adopt this strategy, but had a slightly increased average intervention praise ratio of 2.7 nevertheless.

Teacher E had an average baseline praise ratio of 2.9, with about 2 general praise statements for every behavior specific praise statement. She was excited to learn about the evidence in support of praise, and the effective use of behavior specific praise. Her use of behavior specific praise did not increase, but her average intervention praise ratio rose to 3.7.

Impact on Students

This study was also expected to demonstrate that increased teacher praise ratios can positively impact academic outcomes in general education settings. Specifically, it was anticipated that increased praise would result in a significant increase in students' silent reading scores as measured by maze passages for those students in the intervention classrooms. In addition, it was expected that student scores on the school scale of the MSLSS measure of subjective well-being would reveal improved satisfaction with school for those students in classrooms in which teacher praise ratios increased.

Despite the fact that the intervention did not produce the desired result in achieving teacher praise ratios of 5:1, the changes that were made by the teachers impacted students. When analyzed using repeated measures analysis of variance (RMANOVA), students' MSLSS school satisfaction scale scores were significantly higher post-intervention in classrooms in which teachers increased their use of praise. A lower-bound adjusted $F_{(1, 75)}$ of 11.7 was significant, with $p = .001$. Within-subjects contrasts revealed that students' scores were significantly higher post-intervention. In short, students' school satisfaction was increased in classrooms in which teachers

increased their use of praise. The results of the RMANOVA analysis are displayed in Table 3, and the pre- and post-intervention school satisfaction scale means, as compared with changes in classroom praise ratios, are displayed in Table 4.

Table 3

Summary of Repeated Measures Analysis of Variance for Students' School Satisfaction Scores Pre- and Post-Intervention

Source	df	F	Sig.
Teacher x SSS	1	11.7	.001
Error	75		

Table 4

Mean School Satisfaction Scale Scores Pre- and Post-Intervention as Compared with Changes in Praise Ratios

	Classroom				
	A	B	C	D	E
Pre-Intervention School Satisfaction	4.7	4.5	4.7	3.8	4.1
Post-Intervention School Satisfaction	5	4.6	4.9	4.1	4.0
Pre/Post Praise Ratio Difference	2.3:1	-2.7:1	-2.2:1	.5:1	.8:1

No significant changes were found for students' maze scores in response to teachers' increased use of praise. According the AIMSweb[®] National Norms Table (NCS Pearson, 2012), 4th graders would not be expected to have an increased score on the maze task between winter and spring benchmarking assessments, while 5th graders would be expected to show a gain of 3 words. The time between benchmarking assessments is typically 18 weeks, while the time between the pre- and post-assessments in this study was just 10 weeks. As such, the expected gains have been prorated such that 5th graders were expected to show a gain of 1.65.

Table 5 depicts the overall praise ratios, expected gains, actual gains, and differences in students' maze scores. Two of the five classrooms showed mean decreases in students' maze scores, while the other three showed gains. When actual gains were compared with expected gains, four of the five classrooms came up short. Just one classroom, Classroom D, exceeded expected gains.

Table 5

Mean Praise Ratios by Classroom and Mean Expected and Actual Gains on Maze Tasks

	Classroom				
	A	B	C	D	E
Overall Praise Ratio	2.4:1	4:1	3.3:1	2.5:1	3.3:1
Expected Maze Gain	0	1.65	0	0	1.65
Actual Maze Gain	-1.63	.98	-.67	1.61	.38
Expected/Actual Difference	-1.63	-.67	-.67	1.61	-1.27

Social Validity

Five of the six teachers who participated in the study provided informal feedback about the intervention. Table 6 represents the teachers' mean response to the feedback questions on a scale of 1 to 6, with 1 representing "strongly disagree" and 6 representing "strongly agree." The results of the feedback suggest that the teachers found the intervention to be socially valid. The five teachers who responded indicated that they believed that their students benefited from behavior-specific praise, and that their interactions with their students were improved when they used such praise. They stated that they would tell other teachers about behavior-specific praise, and that they would use it with students throughout the school. They further indicated that they enjoyed working on their use of praise, and that they would continue to use behavior-specific praise in the

future. The teachers who responded said that they would like their supervisor to give them behavior specific praise.

On the other hand, two of the teachers indicated that they were mildly averse to having observers in their classrooms, while two were mildly agreeable and one was moderately agreeable to the presence of the observers. Four of the five teachers indicated that they would not have preferred to track their use of behavior-specific praise themselves.

