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School-Home Performance Feedback with Home-Based Writing Activities: the Effects on Elementary Students' Writing Fluency

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Abstract

Parent involvement in education has been identified as influential in children's learning and associated with positive outcomes on students' academic and behavioral competency (Christenson, 2004; Doherty & Peskay, 1992; Henderson, 2007). Studies have suggested that parents and teachers prefer programs that utilize school-home feedback notes and provide parents with strategies for implementing educational activities at home (Gettinger & Guetschow, 1998). The current study examined the effects of combining school-home performance feedback with home-based writing activities on students' writing fluency in comparison to students who participated in a performance feedback intervention. A total of 101 third-grade students were randomly assigned to one of two conditions: (a) performance feedback (n = 52); or (b) school-home performance feedback with home-based writing (n = 49). Writing fluency growth, as measured by the number of correct writing sequences, was compared between conditions using multi-level linear modeling. Results indicated that all students demonstrated statistically significant gains in their writing fluency across time and across instructional placement criteria, with no statistically significant differences observed between conditions. School placement and initial level of writing fluency were identified as statistically significant predictors of change in students' writing fluency growth. Implications and future research directions for parent involvement interventions writing fluency are discussed.

SCHOOL-HOME PERFORMANCE FEEDBACK WITH HOME-BASED WRITING ACTIVITIES: THE EFFECTS ON ELEMENTARY STUDENTS' WRITING FLUENCY

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List of Illustrative Materials

School-Home Performance Feedback with Home-Based Writing Activities: The Effects on Elementary Students' Writing Fluency

In light of recent attention placed on the overall improvement of children's academic competence during the 2002 Multisite Conference on the Future of School Psychology (Dawson, Cummings, et al., 2003/2004), it is imperative to identify key factors that will augment students' success. Namely, strengthening parent involvement and family-school partnerships was identified as a priority in the field of school psychology (Sheridan & D'Amato, 2003). More recently, Henderson (2007) affirmed during the U.S. Senate Committee on Health, Education, Labor, and Pensions' No Child Left Behind Reauthorization Act that family involvement in children's education has an all-around positive impact on children's learning and social skills development. Similarly, a number of researchers (Christenson, 2004; Doherty & Peskay, 1992) have suggested that family involvement is influential in children's learning, establishing a need for families and schools to share responsibility in educating students. Most notably, in an effort to encourage and empower parents to pursue academic success with their children, the U.S. Department of Education (2008) issued the *Helping Your Child* series which provides parents with lessons, activities, and interventions to assist their child in learning across multiple skill areas (e.g., reading, science, mathematics). However, one academic skill area, written expression, was not mentioned in this publication, thus effectively limiting the dissemination of information on ways to involve parents and develop family-school partnerships in this academic domain.

For the purpose of the study, this literature review will begin with an overview of the current condition in the United States with respect to elementary-aged students' writing proficiency and provide a rationale for continued emphasis on developing and improving

interventions that target written expression. A primary focus of the literature review will be directed towards critically evaluating the research studies that have incorporated performance feedback techniques to improve children's writing fluency. Next, the literature review will provide an overview of parent involvement in education, explore the preferred methods for eliciting parent involvement in education, and critically examine the empirical literature base regarding two types of parent involvement techniques (i.e., school-home communication through school-home notes and home-based educational activities). Finally, the document will conclude by evaluating an empirical study that incorporates critical aspects of performance feedback through school-home notes with home-based educational activities as an intervention tool for improving elementary-aged students' writing fluency.

Current State of Affairs in Written Expression

Many studies have targeted improving children's reading, mathematics, and spelling performance via parent involvement initiatives (Atkenson & Forehand, 1979; Fan & Chen, 2001); however, considerably less attention has been placed on parent involvement methods to promote children's written language skills. Written language expression is considered a complex skill, involving the combination of many skill sets (i.e., handwriting, spelling, grammar, punctuation, and creativity) as well as more complicated cognitive functioning (i.e., translating ideas into written language) and executive functioning capabilities (i.e., attention, planning, revising, and self-regulation) (Berninger & Amtmann, 2003; Berninger et al., 2006; Shapiro, 2004). For the purposes of this paper, written language is defined as the ability to retrieve and organize orthographic symbols (i.e., producing letter forms) from memory and transcribe this information with automaticity (i.e., speed and accuracy), while abiding by spelling, punctuation, and grammar rules of the English language (Berninger et al., 2006).

However, based on these characterizations of successful written language skills, recent national reports indicated that students are not demonstrating appropriate written expression for their developmental level. Reports from the National Assessment of Educational Progress found that more than half of the school-aged children assessed in this nationally-representative sample of students attending public schools in the U.S. had not demonstrated mastery of writing skills considered fundamental for proficient work at a given grade (i.e., Proficient Achievement Level). Specifically, 72% of fourth-grade students (Persky, Daane, & Jin, 2003) and 67% of eighth-, and 76% of twelfth-grade students could not write at the Proficient Level for their grade level (Salahu-Din, Persky, & Miller, 2008). This implies that a very large percentage of students in the U.S. are experiencing difficulties with mechanics, use of sophisticated language, and elaboration in their written compositions.

The state of writing in the U.S. is even more concerning when proficiency in children's writing skills is broken down across a number of key demographic variables. For example, among fourth-grade students, 88% of the elementary-aged children eligible for free and/or reduced price lunch could not write at the Proficient Level (Persky et al., 2003). In addition, 86% of Black children, 83% of Hispanic children, and 86% of American Indian/Alaska Native children were not performing at or above the proficiency (Persky et al., 2003). Considerably lower percentages were reported among White children (67%) and Asian/Pacific Islander children (59%) (Persky et al., 2003). Needless to say, these percentages do not reflect acceptable demonstrations of written expression skills and further substantiate national policy reports on the condition of writing in U.S. public schools, wherein writing has been characterized as 'the neglected R' (National Commission on Writing, 2006). Educational scholars (Graham, MacArthur, & Fitzgerald, 2007) and national groups (National Commission on Writing, 2006)

have emphasized the important role writing plays in communication, self-expression, and sharing knowledge. Therefore, it is critical that additional empirically-supported prevention, intervention, and professional development programs focus on improving students' writing skills.

Developing Writing Skills among Elementary-Aged Students

Several researchers have recommended specific instructional practices to stimulate the development of writing skills among elementary-age students (Abbott & Berninger, 1993; Berninger et al., 2006), with these practices largely based on theoretical and conceptual models of writing. The first model of writing, proposed by Hayes and Flower (1980), presented writing as a process comprised of three skills: (a) planning, (b) translating, and (c) reviewing the written composition. Accordingly, planning was considered an essential component which involves idea generation, thought organization, and goal setting prior to producing written text. The second component in this model, translation, was considered the process related to retrieving the orthographic representations of language from working memory and transposing that information onto paper. Finally, the third component, reviewing, involves the act of evaluating and revising the written text.

Berninger and colleagues (1992) further critiqued the Hayes and Flower (1980) model of writing and determined that while the Hayes and Flower model may be an appropriate conceptualization of written expression for adults, the model overlooks the developmental processes associated with writing in children. In particular, Berninger et al. (1992) argued that lower-level skills like rapid coding of orthographic information, speed of motor movement, and rapid production of alphabetic letters onto paper must be mastered before higher-level linguistic and cognitive processes may be targeted. The authors suggested that the translation processes

play a significant role in children's emergent writing skills such that if children have not mastered producing text, they will be unable to engage in higher-level processes like planning or reviewing. Thus, Berninger and colleagues (1992) proposed a theoretical framework that embraces the developmental process for young writers by building upon the translation component of the Hayes and Flower (1980) model. The authors reasoned that the translation process may be divided into two sub-component processes: (a) text generation, and (b) transcription. First, text generation was considered the sub-process that relates to the transfer of ideas into orthographic representations of language within working memory, whereas transcription involves the transfer of orthographic representations to motor output.

The aforementioned models of writing thus suggest that the early elementary school years should largely center writing instruction on handwriting development and transcription processes (Abbott & Berninger, 1993; Berninger et al., 2006). As previously suggested, students need to master these precursor transcription skills and demonstrate automaticity in producing written words in order to successfully learn other complex component skills of writing (e.g., grammar, sentence structure, revising). Furthermore, it is recommended that teachers continue to monitor students' transcription skills past the second grade to determine if later writing difficulties are stemming from orthographic skills that have not reached automaticity (Berninger & Amtmann, 2003). In other words, in order for students to reach a mastery level in their transcription skills, students need to acquire fluency in writing.

Writing fluency is defined as a quantitative measure of text production within a marked time frame (Shapiro, 2004) or rather automaticity and proficiency in transcription (Berninger et al., 2006). Many have suggested that writing fluency plays a fundamental role in the ability to develop complex written expression skills, as students must be able to generate text with

automaticity and proficiency in order to free cognitive faculties and burdens on working memory. Once fluency is achieved, the liberated cognitive resources may be applied to complex written expression skills, such as text generation and planning, spelling, and grammar (Abbott & Berninger, 1993; Chard, Vaughn, & Tyler, 2002). Martens et al. (2007) suggested that students who established fluency of component skills consequently acquired composite skill sets more rapidly. Therefore, it is especially important for students at the elementary age to build proficiency in the basic component skills (e.g., fluency) to allow for the development of these subsequent skills (e.g., grammar, organization, and spelling). Correspondingly, Eckert, Codding, Truckenmiller, and Rheinheimer (2009) recommended that students should receive practice in producing text and engage in fluency-building exercises in an effort to build a solid foundation in written composition skills. As a result, fluency-based interventions have been receiving increasing empirical attention for remediating students' basic academic skills (Chard, Vaughn, & Tyler, 2002; Daly, Martens, Hamler, Dool, & Eckert, 1999; Eckert et al., 2009). However, the literature base in evidence-supported methods for promoting writing fluency is rather limited, with the majority of studies examining the effectiveness of performance feedback interventions.

Performance Feedback Interventions

Performance feedback is the mechanism by which individuals receive information about the nature and/or the effects of their behavior (Solomon & Rosenberg, 1964). This process was first described by E.L. Thorndike (1931) as the law of effect, which postulated that individual learning depends on the effect of the response. More recent theoretical work has suggested that cognitive processing of the feedback information also plays a crucial role (Anderson, 1993). For example, when children are presented with instructional feedback, they process the feedback and utilize this information to direct their current and subsequent performance (Eckert, Lovett, et al.,

2006). Moreover, McCurdy, Skinner, Watson, and Shriver (2008) suggested that performance feedback and subsequent reinforcement (e.g., teacher attention) increases students' performance as it motivates students' demonstration of their skills.