Table 6

Mean Teacher Feedback Responses

	<i>M</i>
I believe behavior-specific praise statements (BSPS) help the students in my class	5.4
Behavior-specific praise statements improve my interactions with my students	5.2
I would tell other teachers about using praise to assist them with student behaviors in their classes	4.4
I would use BSPS with other students in my school when appropriate”	5.2
I will continue to use BSPS in my class in the future	5.4
I liked working on my praise giving behavior	4.6
I liked it that another adult was noticing me giving my students praise	4
I would like my supervisor to give me BSPS	4.8
I would have preferred to keep track of my BSPS rather than have an observer record my praise statements	2.6
I enjoyed having two observers in my classroom	3.8

Note. Each feedback item had a scale of 1 to 6, with 1 representing “Strongly Disagree,” 2 representing “Moderately Disagree,” 3 representing “Mildly Disagree,” 4 representing “Mildly Agree,” 5 representing “Moderately Agree,” and 6 representing “Strongly Agree.”

Discussion

Prior studies have found praise to be an effective means of reducing students' off-task and disruptive behavior (Broden et al., 1970; Chalk & Bizo, 2004; Ferguson & Houghton, 1992; Myers et al., 2011; Reinke et al., 2008). Similarly, praise has been shown to positively impact students' academic performance (Craft et al., 1998; Sutherland & Wehby, 2001). Other research has found that effectively used praise can enhance the ways in which children think of themselves and their schoolwork (Chalk & Bizo, 2004; Dweck, 1999; Kamins & Dweck, 1999; Mueller & Dweck, 1998).

The findings to date on teacher praise suggest that it is an intervention that can be applied effectively across populations ranging from typically developing students to students with emotional and behavior disorders and developmental disabilities (Broden et al., 1970; Craft et al., 1998; Ferguson & Houghton, 1992). The research conducted by Ferguson and Houghton (1992) suggests that training can improve teachers' praise levels. Likewise, these findings demonstrate that the use of contingent praise can be an effective means of improving attending behavior in general education settings with typically developing students. The research conducted by Broden, et al. (1970) suggests that teacher praise can also be an effective means of improving the attending behavior of students with challenging behavior, and that failure to praise attending behavior could contribute to lack of attending. Moreover, the findings of Craft, et al. (1998), suggest that teaching students with the most need to self-recruit teacher praise can be an effective academic intervention.

The present study employed interventions similar to those used in more recent studies (Hawkins & Heflin, 2011; Myers et al., 2011; Reinke et al., 2008), but found only

a slight improvement in teachers' use of praise in response to training, visual performance feedback, and individual consultation. Unlike prior research, teachers' use of behavior specific praise in this study did not increase as a result of the intervention. Nevertheless, the teachers in this study found the intervention to be predominantly acceptable and socially valid. While they indicated that they did not fully enjoy having observers in their classrooms, it appears that, if given the choice between having observers collect data and collecting the data themselves, the teachers in this study preferred to have the data collected by observers.

The present study also attempted to replicate findings of improved academic performance by assessing students' responses to a curriculum-based measure of reading comprehension. In addition, this research sought to establish a connection between the evidence in support of a 5:1 positive to negative interaction ratio (Flora, 2000; Fredrickson & Losada, 2005; Gottman et al., 1998; Hart & Risley, 1995) and students' sense of subjective well-being at school (Huebner & Diener, 2008; Park & Huebner, 2005). Despite the fact that the intervention was not successful in bringing teachers' praise ratios up to 5:1, a significant relationship was found between increased use of praise and increased school satisfaction. Specifically, students' school satisfaction increased in classrooms in which teachers increased their use of praise.

The improvement in school satisfaction is notable, given the limited changes observed in the teachers' use of praise. While it must be interpreted cautiously, this result suggests that when teachers use more praise in the classroom, students respond and have a more positive school experience. This fits with prior research, which has found that relationships are stronger (Gottman et al., 1998), teams are more productive (Fredrickson

& Losada, 2005), and children flourish (Hart & Risley, 1995) with increased positive to negative interaction ratios. This finding also corresponds with the research on the characteristics of happy children, which has found that students who report greater happiness have better peer and teacher relationships (Huebner, 2010).

Nonetheless, students' maze scores were not impacted by the small praise ratio gains that their teachers made. There are a number of factors that could have influenced the study outcomes such that improvements in teachers' praise as well as students' academic skills were not observed. Specific variables that influence reading outcomes on the MAZE would include effective reading instruction and opportunity for reading practice. In addition, the milieu of the host district might have impeded the success of the study itself. Specifically, the district was subject to instability for a number of years. For example, teachers in the district were working without a contract for an extended period. Morale was impacted, and the teachers' union was reportedly discouraging teachers from doing anything beyond the minimum required of them. New leadership was put in place the same school year that the study was conducted, and the district was undergoing its first reduction in force. Teachers reported a collective level of tension as they awaited the results of the reduction, which was ongoing throughout the study. The two non-tenured teachers both expressed concern about the future of their jobs, with one teacher hopeful of remaining and the other choosing to resign to look for a position elsewhere.

This study had features that were notably different from prior research. For example, this study used intact general education classrooms as the unit of study. This is a major difference from earlier research that included primarily special education settings (Craft et al., 1998; Hawkins & Heflin, 2011; Sutherland & Wehby, 2001; Sutherland et

al., 2000), or targeted students who exhibited disruptive behavior (Broden et al., 1970; Madsen et al., 1968; Reinke et al., 2007). In special education classrooms, there are typically far fewer students, and teachers can attend to the needs of each student more often. By comparison, general classroom teachers must attend to numerous concurrent variables and student needs. It may be that the setting difference affected outcomes.

Another difference from some of the most recent research is that this study did not employ audio or video recordings as part of the method. In Hawkins and Heflin (2011) the researchers video recorded teachers' statements during instruction and coded them later. The present study used classroom observers to record praise statements. The observers reported that in some cases it was very difficult to hear everything that the teachers said due to background noise; such noise may have influenced differences in observed behaviors and the wide variability in IOA and overall observation accuracy. Hawkins and Heflin also used video modeling as a means of training the teachers to learn increased praise. This study did not use such direct means of showing the teachers how to praise students, or the distinction between general and specific praise. This, too, might have affected the results.

There were also logistical constraints that probably played a role in the present outcomes. There were a number of difficulties with observation scheduling, including conflicts between the constrictions of observers' schedules and the hectic and frequently changing classroom schedules of the participating teachers. This resulted in observations taking place in some classrooms during non-instructional, low-interaction times. Hectic classroom schedules and multiple demands on teachers' time also resulted in time constraints that impacted the intervention. Specifically, it was difficult for teachers to

make time in their schedules for the interview, initial training, and ongoing performance feedback. As a result, it is likely that each aspect of the intervention was too brief and too rushed to be maximally effective.

Limitations and Future Research

A number of limitations should be considered with regard to this study. In particular, several human variables that could not have been anticipated likely impacted the results of this study. As was described previously, two of the participating teachers experienced stress and absences related to family illness and emergency. A third teacher reported difficulties with students and their parents, which ultimately led to that teacher's resignation. A fourth teacher received a new student from another classroom whom she found particularly difficult and who, she believed, upset the balance of the classroom. The observers reported difficulties that likely impacted the data. Specifically, as noted above, observation data collection and IOA were likely compromised by the observers' difficulty hearing the teachers speaking due to the heaters used and the acoustics of the classrooms. It may be beneficial for future research to ask teachers what the barriers to successful praise of students at 5:1 ratios are. Intervention may then work to reduce these barriers.

In addition to asking teachers about the barriers to praise, it may be helpful to conduct a functional analysis of the teachers' behavior to better understand competing contingencies for providing high rates of praise. Specifically, it would be helpful to know the reinforcement and punishment contingencies that are governing teachers' interactions with their students. It is likely that teachers' probabilities of having positive interactions

and negative interactions with their students are impacted by the stimuli that they are experiencing.

The changes in students' satisfaction with school must be interpreted cautiously. The increased scores on the MSLSS could have resulted from practice or Hawthorne effects. The students knew that observers were in the room regularly and they may have expected something to change as a result. Replication of the MSLSS results is needed before the current findings are generalized as indicators of praise effects. The integrity of the maze task data was also potentially compromised due to leadership issues within the school district. Specifically, counter to AIMSweb[®] policy, district policy was to practice curriculum-based measures with the students prior to assessment. This district policy was unknown to the researcher until the initial administration of the maze task, during which students reported, "Oh, yeah, we've been practicing this." Further inquiry determined that teachers had been instructed to use the AIMSweb[®] progress monitoring measures as practice measures. Attempts to deter the school and district from this practice were unsuccessful.

Finally, it seems likely that the performance feedback graph provided to the teachers twice weekly contained too much information and was difficult for teachers to decipher. Specifically, the graph contained five lines: the number of positive interactions at each observation, the number of negative interactions at each observation, the positive to negative interaction ratio at each observation, the overall positive to negative interaction ratio average, and a line reflecting the goal of a 5:1 ratio. While the graph was explained to teachers when initially presented, near the end of the study a teacher who had been receiving visual performance feedback twice weekly for several weeks asked,

“What does all of this mean, anyway?” This suggests that teachers may not have received adequate initial training in understanding and using the visual performance feedback. To be effective, feedback must not only be timely (so that the next opportunity for a response can be effected by the feedback), it must also be presented in an understandable manner so that the teacher can be provided with a clear discriminative stimulus to guide responding.