Van Houten and colleagues produced seminal research on performance feedback interventions within the school setting. They utilized performance feedback interventions as part of a larger, or packaged, group of interventions, including public posting, explicit timing of educational activities, tangible rewards, and self-scoring, to increase students' academic performance and behavioral compliance. In the domain of writing fluency, Van Houten and colleagues conducted three studies (Van Houten, 1979; Van Houten, Hill, & Parsons, 1975; Van Houten, Morrison, Jarvis, & McDonald, 1974) utilizing performance feedback methods (i.e., students counted their total words produced and the figure was graphed on a publicly posted chart). All three studies resulted in improvements in students' writing fluency and provided evidence of the practicality of the procedures in that teachers could easily implement the intervention in their classrooms.

More recently, McCurdy et al. (2008) evaluated the use of individual performance feedback within a comprehensive writing program. Three special education classrooms containing ninth-grade students diagnosed with learning disabilities participated in the study. The effects of the program were measured across three writing outcomes: (a) the percentage of complete sentences; (b) the percentage of sentences with adjectives; and (c) the percentage of compound sentences. The investigators chose to utilize a multiple-baseline design across academic skills including three phases: (a) baseline, (b) intervention with targeted writing instruction, increased practice, interdependent group-oriented reinforcement, and individualized performance feedback, and (c) maintenance. Based on visual inspection of the data, the authors

determined that the comprehensive writing intervention program increased students' overall percentage of complete sentences, percentage of sentences with adjectives, and percentage of compound sentences during the intervention phase. These findings suggest that a packaged intervention program including performance feedback may successfully increase students' writing performance in more complex skill sets than previously examined, including complete sentences, use of adjectives, and use of compound sentences.

Despite the empirical support for performance feedback procedures, a number of limitations are associated with the aforementioned studies, which impacts our understanding of performance feedback interventions. First, the studies by Van Houten and colleagues contained a number of treatment components, including performance feedback, as well as other components (e.g. public posting, timing, self-scoring). Therefore, it is impossible to determine the primary mechanism affecting students' writing skill improvements and whether the observed improvements were due to components interacting within the performance feedback system or due to performance feedback in isolation. A second limitation to the early Van Houten studies was the utilization of public posting methods to provide students with individualized feedback. Public posting of students' academic performance may be considered unethical and unprofessional educational conduct. Additional limitations were present in the McCurdy et al. (2008) study, as the procedures did not require the amount of time for writing opportunities to be constant between phases. Consequently, this design limitation makes it more difficult to interpret changes across baseline and intervention phases, thereby limiting the internal validity of the findings. Finally, similar to the Van Houten studies, McCurdy et al. presented a packaged intervention with multiple components (e.g., direct instruction, tangible reinforcement, student choice, performance feedback). As is the case with any packaged interventions, there is an

inability to determine which factors are responsible for influencing treatment outcomes. Recently, the APA Task Force on Evidence-Based Practice underscored the importance of obtaining more empirical evidence on performance feedback (American Psychological Association, 2006), yet according to Kazdin (2008), manualized treatment packages in research often do not translate to clinical practice as practitioners are frequently looking to "tailor treatment to meet the needs of individual patients" (pp. 149). As a result, treatment packages are often not implemented as designed in practice. Therefore, research ought to examine single mechanisms of change (Kazdin, 2008).

Additional research has been conducted to by Eckert and colleagues to examine the effectiveness of using performance feedback in isolation as a fluency-based writing intervention (Eckert, Lovett, et al., 2006; Eckert, Truckenmiller, Rheinheimer, Perry, & Koehler, 2008). The writing intervention focuses on providing individualized informational feedback on students' written compositions in response to a story prompt. Students are informed of the total number of words written from the previous writing session and provided a pictorial indicator of their performance prior to their subsequent writing session (Eckert, Lovett, et al., 2006). In their first study, Eckert and colleagues (2006) examined the effectiveness of the individualized performance feedback intervention on the writing fluency of 50 third-grade students. In this quasi-experimental design, classrooms were randomly assigned to two conditions, a performance feedback intervention group and a control group. Both groups composed stories weekly based on a story-starter prompt (e.g., "I found a note under my pillow that said . . . ."). Prior to composing each story, the students assigned to the performance feedback condition received individualized feedback on the number of words they composed and number of correctly spelled words. In addition, students were notified if that number was higher or lower than the feedback they

received on the preceding writing session. The control group responded to the same story prompts but did not receive any feedback about their writing performance. Stories were evaluated by trained scorers for writing fluency indicators (i.e., number of words written and the number of words spelled correctly). The results of one-way analyses of variance (ANOVA) of the students' slope estimates revealed that the intervention group participants demonstrated significantly more growth in writing fluency (i.e., total words written) and spelling than the control group.

In a similar study, Eckert et al. (2008) examined the effectiveness of the individualized performance feedback intervention on the writing fluency of 28 third-grade students across two classrooms. A high frequency of students enrolled in one of the two classrooms scored below the 25th percentile on baseline measures of writing fluency, according to grade-level norms for students in the winter of third grade (Shinn, 1989). In addition, this classroom contained more students receiving special education services. As a result, students enrolled in the first classroom were considered "at-risk" for academic difficulties and were assigned to the intervention condition (n = 14). Students enrolled in the second classroom were considered typically-developing and were assigned to the control condition (n = 14). The study was conducted over 6-weeks with procedures identical to those previously described. To control for baseline differences in fluency levels between the two groups, an analysis of covariance (ANCOVA) of the slope estimates was used. Results revealed that the at-risk students receiving individualized performance feedback demonstrated significantly greater growth in writing fluency, as measured by total words written, compared to typically-developing students assigned to the control condition. Furthermore, based on the instructional placement levels defined by Deno and Mirkin (1977), the intervention group's mean fluency level reached an instructional level (M = 38 words

written in three minutes) at the end of the study, whereas the control group's mean fluency level remained frustrational (*M* = 31 words written in three minutes). However, no statistically significant difference was found for correct writing sequences.

Notably, the previously reviewed research studies conducted by Eckert and colleagues have indicated that individualized performance feedback can be highly effective in increasing students' written expression skills. In comparison to the feedback programs evaluated by Van Houten and colleagues, there are several advantages to the performance feedback intervention examined in these studies. First, the individualized performance feedback intervention examines the effects of performance feedback, in isolation, on students' writing skills. Second, the intervention can be used as a supplement to core instruction for students struggling in general education, yet are not eligible for special education. That is, when students are not responding to typical classroom instruction, performance feedback may be utilized as an intervention technique to progress the students' performance to their instructional level. Third, the intervention is simple to implement and can be administered with individual students or adapted to implement class-wide to an entire classroom. Associated benefits to performance feedback also include: (a) increasing fluency for struggling writers in a short amount of time (i.e., 6 weeks); (b) high acceptability by students; and (c) the ability to be easily incorporated into previously-existing instruction (Eckert, Lovett, et al., 2006; Eckert et al., 2008).

Though the research conducted by Eckert and colleagues suggests that performance feedback, presented as a single intervention, is effective in producing changes in elementary-aged children's writing fluency, there are a few key limitations that need to be considered. First, the studies assigned intervention and control conditions to pre-existing classrooms of students, rather than randomly assigning students to conditions. This limits the internal validity of the

study because extraneous variables may be nested within the classroom could account for the observed changes in writing fluency. Second, the choice to apply analysis of variance or covariance to slope values (e.g., measure of growth over time) creates autocorrelated variances thereby jeopardizing the statistical conclusion validity of the reported results.

Despite the aforementioned limitations, many of the procedures fundamental to performance feedback interventions (i.e., reporting students' weekly writing fluency growth) may represent a simple way to communicate to parents the changes in their child's writing skills, thus potentially serving as a catalyst for parent involvement in education. Kratochwill and Shernoff (2003/2004) indicated that there is a need for procedures that successfully bridge home and school, as few effective mechanisms have been examined through rigorous empirical evaluation. Yet, prior to determining and evaluating procedures incorporating parents in education, it is important to review how parent involvement has been conceptualized, investigate the general effects of parent involvement on children's educational outcomes, examine parent and teacher preferences for different types of parent involvement, and evaluate the literature base that has attempted to empirically examine mechanisms for parent involvement in academic interventions.

Parent Involvement in Education

Multiple environments and ecological systems impact a child's learning and development, including the school environment, school personnel, families, and the community environment (Epstein et al., 2002). Among these systems, some consider the family unit as the central influence on a child's learning and emotional well-being and therefore, emphasize the importance of parent involvement in education (Doherty & Peskay, 1992). When parents become involved in educational practices or engage in collaboration with schools, there are often

important positive implications for children's academic and behavioral competence (Christenson, 2004). For the purpose of the present study, parent involvement is characterized as any activity that permits parents to engage in the educational process of their children, whether the engagement occurs through participation in school events or activities, home-based educational activities, or collaboration between family and school personnel (e.g., parent advocates on school-based committees) (Christenson, Rounds, & Franklin, 1992; Power, Dombrowski, Watkins, Mautone, & Eagle, 2007). Notably, Marcon (1999) categorized parent involvement initiatives as falling into one of two categories: (a) parent involvement initiatives that allow parents to be "active" and in charge; and (b) parent involvement initiatives where parents are "reactive" and take a passive role.

Epstein and colleagues (2002) outlined several types of parent involvement activities that may exist between school and home. The first type of involvement, Parenting, aims to establish a supportive home environment that encourages children's academic growth. Schools may hold parent-training workshops, offer suggestions for instituting supportive home conditions, or offer home visits during major transition points (e.g., kindergarten, middle, or high school transitions). The second type of involvement, Communication, aims to encourage less time-consuming and demanding parent-school partnerships by instituting school-to-home or home-to-school communication methods. Communications include receiving report cards, holding parent-teacher conferences, or sending home materials (e.g., school curriculum, student work samples, school-home notes). Volunteering, the third type of involvement focuses on recruiting and organizing parents' assistance within the school (e.g., classroom volunteering programs, parent safety patrols). Learning at Home, the fourth type of involvement encourages parent involvement by providing information to families on how to promote curriculum-related activities at home.

Information may be sent home detailing homework policies, expected skill levels of students, home-based educational activities, and information on how to promote student success in academic domains. The fifth type within the framework, Decision Making, aims to include parents in school decisions through providing information on school or local elections, organizing parent representatives at important meetings, and encouraging parent advocacy groups. Finally, the sixth type of parent involvement, Collaborating with the Community, is characterized by identifying and integrating community resources into the school environment in an effort to strengthen school programs, family practices, and student development. For example, schools may offer information to families on community health initiatives, social supports, and local recreational and learning activities.

Many have theorized the importance and benefits of parent involvement and proposed an array of options for parent involvement that may be applied to the home, school, and community settings (Christenson, 2004; Doherty & Peskay, 1992; Epstein et al., 2002; Henderson and Mapp, 2002); however, it is important to evaluate the empirical benefits of parent involvement on students' academic achievement.

Effects of Parent Involvement on Students' School Achievement

For almost two decades, research studies have demonstrated that parent involvement significantly affects global and specific aspects of student achievement. In an attempt to synthesize the results of these studies, Fan and Chen (2001) conducted a meta-analysis of 25 studies that were published from 1984 to 1997. The meta-analysis examined the strength of the relationship between parent involvement and student academic achievement, including broad dimensions of parent involvement examined in prior research studies (e.g., parent-child communication, home supervision efforts, school contact and participation), as well as the

multitude of student achievement outcomes measured (e.g., grades, grade point average, grade retention, promotion).

First, Fan and Chen (2001) examined the strength of the general relationship between parent involvement and student academic achievement and found an overall moderate effect (r = .25) between parent involvement and students' academic achievement. Second, the investigators explored the moderating effects of potential study features (i.e., age, race, measure of academic achievement, area of academic achievement, parental involvement dimensions) on the relationship between parent involvement and student academic achievement. Eta-squared (η^2) was computed to describe the moderating effect of each study feature on the correlation coefficient between parental involvement and student academic achievement. Results of this analysis indicated that the area of students' academic achievement (i.e., mathematics, reading and language arts, science, social studies, or unspecified by the study) (η^2 = 1.13, 28% of variance) and parental involvement dimensions (η^2 = 1.06, 27% of variance) were study features with strong moderating effects on the correlation coefficient between parent involvement and student academic achievement. Thus, it appeared that area of academic achievement may have differing effects on the relationship between parent involvement and students' achievement. Specifically, in research studies measuring student academic achievement in general or unspecified terms, the average correlation coefficient between parent involvement and academic achievement was moderate (r = .33). However, in studies that focused more on the relationship between parent involvement and specific academic areas, correlation coefficients were lower. Specifically, parent involvement had a low correlations with mathematics (r = .18), reading/language arts (r = .18), science (r = .15), and social studies (r = .18).

Jeynes (2005) conducted another meta-analysis on the relationship between parent involvement and students' academic achievement. However, this meta-analysis focused exclusively on parent involvement studies conducted in urban school settings, and attempted to examine the association between the degree of parent involvement and urban students' school achievement. Furthermore, a more specialized analysis was conducted that examined the specific aspects of parent involvement that facilitated student achievement. A total of 41 studies, published between 1969 and 2000, were included. For the purpose of the meta-analysis, the parent involvement variables were: (a) general parental involvement (i.e., studies utilized multiple measures of parental involvement); (b) communication (i.e., communication between parent and child about school related topics); (c) homework (i.e., extent to which parents checked homework); (d) parental expectations (i.e., degree to which parents reported high expectations for their child's achievement); (e) reading (i.e., regular reading between parent and child); (f) attendance and participation (i.e., frequency of attendance to school functions); and (g) parental style (i.e., demonstration of support and helpfulness in the parenting approach).

Overall, the results of the meta-analysis indicated that general parental involvement was strongly associated with academic achievement for urban students (r = .74), with the strongest association reported among general parent involvement and student grades (r = .85). A strong relationship was also reported between parental expectations and students' academic achievement (r = .58), and moderate relationships were reported between specific aspects of parental involvement and students' academic achievement, including communication (r = .24), parenting style (r = .31) and parent attendance or school participation (r = .21).

The results of this meta-analysis suggested that global parent involvement programs as well as the individual components of parental involvement positively and significantly related to

urban students' academic achievement. These findings provide additional support for the relationship between parent involvement and students' academic outcomes, though compared to findings reported by Fan and Chen (2001), the results in this meta-analysis suggest a particularly powerful effect of parent involvement on urban students' academic achievement. However, it is important to note that the literature searches conducted by Fan and Chen (2001) and Jeynes (2005) were restricted to those studies evaluating the effects of general parent involvement initiatives, with keyword searches limited to *achievement, parents, parent involvement, schools, partnership,* and *parental support.* As a result, the aforementioned meta-analyses provide little empirical data on the effects of specific parent involvement procedures that may be utilized for intervention purposes, such as school-home notes, parent volunteering in classroom, and home-based educational activities, on specific academic skill sets.

Preferences for Parent Involvement

Prior to evaluating specific methods of parent involvement, it is important to inspect the types of parent involvement that are most often utilized and reported as preferred by parents. In a recent report by the United States Department of Education (2009), parents of students enrolled in elementary education (kindergarten to grade eight) appeared to be involved in their children's educational activities with the overwhelming majority of parents reporting that they checked their child's homework (95%) and attended school meetings (92%). Half of these parents (52%) reported volunteering at their child's school. Although the percentages of involvement varied slightly according to race/ethnicity and socioeconomic status, the results of this national survey suggested that the majority of parents were regularly taking the initiative to become involved in their children's education at school and home.

Although the previously reviewed survey suggested that parents seem to be taking part in their child's education, the survey failed to evaluate which parent involvement methods were most preferred by teachers and parents. Several researchers examined parent and teacher preferences for involvement and found similarities between both parties' preferences. Becker and Epstein (1982) surveyed teachers regarding their perceptions of parent involvement as an educational strategy and found that some communication methods, such as checking homework, parent-teacher conferences, notices sent home, and parent-teacher interactions during open house, were nearly universally implemented by teachers. Though teachers utilize, and may prefer, simple methods of communication to elicit parent involvement, the results also suggest that though fewer in number, some teachers take advantage of parents as educators within the home (i.e., providing parents with academic strategies to implement at home).

In a similar study, Barge and Loges (2003) provided evidence for convergence among teachers and parents in their preferences for parent involvement, with particular emphasis on school-home communication, such as school-home notes or progress reports, providing at-home assistance with homework, and engaging in home-based academic activities. The researchers indicated that teachers rated parent communication with their child and school, including expressing interest in their child's education (e.g., checking homework, asking about the child's school day), as a valuable form of parent involvement that conveys the importance of education. Furthermore, teachers viewed parents' assistance with their child's homework, attendance at school events, and home-based activities (e.g., reading to their child) as critical in fostering students' academic achievement. Similarly, for parents communicated the importance of monitoring their child's positive and negative academic progress through report cards and

progress reports in an effort to supervise their child's progress and provide appropriate assistance when needed at home.

Finally, Gettinger and Guetschow (1998) statistically examined whether differences existed between parents' and teachers' perceptions on perceptions of parents' current level of involvement, ideal levels of involvement, perceived degree of effectiveness of parent involvement, and how much the participants enjoyed involvement with a particular activity. The results of this study indicated that parents and teachers reported similar preferences for parent involvement, with no statistically significant differences between parents' and teachers' ratings of preferred parent involvement methods. Both parents and teachers rated direct methods of involvement (i.e., engaging parents and children, providing direct communication with the teacher) as more highly preferred and effective than indirect methods (i.e., involvement at a community level) of school involvement. Based on mean ratings, the highest rated methods were receiving personal notes, talking about positive events, attending parent-teacher conferences, engaging in educational activities outside of school, giving the child praise for his/her school performance, and participating in teacher-suggested activities at home.

In summary, the aforementioned surveys on parent involvement suggest that parents and teachers support efforts that provide positive information regarding students' performance, communicate from school to home through notes and newsletters, and engage parents in the educational process through teacher-endorsed home-based learning activities.

School-Home Notes and Academic Performance

Based on the survey results, parents and teachers appear to have similar preferences for school-home communications that allow parents to become active in the curriculum, keep parents aware of their child's achievement, foster children's educational success, and are

relatively quick and simple to implement. One communication method that provides feedback to parents on their child's performance within the classroom is school-home notes (Kelley & Jurbergs, 2009). The school-home note method of parent involvement imparts objective evaluations of children's classroom behavior and affords parents the ability to deliver immediate and affective consequences to their child. Furthermore, school-home notes allow teachers and parents to concentrate on skill-building and provide parents and children the opportunity to discuss school performance and practice skills. Although many studies have investigated the effects of school-home notes on students' classroom behavior (Jurbergs, Palcic, & Kelley, 2007; Kelley & McCain, 1995; Lahey et al., 1977; Schumaker, Hovell, & Sherman, 1977), only a few studies have examined the effects of school-home notes on students' academic achievement.

First, Dolliver, Lewis, and McLaughlin (1985) evaluated the effectiveness of a school-home notes method without a home contingency management system on improving children's spelling performance and classroom behaviors. In this multiple-baseline across subjects design, three male students enrolled in a special education classroom and diagnosed with behavior disorders participated in the study. The students' accuracy in spelling and the frequency of inappropriate classroom behaviors were detailed on the school-home notes that were sent home and thus, served as the dependent variables. Further, a token economy system was implemented in the classroom across all phases and all students. Results indicated that compared to the students' baseline performance, students' inappropriate classroom behaviors decreased and the accuracy of their spelling increased following implementation of the school-home notes.

In another study evaluating the effects of school-home notes on students' academic performance, Strukoff, McLaughlin, and Bialozor (1987) investigated the use of school-home notes on improving students' homework completion and accuracy. Unlike the previous study, no

home or school contingency program was implemented and the authors also examined parents', teachers', and student's acceptability of the school-home notes. A single-subject ABAB withdrawal design was implemented with one kindergarten student who was receiving special education services in mathematics. The dependent variables were the percentage of mathematics assignments completed and the percentage correct of mathematics problems on the assignments. No communication was provided to the parents during the baseline condition (i.e., phase A of study). During the intervention phase of the study (phase B), school-home notes, detailing the completion of the previous day's homework assignments, were sent home to the student's parents. The results of this study indicated that the participant's mathematics homework completion and percent correct of mathematics problems markedly increased following implementation of the school-home notes. In addition, results were replicated when the intervention was reinstated (i.e., B^2 phase). Furthermore, the parents and teachers expressed satisfaction with the school-home communication technique and its ability to improve the child's homework completion and accuracy in mathematics.