In order to be effective, praise must be specific, contingent, and focused on the process rather than the person (Chalk & Bizo, 2004; Kamins & Dweck, 1999; Mueller & Dweck, 1998). While prior research supports teachers’ responsiveness to training and feedback, future research is needed to identify strategies that can efficiently and effectively support increased use and maintenance of praise by teachers. Ideally, praise promotion would not require the ongoing presence of observers and consultants from universities. Moreover, developing strategies that place minimal demands on teachers’ already full schedules is paramount.

Effective teaching of classroom expectations involves not just having expectations, but explaining them, modeling them, and allowing students to have the opportunity to practice them (Ern, 2007). Furthermore, just as one would provide feedback to students when teaching academic material, feedback is essential to teaching appropriate behavior (Nelson, Martella, & Galand, 1998). In that spirit, future research should consider the role of a direct behavioral consultation model, which could include in vivo instruction, modeling, practice, and feedback in support of behavior change in teachers (Watson & Robinson, 1996). Just as educators must provide instruction and feedback to students about how they are doing, consultants might need to provide in vivo

instruction and feedback to teachers about how they are doing with the adoption and implementation of a new skill set. Finally, best practice in instruction necessitates that educators adjust their approach to teaching based on how students are responding (Brown-Chidsey & Steege, 2010), and it is likely that consultants need to do the same (Myers et al., 2011).

Future research should also assess strategies for promoting the maintenance of improved praise rates among teachers. It will be important to devise methods for teachers to remember to praise and to assess their own ratios. Possible reminders might include a frequent sound or vibratory cue such as a digital application or MotivAider™. Visual cues could include small, numerous signs around the room with a word or symbol that would remind the teacher to praise students. Ratios could be self-monitored by teachers in a number of ways. Teachers could use golf counters to track positive and negative statements. Alternatively, they could record an hour of their teaching each day and listen to a random 10-minute portion of the tape, coding positive and negative interactions according to the data collection sheet used for this study (Appendix B). Teachers could then use a self-graphing form to track their progress. The need for ongoing feedback could also be assessed. One of the teachers regularly used an Apple iPad® in the classroom for various tasks; applications that support teachers in using praise effectively would appear to be another possible use for such devices.

Finally, future research should explore the possible relationships between classroom praise ratios, students' reading performance, and students' schools satisfaction. Specifically, research should consider the possibility that reading performance is

predictive of school satisfaction, and that classroom praise ratios may act as a buffer between students' reading performance and school satisfaction.

Summary

Numerous studies have shown teachers' ratios of positive-to-negative interactions to be amenable to instruction and feedback. The present study examined a relatively efficient intervention that included a motivational approach to consultation, combined with instruction and performance feedback. The teachers in this study showed slight gains in their praise ratios, though their use of behavior specific praise did not increase. Prior research has also found that students have demonstrated improvements on multiple dimensions of academic and behavioral outcome measures as a result of increases in teachers' use of praise. This study investigated the impact of increased teacher praise ratios on the reading comprehension and school satisfaction of their students. While the silent reading comprehension of students as measured by curriculum-based measures was not impacted by increased praise ratios in their classrooms, students' scores on a measure of subjective well-being were significantly impacted by the gains that the teachers made. This finding suggests that there may be a relationship between the praise ratios in classrooms and students' sense of well-being regarding school.

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Appendix A: Multidimensional Students' Life Satisfaction Scale (MSLSS)

We would like to know what thoughts about life you've had during the past several weeks. Think about how you spend each day and night and then think about how your life has been during most of this time. Here are some questions that ask you to indicate your satisfaction with life. Circle the number (from 1 to 6) next to each statement that indicates the extent to which you agree or disagree with each statement. It is important to know what you **REALLY** think, so please answer the question the way you really feel, not how you think you should. This is **NOT** a test. There are **NO** right or wrong answers. Your answers will **NOT** affect your grades, and no one will be told your answers.