Dougherty and Dougherty (1977) conducted a similar study to those detailed above, yet utilized a larger sample population that is more easily generalized to typically-developing students. In their work, Dougherty and Dougherty evaluated the effectiveness of a school-home note system without specified reinforcement contingencies on the academic and classroom performance of 15 fourth-grade students attending a private elementary school. The investigators also aimed to investigate the differential effects of changing the frequency of the school-home notes from daily reports to weekly reports. The students' percentage of homework completion and percentage of "talk outs" (i.e., talking to others, yelling, answering questions without raising hands) during reading and mathematics lessons were measured as dependent variables. A

multiple-baseline across behaviors design was used, which included the following phases: (a) a baseline condition in which no feedback was provided and no contingencies were in effect; (b) a daily school-home notes condition which first communicated homework completion and then was initiated on talk-outs; and (c) a weekly school-home notes condition. The results of this study indicated that the percentage of incomplete homework and the frequency of "talk-outs" decreased following the onset of the daily school-home notes condition. In addition, when the weekly school-home notes condition was implemented, students' responses were similar to those observed during the daily school-home notes condition (i.e., decreased "talk outs" and increased homework completion). The authors concluded that daily school-home notes were effective in changing student behaviors and the reports continued to remain effective even when the frequency of implementation was reduced. Further, parents rated both the daily and weekly report cards as acceptable.

In a final study, Blechman, Taylor, and Schrader (1981) explored the effectiveness of a school-home notes intervention on increasing low-achieving students' mathematics accuracy. Participants included 17 teachers across three urban elementary schools (i.e., first through sixth grade). A total of 69 of the lowest achieving students who were inconsistent in their mathematics performance were assigned to one of three conditions: (a) school-home notes condition; (b) family problem-solving condition; and (c) control condition. Over the course of seven months (i.e., October through May), the parents of students assigned to the school-home note condition received either a "Good-News" note when the child accomplished 80% or better in their math performance on class work assignments, a "No-Work" note when no math was assigned, and no note when their child did not perform above 80%. The parents of students assigned to the family problem-solving condition engaged in one 1-hour meeting to learn about the school-home note

condition, saw their child's baseline performance in mathematics, and were guided through creating a contingency contract detailing rewards for increases in performance. A total of 166 students who were considered intermediate in their mathematics ability and 69 students who were considered stable in their mathematic performance served as a comparison group. The mean daily mathematics accuracy served as the dependent variable and was computed by dividing the sum of the correct answers on assignments by total number of tasks. Repeated measures analysis of variance and covariance were conducted to assess students' change in their accuracy on mathematics assignments from pre-test to post-test, with follow-up post-hoc analyses to assess simple effects. For their first analysis, the authors decided to combine the home-notes and family-problem solving conditions and determined that the combined intervention group resulted in statistically significant decreases in students' scatter (i.e., standard deviation in daily scores) in their accuracy on mathematics assignments in comparison to the control and comparison groups. However, in a subsequent analysis, children assigned to the school-home notes condition demonstrated a statistically significant decrease in their accuracy compared to children involved in the family problem-solving and control conditions.

Though the preceding studies appear to provide preliminary support for school-home notes as an effective parent involvement intervention in improving students' academic competencies across several skill areas, it is important to note the several limitations that exist across these studies. First, several studies (Blechman et al., 1981; Dolliver et al., 1985; Dougherty & Dougherty, 1977) demonstrated weaknesses associated with methodological criteria that is considered fundamental to single-case design and conducted analyses or reconfigured treatment groups that were inconsistent with initial study designs. A second key limitation associated with the aforementioned studies is the presence of low treatment integrity

or the absence of a treatment fidelity evaluation. Several studies provided no treatment fidelity data (Dolliver et al., 1985) or indicated violations to fidelity, with Strukoff et al. (1987) reporting that parents and peers administered contingencies based on the child's performance, even though contingencies were not defined as an intervention component, and Blechman et al. (1981) reporting low treatment integrity (range, 26% to 100%) on behalf of the teachers participating in the family problem-solving condition. Such limitations jeopardize the statistical conclusion validity of these studies.

Notably, each preceding study investigated the effects of school-home notes on key academic domains, though no studies evaluated the effects of school-home notes on written expression. In an effort to address the aforementioned study limitations and restrictions to academic domains, Rheinheimer (2009) evaluated the effectiveness of a school-home notes feedback program on improving elementary students' writing fluency. A total of 65 third-grade students across three classrooms were randomly assigned to two conditions, a performance feedback condition (n = 35) and a performance feedback with school-home notes condition (n = 30). All students engaged in weekly writing assignments based on Curriculum-Based Measurement in Written Expression probes for 7-weeks and received feedback on their performance. Prior to engaging in writing each week, students were told how many words they wrote in response to the previous probe and shown an arrow to indicate their increase or decrease in words from the week before. Students in the performance feedback with school-home notes condition received additional feedback provided to their parents in the form of a school-home note. The parent progress reports conveyed the same feedback information as the students' individualized performance feedback (e.g., total words written on the previous probe and an

arrow depicting the increase or decrease in performance). The dependent measure of writing fluency was total words written on the seven writing probes over the 6-week intervention.

Multi-level linear modeling was utilized to assess the effects of school-home notes and results indicated that although there were no significant differences between the two conditions, students who participated in the school-home notes intervention demonstrated more growth in writing fluency, with gain of 2.33 words gained per week (slope = .33, d = 2.05, CI: +1.45 to +2.65), compared to the students in the performance feedback condition who gained 1.75 words per week (slope = .25, d = 1.39, CI: +.85 to +1.93). Furthermore, parents' and students' acceptability ratings of the school-home note intervention procedures indicated that the students wrote better when parents received the academic information, parents enjoyed the contact they had with their child's academic activities, and parents rated that they would highly recommend the intervention to teachers.

Although the study provided some support in establishing the utility of school-home notes as a method to improve elementary students' writing skills, there were some limitations associated with the study. First, the small sample size resulted in low power, reducing the probability of detecting statistically significant results and heightening the likelihood of a Type II error. Second, the study lacked reliability of treatment implementation as parents' adherence to the intervention procedures was inconsistent. Thus, decreased treatment fidelity reduces confidence that the treatment procedures were solely responsible for behavior change. In spite of this, Rheinheimer (2009), which did not suffer from many of the methodological weaknesses observed in the previously reviewed studies, and provided preliminary evidence in support of school-home notes as an intervention tool for increasing students' academic achievement. However, in this study, the school-home notes intervention failed to demonstrate statistically

significant differences in comparison to the powerful effects of individualized performance feedback techniques. In an effort to more fully evaluate the effects of school-home notes, future research studies should aim to evaluate the effects of school-home notes based on the fundamental criteria for intervention research detailed by Kratochwill and Stoiber (2002), including evaluating treatment fidelity, using random assignment, and including comparison control groups. Furthermore, as evidenced by the work of Rheinheimer (2009), it is important for researchers to consider additional intervention components or activities that may enhance the effectiveness of school-home notes.

Home-Based Educational Activities and Academic Performance

Previous research has suggested that school-home communication techniques, like school-home notes, are a type of parent involvement that is preferred by teachers and parents and may be effective in improving students' academic achievement across multiple academic domains (Dougherty & Dougherty, 1977; Rheinheimer, 2009; Strukoff et al., 1987). However, in a literature review of studies evaluating types of parent involvement activities, Henderson and Mapp (2002) suggested that singular types of parent involvement that allow parental passivity, such as school-home notes, may have less effect on student achievement than other active types of parent involvement, such as home-based educational activities. One program that has received increasing attention in the area of parent involvement is promoting learning at home with home-based activities. Home-based educational activities are defined as educational strategies that are typically suggested by classroom teachers that target specific academic skills, are easy for parents to implement at home, and keep families informed of their child's classroom curriculum (Epstein et al., 2002).

Several studies have developed home-based educational activities programs and evaluated the effectiveness of these strategies on students' academic performance. In the first study, Shaver and Walls (1998) examined the effectiveness of home-based instruction on the standardized reading and mathematics performance of low-achieving students. Over the course of the school year, parent group meetings were conducted for parents of students from second through seventh grade. Parents received: (a) updates on their child's progress, (b) training in specific topics of interest (e.g., discipline strategies, how to increase your child's vocabulary at home), and (c) reading and/or mathematics materials for home-based instruction. Results from an analysis of variance of post-test scores indicated that students with highly involved parents (i.e., parents attended greater than 50% of group meetings) demonstrated significantly greater reading comprehension and overall reading and mathematics achievement gains than students with uninvolved parents.

Reutzel, Fawson, and Smith (2006) evaluated the effects of home-based educational activities; yet unlike the previous study which examined changes in students' overall reading and mathematics achievement, the researchers aimed to examine the intervention effects on students' accuracy in reading and spelling. A total of four first-grade classrooms participated in the study, with two classrooms from one school (n = 67) participating in a *Words-to-Go* home-based instructional treatment program and two classrooms from a second school (n = 77) acting as the control condition. Over the course of seven months (i.e., mid-September to late April), students brought home a weekly program lesson plan, which consisted of activities that required parents to assist their child in various reading and spelling activities (e.g., identifying letters and sounds, making words, using the target words in sentences). Parents of students in the treatment condition were invited to attend three training workshops where teachers modeled the program

and parents were given the opportunity to practice the procedures. The effects of the program were evaluated through students' post-test performance on a standardized measure of word reading and spelling accuracy as well as a state-mandated achievement measure. The study utilized a quasi-experimental design with a one-way analysis of covariance conducted on post-test word reading and spelling scores. In addition, a one-way analysis of variance was conducted on the post-test scores of the reading achievement scores. Results indicated that the students assigned to the parent involvement condition read significantly more words accurately (η^2 = .20) and had significantly fewer spelling errors (η^2 = .23) than the students assigned to the control condition. Furthermore, the students in the parent involvement condition demonstrated significantly higher scores on the state-mandated assessment of reading achievement (η^2 = .19) compared to the students assigned to the control condition.

In a similar study, Rasinski and Stevenson (2005) examined the effects of a home-based instructional program on students' reading accuracy and fluency. A total of 30 first-grade students attending a suburban school district participated in the 11-week study. The students were assigned to each condition based on their initial reading level during the baseline assessment so that groups were equated. Parents of students assigned to the treatment condition attended one 60-minute training session where the primary investigator modeled the home-based program and subsequently parents completed weekly program packets with their child. The study utilized a pre-test/post-test design to evaluate the effects of condition assignment on the four dependent measures, including a criterion-referenced letter/word recognition test, a word list assessment for early literacy, and a reading fluency measure (i.e., Curriculum-Based Measurement in Reading probes). The authors used pre-test scores as a covariate and employed a treatment-by-reading skill (high achievers vs. low achievers) analysis of covariance. Results

indicated a statistically significant treatment-by-reading skill interaction, such that low-achieving students assigned to the treatment group demonstrated significant improvements in their reading accuracy and fluency compared to low-achieving students assigned to the control group. However, there was no statistically significant difference in reading accuracy or fluency between the highest achieving students in the parent involvement group compared to the highest achieving students in the control group.

Finally, Fiala and Sheridan (2003) sought to evaluate the effectiveness of a home-based parent involvement program on improving elementary students' reading fluency. Based on baseline assessments, a total of three low-achieving elementary-aged students were selected to participate in the study. A multiple-baseline across participants design was used, including the following phases: (a) baseline condition in which no home-based paired reading was in effect; (b) intervention condition with paired reading; and (c) two follow-up phases to assess maintenance. Home-based intervention sessions were implemented daily for 20 minutes. Parents received basal readers for home-based reading activities and followed a structured protocol for paired reading, which was introduced to them during a training session where they role-played the procedure while receiving corrective feedback. Reading fluency was measured by Curriculum-Based Measurement in Reading probes, which were administered twice per week at school, and overall reading achievement was measured with a standardized measure of reading. Visual inspection of the reading fluency data indicated that in comparison to baseline levels of reading fluency, one student demonstrated an ascending trend line, one student revealed a flat trend, and one student showed a descending trend during the intervention phase. At the 4-week and 6-week follow-up sessions, all three students maintained their level of reading fluency that was demonstrated during the intervention phase. Effect sizes were also calculated on the

participants' mean differences in reading fluency from baseline to intervention. These results indicated positive gains in reading fluency across time for all participants (range, d = .65 to 2.04). The authors concluded that the three participating students appeared to make gains in their overall reading achievement, such that their post-test scores fell within a higher grade-level than their pre-test scores, although no statistical analyses were conducted to reach this conclusion. Furthermore, students and parents highly rated the intervention procedures, with parents citing that the program was beneficial to the child, was effective in changing the child's reading progress, and demonstrated practical utility.

The aforementioned studies suggests that implementing home-based educational activities may result in improvements in students' reading, mathematics, and spelling accuracy and reading fluency; however, there are several noteworthy limitations to these studies. First, several studies (Rasinksi & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998) violated statistical assumptions underlying their analyses, thereby limiting the statistical conclusion validity of their results. Second, selection bias was evident in the studies conducted by Shaver and Walls (1998) and Reutzel and colleagues (2006), which increase the likelihood that the observed effects were influenced by participant characteristics or due to an interaction between the treatment and extraneous variables within conditions. Third, many of the studies evaluating the effects of home-based educational activities (Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998) drew conclusions based on compromised analytic methods. In addition, , many of the studies (Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998) utilized statistical analyses that were not sensitive to detect variability of performance. Further, many of the studies (Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver &Walls, 1998), suffered from low power due to the small sample

size reducing the ability to confidently detect statistically significant results and further threatening statistical conclusion validity.

Summary of the Literature

In an attempt to improve the writing performance of elementary-aged children, empirical attention has focused on fluency-based interventions that incorporate a performance feedback component (Eckert et al., 2009; McCurdy et al., 2008). However, researchers have also sought to address diminished academic performance while maximizing resources through the use parent involvement (Atkenson & Forehand, 1979; Christenson, 2004; Fan & Chen, 2001; Jeynes, 2005; U.S. Department of Education, 2008). However, the use of parent involvement to improve children's written expression skills has been remarkably neglected.

Several types of parent involvement in education have been identified (Epstein et al., 2002) and findings from empirical and qualitative research studies (Becker & Epstein, 1982; Gettinger & Guetschow, 1998; Henderson & Mapp, 2002; Rasinski & Stevenson, 2005) provide support for the use of school-home notes and home-based educational activities, as these parent involvement strategies allow for positive conversations between teachers, parents, and children, connect parents to the curriculum, and permit parents to act as change agents by providing them with educational strategies. At present, a preliminary research base has suggested the effectiveness of school-home notes (Dougherty & Dougherty, 1977; Strukoff et al., 1987; Rheinheimer, 2009) and home-based educational activities (Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998) on students' academic performance. However, it is important to note that of the 10 studies conducted, there was only one study (Rheinheimer, 2009) reviewed that did not present significant methodological or statistical weaknesses.

There are a number of gaps in the literature regarding the use of home-based educational activities and school-home notes strategies. First, most studies in the school-home notes literature evaluated the effectiveness of the technique on students' competencies in global academic behaviors (e.g., accuracy on assignments, completion and accuracy in mathematics homework), and only two studies (Dolliver et al., 1985; Rheinheimer, 2009) have investigated the effects of school-home notes on students' specific academic skills (i.e., spelling accuracy, writing fluency). Although the home-based education literature investigated intervention effects over a broad scope of academic domains, including overall achievement in reading and mathematics and performance in specific competencies like reading accuracy and fluency, no study within this literature base has examined the effects of home-based educational activities on writing fluency. In addition, no study to date has evaluated the effectiveness of combining performance feedback/school-home notes strategies with home-based educational activities on students' writing fluency, though this type of parent involvement program has been identified as a focus for future research (Fiala & Sheridan, 2003).

Further, although some have utilized group comparison studies that were designed to evaluate the effects of school-home notes and home-based educational activities (Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998), only one study (Rheinheimer, 2009) has examined students' progress over time in specific academic domains with robust analytical techniques for modeling group academic growth trajectories. Specifically, multi-level linear modeling is a method of statistical analysis that is highly suited for large-group comparison studies that aim to estimate student growth trajectories. Multi-level linear modeling techniques do not make the assumption that data is independent, thus obtains a more realistic statistical model by allowing individual students to retain their own intercepts and growth

estimates, which is especially critical in measuring student performance patterns over time. Furthermore, the significant benefit to the analysis over more traditional techniques is its sensitivity to detecting variables affecting incremental changes in outcome measures and its ability to easily accommodate missing data (e.g., student absences, school cancellations) (Singer & Willett, 2003). To date, no study within the parent involvement and writing fluency literature has utilized this technique to estimate students' writing fluency growth over time when home-based educational activities have been implemented.

Purpose of the Present Study

The purpose of the proposed study was to examine the effects of combining a performance feedback intervention with home-based writing activities on elementary-aged students' writing fluency in comparison to students whose parents were not engaged in school-home notes or home-based writing activities. The experimental study adds to the existing parent involvement research by employing multi-level linear modeling to evaluate the effectiveness of home-based educational activities with school-home notes feedback as a class-wide writing fluency intervention. As a result, the primary aim of the study was to examine whether a combined school-home performance feedback with home-based writing activities improves students' writing fluency to a greater extent than if students are not provided with the school-home feedback notes and home-based writing program. Three main hypotheses were proposed:

1) It was hypothesized that students engaged in performance feedback would demonstrate statistically significant gains in writing fluency over time. As supported by prior research studies evaluating the effects of performance feedback on writing fluency (Eckert et al., 2006; McCurdy et al., 2008; Rheinheimer, 2009; Van Houten, 1979), such a result is to be expected.

2) Based on previous work in the area of school-home notes (Dolliver et al., 1985; Strukoff et al., 1987; Blechman et al., 1998; Rheinheimer, 2009) and home-based educational activities (Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006), it was hypothesized that students engaged in school-home performance feedback with home-based writing activities would demonstrate significantly greater improvement in their writing fluency in comparison to those students who were assigned solely to an individualized performance feedback condition with no parent involvement.
3) It was hypothesized that there would be a statistically significant shift in instructional placement in written expression, as defined by Mirkin et al. (1981); however, it was further hypothesized that students participating in the school-home notes school-home performance feedback with home-based writing activities would show greater growth across instructional levels compared to students engaged in the performance feedback condition.

In addition, a secondary aim of the study involved an examination of the demographic and experiential characteristics associated with the students and parents participating in the school-home performance feedback with home-based writing condition. Because this aim was exploratory in nature, no a priori hypotheses were generated. However, the demographic and experiential characteristics of the students (e.g., sex, race) and parents (e.g., race, education level) were examined to determine whether any of these characteristics were predictive in explaining students' improvement in their writing fluency. Along these lines, the procedural integrity (i.e., parents' completion of the intervention procedures) and students' and parents' acceptability of the school-home performance feedback with home-based writing condition were

examined to see if these factors were important characteristics in predicting students' improvement in their writing fluency.

Method

Participants

Prior to conducting the study, approval from the Human Subjects Institutional Review Board was obtained in March 2010 (IRB # 09-314). Across two schools, a total of nine teachers volunteered their third grade classrooms for the study and 147 students were screened for eligibility. The eligibility criteria included students: (a) whose primary language spoken was English; (b) who demonstrated minimum proficiency (i.e., score of 80% or greater) by legibly scribing letters on a handwriting proficiency measure; (c) who demonstrated minimum proficiency (i.e., writing at least seven words) on a baseline measure of writing; (d) who were not classified as having a learning disability in written expression; (e) who did not have a Section 504 plan indicating additional instructional modifications; (f) who were not receiving services from a one-to-one instructional aide; and (g) who were not experiencing severe motor or cognitive deficits that precluded them from composing written stories. In addition, students assigned to the school-home performance feedback with home-based writing condition were included in the analysis providing they had at least one instance of returning a completed home-based writing assignment with parent signature.