Circle **1** if you **STRONGLY DISAGREE** with the sentence

Circle **2** if you **MODERATELY DISAGREE** with the sentence

Circle **3** if you **MILDLY DISAGREE** with the sentence

Circle **4** if you **MILDLY AGREE** with the sentence

Circle **5** if you **MODERATELY AGREE** with the sentence

Circle **6** if you **STRONGLY AGREE** with the sentence

1. My friends are nice to me	1	2	3	4	5	6
2. I am fun to be around	1	2	3	4	5	6
3. I feel bad at school	1	2	3	4	5	6
4. I have a bad time with my friends	1	2	3	4	5	6
5. There are lots of things I can do well	1	2	3	4	5	6
6. I learn a lot at school	1	2	3	4	5	6
7. I like spending time with my parents	1	2	3	4	5	6
8. My family is better than most	1	2	3	4	5	6
9. There are many things about school I don't like	1	2	3	4	5	6
10. I think I am good looking	1	2	3	4	5	6
11. My friends are great	1	2	3	4	5	6
12. My friends will help me if I need it	1	2	3	4	5	6
13. I wish I didn't have to go to school	1	2	3	4	5	6
14. I like myself	1	2	3	4	5	6
15. There are lots of fun things to do where I live	1	2	3	4	5	6
16. My friends treat me well	1	2	3	4	5	6
17. Most people like me	1	2	3	4	5	6
18. I enjoy being at home with my family	1	2	3	4	5	6
19. My family gets along well together	1	2	3	4	5	6
20. I look forward to going to school	1	2	3	4	5	6
21. My parents treat me fairly	1	2	3	4	5	6

- Circle **1** if you **STONGLY DISAGREE** with the sentence
 Circle **2** if you **MODERATELY DISAGREE** with the sentence
 Circle **3** if you **MILDLY DISAGREE** with the sentence
 Circle **4** if you **MILDLY AGREE** with the sentence
 Circle **5** if you **MODERATELY AGREE** with the sentence
 Circle **6** if you **STRONGLY AGREE** with the sentence

22. I like being in school	1	2	3	4	5	6
23. My friends are mean to me	1	2	3	4	5	6
24. I wish I had different friends	1	2	3	4	5	6
25. School is interesting	1	2	3	4	5	6
26. I enjoy school activities	1	2	3	4	5	6
27. I wish I lived in a different house	1	2	3	4	5	6
28. Members of my family talk nicely to one another	1	2	3	4	5	6
29. I have a lot of fun with my friends	1	2	3	4	5	6
30. My parents and I do fun things together	1	2	3	4	5	6
31. I like my neighborhood	1	2	3	4	5	6
32. I wish I lived somewhere else	1	2	3	4	5	6
33. I am a nice person	1	2	3	4	5	6
34. This town is filled with mean people	1	2	3	4	5	6
35. I like to try new things	1	2	3	4	5	6
36. My family's house is nice	1	2	3	4	5	6
37. I like my neighbors	1	2	3	4	5	6
38. I have enough friends	1	2	3	4	5	6
39. I wish there were different people in my neighborhood	1	2	3	4	5	6
40. I like where I live	1	2	3	4	5	6

Appendix B: Positive to Negative Interaction Ratio Data Collection Form

Teacher: _____ Date: _____
 Observer: _____ Start/Stop time: _____
 Context: _____ Goal/Outcome: _____

		Tally Count		Phrases/Notes
		Academic	Behavior	
A. General Praise				<input type="checkbox"/> Awesome <input type="checkbox"/> Good job <input type="checkbox"/> Excellent <input type="checkbox"/> Nice work/Nice job <input type="checkbox"/> Nicely done <input type="checkbox"/> Thank you <input type="checkbox"/> Very good/Very nice
Subtotals:				
A. Total:				
B. Behavior-Specific Praise				
Subtotals:				
B. Total:				
C. Negative Statements				
Subtotals:				
C. Total:				

Praise ratio = (A + B) : C = ____ : ____

BIOGRAPHY OF THE AUTHOR

Rebekah Bickford was born in Richmond, Indiana, and received her high school diploma there. She earned a B.A. in Sociology from Mississippi State University, and an M.S. in Sociology from Iowa State University. Rebekah has provided professional development training in child and adolescent development, organizational and study skills for students, implementation of response to intervention, and classroom and school-wide positive behavioral interventions and supports (PBIS), throughout the state of Maine. She has participated in studies of school redistricting, as well as teachers' use of data obtained from curriculum-based measures. Her publications include an article about the impact of violent video games on children and adolescents, and public policy on that topic. Rebekah has taught a number of courses in individual, classroom, and school-wide positive behavioral interventions and supports as a Lecturer at the University of Southern Maine. Most recently, Rebekah has worked as a member of the clinical team at a day treatment center for youth with emotional and behavioral disorders, where she facilitated implementation of school-wide and classroom PBIS. She is a candidate for the Psy.D. degree in School Psychology from the University of Southern Maine in August, 2012.