Detailed information regarding the recruitment, enrollment, and intervention allocation is reported according to the Consolidated Standards of Reporting Trials Guidelines (see Figure 1) (Moher, Schulz, & Altman, 2001). Of the 147 students assessed for eligibility, a total of 28 students (19%) were excluded from the analysis because they did not meet the eligibility criteria. Specifically, 12 students were unable to write at least seven words on a baseline measure of

writing, six students had a Section 504 plan indicating additional instructional modification, and one student experienced severe motor or cognitive deficits that precluded them from composing written stories. Finally, three students did not participate in the baseline assessment despite repeated attempts to schedule make-up sessions and six students did not assent to participate in the study. This resulted in 119 students being randomly assigned to either the performance feedback condition (n = 52) or the school-home performance feedback with home-based writing condition (n = 67).

After the intervention began, two parents asked for their children to be removed from the intervention condition and the primary experimenter was informed that one student was in foster care, resulting in limited parent contact at home. This subsequently led to three students being removed from the school-home performance feedback with home-based writing condition. At the study's conclusion, 14 additional students were removed from the school-home performance feedback with home-based writing condition because there was not one home-based writing assignment with parent signature submitted. Finally, one student from the school-home performance feedback with home-based writing condition was removed from the analysis and excluded from the study due to an outlier contributing to skewness in the distribution (see Results: Data Preparation). This resulted in a final sample of 101 student participants (i.e., 52 students in the performance feedback condition; 49 students participating in the school-home performance feedback with home-based writing condition).

Table 1 presents the demographic data of the student participants. A total of 61 female (60.4%) and 40 male (39.6%) students participated in the study. The age range of the participants was 8 to 10 years (M = 8 years, 5 months). Of the students in the participating sample, 10.9% identified as of Hispanic or Latino ethnicity, with the remaining 89.1% as of Non-Hispanic or

Latino race. With respect to race, 50.5% identified as Black or African American, 37.6% as White, 10.9% as Hispanic or Latino, and 1% as Asian. A total of 12 students (11.9%) were receiving special education services but met the inclusionary criteria previously specified. Notably, information pertaining to individual student's free or reduced-priced lunch status was unavailable.

The relationships between student demographic variables and school sites were examined. No significant relationships between the two schools were found for sex, X^2 (1, N = 101) = 0.16, p = .69, special education classification, X^2 (1, N = 101) = 0.005, p = .95, or age, t (98) = -1.19, p = .23. However, there was a significant relationship by school on ethnicity (i.e., Hispanic/Latino, Not Hispanic), X^2 (1, N = 101) = 7.78, p = .005, with more students identified as of Hispanic or Latino (20.9%) in the second school compared to the first school (3.4%). Similarly, there was a significant relationship by school on race, X^2 (3, N = 101) = 25.38, p < .001. Significantly more students identified as Caucasian (56.9%) in the first school than the second school (11.6%), X^2 (1, N = 101) = 21.56, p < .001. In the second school, significantly more students identified as African American or Black (67.4%), X^2 (1, N = 101) = 8.60, p = .003, and Hispanic/Latino (20.9%), X^2 (1, N = 101) = 7.78, p = .005, versus 37.9% as African American or Black and 3.4% as Hispanic/Latino in the first school. The relationships between student demographics by condition were also examined and no significant relationships were found for sex, X^2 (1, N = 101) = 0.03, p = .87, ethnicity, X^2 (1, N = 101) = 0.18, p = .67, race, X^2 (3, N = 101) = 1.18, p = .76, special education eligibility, X^2 (1, N = 101) = 3.02, p = .08, or age, t (98) = -0.19, p = .85.The relationship between student demographic data across conditions was examined (refer to Table 2). No significant associations between conditions were found for sex, X^2 (1, N = 101) = 0.03, p = .87, special education classification, X^2 (1, N = 101) = 3.02, p = .08,

ethnicity, X^2 (1, N = 101) = 0.18, p = .67, or race, X^2 (3, N = 101) = 1.18, p = .76. No significant differences between conditions by age were found, t (98) = -0.19, p = .85.Table 3 presents the demographic data of the parent participants (n = 44), which was obtained from parent-completed materials (response rate = 89.8%). Returned information indicated that the majority of parents were the primary parent (97.7%), with most parents reporting as the students' biological mother (77.3%). The majority of the parent respondents self-identified as either Caucasian (59.1%) or African-American (20.5%), with a smaller number of parent respondents self-identified as Hispanic or Latino (9.1%), American Indian or Alaska Native (4.5%), two or more races (4.5%), or other (2.3%). The majority of parent respondents reported earning either a high school diploma/GED (34.9%) or a vocational degree (32.6%) and a smaller percentage reported obtaining an Associate degree (14.0%), Bachelor's degree (7.0%), Master's degree (2.3%), or no degree (9.3%). The relationship between parent demographic variables across the two schools was examined. No statistically significant relationships were found for the type of parent, X^2 (1, N = 44) = 0.48, p = .49, relationship of the parent to the child, X^2 (3, N = 44) = 2.24, p = .52, or educational degree of the parent, X^2 (5, N = 43) = 1.72, p = .87. Similar to the previously reported student results, a statistically significant relationship between the parent's race/ethnicity and the school, X^2 (5, N = 44) = 13.42, p = .02, with the majority of parents self-identified as Caucasian (73.3%) at one school and Black/African American (42.9%) at the second school.

Setting

The participants attended two urban schools located in a moderate-sized city in central New York. Based on the most recently published New York State School Report Card data (2008-2009), the first school, servicing kindergarten through eighth grade, had a total of 847 students enrolled in the school, with most of the students identified as Caucasian (54%) or

African American (38%). A smaller percentage of students were identified as Hispanic/Latino (6%), Native American (2%), and Asian/Pacific Islander (1%). A total of 54% of students received free lunch and 13% received reduced-price lunch. The second school enrolled 406 students in kindergarten through sixth grades, with most of the students identified as African American (60%) or Caucasian (23%). A smaller percentage of students were identified as Hispanic/Latino (14%) or Native American (2%). Within the school, a large percentage of students received free (81%) or reduced-price (7%) lunch.

All sessions took place in the students' general education classrooms during a 15- to 20-minute block of time in the morning (n = 7) or afternoon (n = 7). Each classroom contained student desks and chairs as well as other learning materials previously arranged by the classroom teachers. Teachers and teaching assistants were present during every session. Five classrooms were of traditional structure, in that the classrooms contained one teacher and a standard number of students (i.e., approximately 20 students). Two classrooms were inclusion classrooms, which contained general education and special education students as well as two teachers and teachers' aides.

Classroom teachers' writing orientations and classroom instructional practices. An assessment of the teachers' orientations to writing instruction (Graham, Harris, MacArthur, & Fink, 2002)) indicated that the teachers reported emphasizing the role of explicit instruction (M factor score = 4.61; SD = 0.67) and natural or incidental learning methods (M factor score = 4.14; SD = 0.65). The teachers reported placing less emphasis on correctness in writing (M factor score = 2.84; SD = 0.44). The differences between schools on the instructional practices were examined and no significant relationships were found between teachers in the schools on

correctness in writing instruction, X^2 (6, N = 9) = 6.98, p = .32, explicit instruction, X^2 (5, N = 9) = 6.3, p = .28, or natural or incidental learning practices, X^2 (5, N = 9) = 2.93, p = .71.

Within the context of teaching, the participating teachers reported using five different writing curricula or techniques to inform their instruction in their classrooms. These curricula or techniques included: 6+1 Trait Writing (Spandel, 2005), Scott Foresman Reading Street (Pearson Education, 2011), NYS English/Language Arts Standards (New York State Education Department, 2009), Lucy Calkins Units of Study for Teaching Writing (Firsthand, 2008), and The Four-Square Writing Method (Gould & Gould, 1999). Per week, teachers indicated spending an average of 72.22 minutes (*SD* = 48.74) in writing, with the majority of instruction allocated to compositional writing and spelling practice (*M* = 51.11 minutes, *SD* = 26.31 minutes). Less time was allocated for handwriting practice (*M* = 31.67 minutes, *SD* = 30.21 minutes) per week. When asked to respond to more specific questions regarding their instructional practices in writing, the average ratings suggested that teachers most frequently used the following practices on a weekly basis: (a) invented spelling (100%); (b) teaching spelling skills (88.8%); (c) modeling specific writing strategies to students (88.8%); (d) re-teaching writing skills and strategies (77.7%); and (e) conferencing with students about their writing (77.7%). The least frequently used practices included: (a) students selecting their own writing topics (44.4%); (b) teaching handwriting skills (44.4%); (c) teaching planning and revising (55.5%); and (d) students helping each other with writing (55.5%) (see Table 4).

Research Assistants

Five doctoral students in school psychology as well as eight advanced psychology undergraduate students served as experimenters. Prior to data collection, all research assistants were required to complete a formal training in research ethics, as required by Syracuse

University. This training (i.e., Collaborative Institute Training Initiative) provided online basic courses in the protection of human research subjects. All research assistants submitted documentation that they had successfully passed the Social and Behavioral Focus and Responsible Conduct of Research courses and this documentation was provided to the Institutional Review Board. Furthermore, research assistants received training on the study procedures (i.e., administering dependent measures, scoring dependent measures, conducting procedural integrity observations, and completing data entry), followed by opportunities to practice and feedback. Training materials were adapted from procedures detailed by Rheinheimer (2009), including a manual detailing scoring procedures for dependent measures and procedural scripts for procedural integrity observations. Research assistants were required to demonstrate 100% proficiency in administering and scoring Curriculum-Based Measurement in Written Expression for total words written, correctly spelled words, and correct writing sequences.

Materials

Overview. Baseline student assessment materials consisted of: (a) a handwriting screening measure (see Appendix C) and (b) one Curriculum-Based Measurement in Written Expression probe packet (Appendix D) based on developmentally-appropriate story starters (Appendix E). In addition, baseline materials included a parent demographics information questionnaire (Appendix F) and an informational letter to parents regarding the study procedures (Appendix G). Intervention session materials contained: (a) five Curriculum-Based Measurement in Written Expression probe packets; (b) students' individualized performance feedback forms (Appendix H); and (c) parent feedback notes (Appendix I) and home-based writing activity (Appendix J). Post-intervention assessment materials incorporated: (a) an intervention

acceptability questionnaire for students in the performance feedback condition; and (b) an intervention acceptability questionnaire for students in the school-home performance feedback with home-based writing condition (see Appendix K). Parents received a modified version of the Treatment Acceptability Rating Form – Revised (Reimers, Wacker, Cooper, & De Raad, 1992) (Appendix L) and teachers completed an adapted version of the Intervention Rating Profile-15 (Martens, Witt, Elliott, & Darveaux, 1985) (see Appendix M). The 4-week post-intervention follow-up included a re-assessment of parent treatment acceptability (Appendix N).

Handwriting screening measure. All student participants were asked to print 12 lowercase letters from the alphabet (i.e., f, c, r, m, v, y, i, h, e, o) to assess students' handwriting legibility. The informal measure was developed by the author and therefore, no psychometric data are available.

Curriculum-based measurement probes in written expression. A total of six Curriculum-Based Measurement in Written Expression probes were used, with one at baseline and five over the course of the intervention period. Each probe consisted of a different story starter, which is a brief sentence fragment that helps stimulate writing (e.g., "It was a dark and stormy night and…"). Story-starters used in the study were developed and evaluated by McMaster and Campbell (2006) and considered developmentally-appropriate for elementary-aged students as well as culturally sensitive for heterogeneous student populations.

Each writing probe was presented within the context of a writing packet, which contained a cover page indicating the student identification information, stop sign pages preventing students from prematurely viewing the performance feedback forms or the story-starters, an individualized performance feedback page, a story starter followed by compositional lines, and any additional measures to be administered during that session. Each writing probe was

administered in a standardized order, as the probes cannot be randomized across students due to the group-administered nature of the procedures. For the purpose of this study, each written response to the Curriculum-Based Measurement in Written Expression probes was evaluated on three metrics: total words written, correct writing sequences, and correctly spelled words. The use of these three metrics, specifically correct writing sequences, as reliable and valid indices for measuring writing quality for third grade students has been supported in the literature (Gansle, Noell, VanDerHeyden, Naquin, & Slider, 2002, McMaster & Campbell, 2008).

The technical adequacy of Curriculum-Based Measurement probes in Written Expression has been evaluated in many studies. In a review of the research on the psychometric properties of this measure, Powell-Smith and Shinn (2004) concluded that Curriculum-Based Measurement in Written Expression (total words written, correctly spelled words) showed a moderate to high test-retest reliability over a period of one day to six months (range, r = .42 to .91), moderate to high parallel forms reliability (range, r = .55 to .95), and high interscorer agreement (range, 96% to 100%). When students' performance on this measure was compared to standardized measures in writing, Powell-Smith and Shinn (2004) reported the correlation coefficients were moderate to high. Specifically, when compared with the Test of Written Language-First Edition subtests (Hammill & Larson, 1978, 1983), the coefficients were moderate to high for total words written (range, r = .41 to .84) and correctly spelled words (range, r = .45 to .71). McMaster and Espin (2007) reported that correct writing sequences were more highly correlated with criterion measures of writing and were determined to be more acceptable as a measure of writing quality by teachers. Finally, McMaster and Campbell (2008) explored the reliability and validity of various writing fluency indicators as determinates of writing quality across third, fifth, and seventh grade students. The researchers concluded that number of correct writing sequences

demonstrated sufficient alternative forms reliability (range, *r* = .70 to .86), as well as criterion validity with the Test of Written Language-3, the Minnesota Comprehensive Assessment (writing subtest), and students' grade point average (range, *r* = .56 to .71) across the three grade levels.

Parent demographic information questionnaire. Parents completed a five-item demographics questionnaire during baseline (Appendix F). Demographics assessed were the parents' relationships to the child (e.g., biological mother, biological father, and adoptive parent), the parent's race/ethnic background (e.g., White/Caucasian, Black/African American, Hispanic/Latino, Asian), parent's highest grade completed, and the highest degree obtained.

Informational letter to parents. All parents received an informational letter providing a general description of the study procedures and provided parents with the option of not participating in the study (Appendix G).

Student individualized performance feedback form. Each week, all students received performance feedback detailing their individual performance on the previous session's Curriculum-Based Measurement in Written Expression probe (Appendix H). During the first intervention session, all students were individually informed of the total words they wrote during the previous week, with total words written appearing in a box in the middle of the feedback page. Throughout subsequent weeks of the intervention, the performance feedback form continued to display the total number of words written; however, feedback was also presented with arrows indicating an increase (i.e., ↑) or decrease (i.e., ↓) in performance from the previous week.

Parent feedback notes and home-based writing activities. For those students assigned to the school-home performance feedback with home-based writing condition, their parents

received weekly performance feedback forms, which were based on the progress notes utilized in Rheinheimer (2009). The forms provided parents with an explanation of how written performance was measured through total words written, correctly spelled words, and correct writing sequences. At the commencement of each intervention session, a notebook containing brightly colored parent feedback and activity forms were used as the primary vehicle for supplying parents with information pertaining to their child's writing progress.

On the first note, parent feedback on their child's writing fluency appeared in a box revealing the student's total number of words written, the number of correct spelled words, and the number of correct writing sequences on the previous week's Curriculum-Based Measurement in Written Expression probe. The following week, the parent feedback contained the box with the three writing indices, as well as information regarding whether or not their student's performance increased (i.e., ↑) or decreased (i.e., ↓) in each fluency measure (Appendix I). Every week, the notebook also contained a photocopy of their child's written composition on the Curriculum-Based Measurement in Written Expression probe.

Furthermore, all feedback notes were accompanied with a writing activity for parents to accomplish with their child each week (see Appendix J). The writing activity document detailed that week's activity, suggestions for improving the quality of written compositions (e.g., titles, related sentences, descriptive words), and a blank sheet of composition lines. In addition, the activity contained a section for notes from the parents and a location for parents' signatures to verify their review of the feedback and engagement in the writing activity. Each week, students' and parents' were asked to spend five to ten minutes working together to write a story based on a story-starter. The weekly writing assignments were based on the TIPS (Teachers Involve Parents in Schoolwork) interactive homework program (Epstein et al., 2002). In addition, the feedback

notes and writing tasks utilized behavioral intervention components considered important in learning. The home-based writing tasks provided students extra practice in writing, strategy instruction (e.g., suggestions for improving the quality of written work), and a common stimulus to promote generalization (e.g., story-starter). Further, completing the assignments with parents allowed for the potential for corrective feedback and reinforcement or punishment for improvements or decrements in their written performance.

Performance feedback intervention acceptability questionnaire. All students completed a questionnaire gauging their perceptions of the writing sessions and individual feedback intervention (Appendix K). The questionnaire aimed to measure students' attitudes toward the writing and feedback intervention, how the intervention benefited their writing performance, and their perceptions of their writing ability. The questionnaire contained 5 items rated on a 5-point Likert-type scale ranging from "not at all" to "very, very much" or "very, very good," with low values on the scale reflecting lower intervention acceptability and high values on the scale indicating higher intervention acceptability. The internal consistency of this measure was moderate for the students in the performance feedback condition ($\alpha = .72$) and for the students in the school-home performance feedback with home-based writing condition ($\alpha = .68$).

School-home performance feedback with home-based writing intervention acceptability questionnaire. Students assigned to the school-home performance feedback with home-based writing condition completed additional questions pertaining to their attitudes and perceptions regarding the parent feedback notes and home-based writing procedures (Appendix K). The additional questionnaire contained 5 items rated on a 5-point Likert-type scale ranging from "*not at all*" to "*very, very much*" or "*very, very good*." Analogous with the previous questionnaire, the content was specific to the intervention procedures detailed above and

organized such that low values reflect lower intervention acceptability and higher values signify higher intervention acceptability. The internal consistency of this measure was high (α = .82).

Parent intervention acceptability questionnaire. All parents completed the Treatment Acceptability Rating Form – Revised (Reimers et al., 1992) (see Appendix L). The scale includes 17 items rated on a 7-point Likert-type scale ranging from very (i.e., rating of 7) to neutral (i.e., rating of 4) to not at all (i.e., rating of 1) that measures intervention acceptability. Higher ratings indicated greater intervention acceptability as lower ratings signify lower intervention acceptability. For the purpose of this study, some minor modifications were made to the wording of questions to reflect the aims of the study (e.g., the words "behavioral problem" replaced with "writing abilities.") Internal consistency was calculated using Cronbach's alpha, indicating moderate to high levels of internal consistency across items on the intervention acceptability factor (α = .86).

Four weeks following the conclusion of the study, a follow-up intervention questionnaire was distributed to all participating parent. The questionnaire included five items on a 5-point Likert-type scale that measured parents' perceptions of the intervention procedures and engagement in writing activities after the researchers discontinued the intervention. Three items surveyed parents' acceptability and two items examined parent engagement. Examples of questions contained on the questionnaire included: (a)"Now that the writing intervention has concluded, how acceptable did you find the intervention?"; (b) "Do you wish that you were continuing to receive feedback on your child's writing performance in class?"; and (c) "Have you engaged in writing with your child at home?"

Teacher intervention acceptability questionnaire. All participating teachers completed an adapted version of the Intervention Rating Profile-15 for Teachers (Martens et al., 1985) (see

Appendix M). The questionnaire included 15 items rated on a 6-point Likert-type scale ranging from “strongly agree” to “strongly disagree”. Higher scores signified greater general teacher acceptability whereas lower scores denoted lower general teacher acceptability. For the purpose of this study, some minor modifications were made to the wording of the questions (e.g., “problem behavior” changed to “writing difficulties”). Cronbach’s alpha was computed for the current study and was high ($\alpha = .96$).

Procedural integrity assessments. For the classroom intervention, a procedural integrity protocol was used to verify that the classroom-based procedures were implemented with integrity (see Appendix O). The protocol evaluated the occurrence of data collection materials and of approved data collection procedures. The protocol was adapted from previous studies conducted by Truckenmiller, Eckert, et al. (2007) and Rheinheimer (2009). For the school-home performance feedback with home-based writing intervention, a permanent product review of the feedback forms and completed home-based assignments in the school-home notebook was conducted to verify that parent-child engagement occurred and that the home-based writing activities were conducted.

Procedures

Overview. Data collection sessions were conducted for a total of 7 weeks in the students’ general education classrooms. All data collection was conducted by trained research assistants, who followed a scripted protocol tailored for the session. Primary experimenters were responsible for conducting the sessions, while secondary experimenters assisted with administration (i.e., passing out and collecting feedback materials, answering questions, managing school-home notes materials) and conducted procedural integrity assessments. All sessions were implemented class-wide, wherein all eligible students participated in a group

format within their regular general-education classroom. It is important to note that original study proposal cited a six-week intervention period. However, midway through the study, the teachers informed the primary experimenter that the statewide English and Language Arts testing was scheduled to occur directly after the students' spring break week and during the last intervention writing session. As a result, it was decided to cease intervention after five sessions, resulting in one baseline assessment, five intervention sessions, and one post-assessment session.

Parent/student dyads were randomly assigned to either the performance feedback condition or the school-home performance feedback with home-based writing condition. Random assignment to the performance feedback condition and the school-home performance feedback with home-based writing condition was determined by utilizing a random number generator. Students within all classrooms had an equal chance of being assigned to either condition, resulting in each classroom containing students designated to both conditions. Data collection was organized into four phases: (a) baseline, (b) intervention, (c) post-intervention, and (d) follow-up.

Baseline phase. During the first baseline session, the primary experimenter distributed the corresponding materials and provided students with instructions to complete the assessment materials. First, the primary experimenter instructed students to complete the handwriting screening measure. The primary experimenter orally stated 12 letters and instructed the students to write the letters they hear. Following the handwriting assessment, the students completed one Curriculum-Based Measurement in Written Expression probe. Implementation procedures were based on those defined by Powell-Smith and Shinn (2004) and administered by the primary experimenter by use of procedural scripts. Students were instructed to think for 1 minute about composing a story based on a Curriculum-Based Measurement in Written Expression story-

starter, and then compose a story during a 3-minute writing period. At the end of the session, all students were asked to take home the parent demographics information questionnaire and the informational letter to parents. Parents voluntarily filled out the questionnaire and returned it to school with their child. The first baseline session lasted approximately 20 minutes. After the baseline data were collected, research assistants indicated the percentage of intelligible letters on the handwriting screening for each student and any student with less than 90% of intelligible letters was removed from the analysis.

Performance feedback condition. Students assigned to the performance feedback condition were informed on a weekly basis of how well they wrote during the previous week's writing session. During each session, students received an individualized performance feedback information sheet and the research assistants gave students scripted instructions for interpreting this information. Upon receipt of their individualized feedback, students were instructed to write a story based on one Curriculum-Based Measurement in Written Expression probe. As described above, they were required to think for 1 minute about creating a story based on the story-starter, and instructed to compose the story during a 3-minute writing period. At the conclusion of the 3-minutes, the primary experimenter directed the students to stop writing and research assistants collected all materials. Each intervention session lasted approximately 12 minutes.

School-home performance feedback with home-based writing condition. Prior to the start of the intervention, parents were informed of the feedback notes and home-based writing procedures and details pertaining to the assessment of writing progress through an informational letter. At the beginning of each intervention session, the research assistants instructed the students to submit their writing notebooks to the research assistants. The research assistants collected the notebooks and recorded the presence or absence of a completed school-home

performance feedback with home-based writing activity and parent's signature. Research assistants inserted the subsequent feedback note and home-based writing activity to the back of the notebook. If the students did not bring their notebook to school, the week's feedback note and writing task was inserted into a supplementary notebook, thus providing the ability for that week's feedback and writing task to be sent home. The students were instructed to bring both notebooks back to school and when both notebooks were returned, the feedback notes and writing assignments were consolidated into the original notebook. In addition, the presence or absence of the completed writing activity and parent's signature on the feedback note from previous weeks were recorded.

Meanwhile, the student participants were distributed writing packets containing an individualized performance feedback sheet and the primary experimenter provided scripted instructions for interpreting this information. After the students received their feedback, they were informed that their parents would also receive feedback on their performance. Next, the students were instructed to write a story based on one Curriculum-Based Measurement in Written Expression probe. Procedures identical to those previously described were followed. At the end of 3 minutes, the research assistants collected all materials from the students and distribute the updated writing notebooks. The primary researcher directed the students to bring the notebooks home to their parents, review the material with their parents, participate in the writing activity with their parents, and ask their parents to sign the form. Each classroom-based session lasted approximately 12 minutes in duration.

Post-intervention assessments. At the conclusion of the 5-week intervention period, post-intervention assessments were conducted within the classrooms. The first post-intervention assessment consisted of the research assistants distributing the appropriate materials (i.e., packets

containing the last round of performance feedback and the procedural acceptability questionnaires). Instructions for completing the packet emulated those instructions given during the baseline assessments. All students simultaneously completed the first five items on the procedural acceptability questionnaire. The students participating in the school-home performance feedback with home-based writing program were instructed to continue on to complete the additional five items pertaining to the procedures specific to the parent involvement program. During this time, the students not involved in the final questions (i.e., those students who participated in the performance feedback condition) silently completed a word find. In addition to the classroom-based session, students involved with the school-home performance feedback with home-based writing condition were asked to bring home the Treatment Acceptability Rating Form (Reimers et al., 1992) for their parents to complete. Experimenters inserted the questionnaires to the students' parent feedback notebooks and parents were given the option of returning the completed form to school with their child or mail the questionnaire to the primary investigator via self-addressed stamped envelope. Finally, teachers also were asked to complete the Intervention Rating Profile-15 (Martens et al., 1985). In all, this post-intervention session lasted approximately 20-minutes in duration.

Post-intervention follow-up. The follow-up phase occurred 3-weeks after the post-intervention session. The follow-up consisted of the primary experimenter asking the students formally involved in the school-home performance feedback with home-based writing program to bring home to their parents an additional questionnaire. This questionnaire re-assessed the parents' attitudes toward the previously implemented intervention procedures. Parents were provided with a self-addressed, stamped envelope to mail their responses back to the study's primary investigator.

Dependent Measures

Primary measure. The primary dependent measure was the total number of correct writing sequences on each Curriculum-Based Measurement probe. Compared to other measures of writing fluency (i.e., total words written, number of words spelled correctly, and number of completed sentences), the number of correct writing sequences provides a more accurate depiction of children's fluency and quality in writing (McMaster & Campbell, 2008). According to the scoring procedures outlined by Shapiro (2004), the number of correct writing sequences is computed by analyzing each adjacent word for correct punctuation, capitalization, spelling, and syntax. Therefore, within each story, the number of correct adjacent writing sequences was computed.

Secondary measures. The predictive value of students' sex and school placement was examined in relation to students' academic skill growth in writing fluency (i.e., correct writing sequences) and differences between intervention conditions over time. In addition, the predictive value of students' race, parents' race and educational status, students' and parents' intervention acceptability, and parents' procedural integrity were inspected in relation to students' writing fluency (i.e., correct writing sequences).

Experimental Design

A between-subjects repeated measures design was used. Eligible students were randomly assigned to either the performance feedback condition or the school-home performance feedback with home-based writing condition. Random assignment of students was determined by utilizing a random number generator. Repeated measures (i.e., writing probes) were used to monitor the students' growth in writing over a period of six weeks.

Procedural Integrity

Procedural integrity was assessed in three ways. First, a permanent product measure from all of the sessions (100%; *n* = 49) was obtained by the primary research assistant responsible for conducting the sessions. Procedural integrity for the permanent product measure was computed by summating the total number of steps implemented and dividing the summation by the total number of steps possible. The product was multiplied by 100 to compute the mean percentage of procedural integrity. The mean percentage of procedural integrity recorded by the primary researcher was 100%.

Second, a secondary research assistant who was present during 37% (*n* = 18) of the sessions recorded adherence to procedures on a procedural integrity checklist. Procedural integrity was computed by summating the total number of steps implemented by the primary experimenter and dividing the summation by the total number of steps possible. The product was multiplied by 100 to compute the mean percentage of procedural integrity. The mean percentage of procedural integrity recorded by the secondary research assistant was 99.5% (range, 92% to 100%).

Third, procedural integrity of the home-based intervention procedures was examined by reviewing signatures on the parent feedback reports and completed written compositions for the home-based writing activities (100%; *n* = 42). The mean procedural integrity of the parent feedback component was computed by totaling the number of signed reports returned, dividing by the total number of possible returned slips, and multiplying the product by 100. Similarly, the mean procedural integrity of the home-based writing component was determined by totaling the number of writing assignments completed, dividing by the total number of possible compositions, and multiplying the product by 100. Over the course of the intervention, parents' review of the progress report yielded a mean procedural integrity of 50% (range, 20% to 100%),

and the mean procedural integrity of the home-based writing component was 71% (range, 20% to 100%).

Interscorer Agreement

A total of 36% percent of the writing probes across all study sessions were randomly selected and independently re-scored for correct writing sequences by the secondary research assistants. The percentage of interscorer agreement and kappa agreement for correct writing sequences was calculated. Interscorer agreement was determined by dividing the lower total count by the higher total count and multiplied by 100. Kappa agreement was calculated as the probability of observed agreement minus the probability of change agreement and dividing the difference by one minus the probability of random agreement. The mean percentage of interscorer agreement for correct writing sequences was 98.2% (range, 87.5% to 100%, *SE* = .02) and the mean kappa agreement was .96.

Results

Results of the study are organized into three sections to address the three main aims of the study: (1) students' growth in writing fluency over time; (2) differences between conditions on students' writing fluency over time; and (3) differences between conditions in growth across instructional levels. In addition, a supplementary analysis section is included that addresses the secondary aims of the study and address the: (1) predictive value of student characteristics; (2) predictive value of parent characteristics; (3) student intervention acceptability; (4) parent intervention acceptability; and (5) predictive value of intervention acceptability. Information relevant to data preparation and data inspection are presented first.

Power Analysis

An a priori power analysis derived from multi-level linear modeling simulation procedures outlined by Hox (2002) was conducted. The simulation was run using a variance matrix from a previous study of performance feedback (Eckert, Lovett, et al., 2006) and designed to detect a minimum difference in slopes of .75 words per week over 6 waves of data collection with a power estimate of .80. The results of the simulation indicated that approximately 106 participants across two conditions (i.e., 53 students in each condition) would result in sufficient power.

Data Preparation Process

Data were inputted into a Microsoft Excel file by a trained research assistant. Microsoft Excel was used due to its ease in data tracking, versatility in editing data, and computing preliminary analyses. Data entry was checked by the primary experimenter and then, data were transferred into SPSS 11.5 (SPSS Inc., 2007) and SAS 9.1 (SAS Institute Inc., 2010). SPSS 11.5 software was used to generate descriptive statistics, multiple regression analyses, and graphs of data. SAS 9.1 was used for multilevel linear modeling of the primary dependent measure.

Data inspection. Data were first inspected for violations of normality by examining the frequency distribution of scores, means, standard deviations, ranges, and outliers. It was determined that one case (subject #243) served as an outlier. The case consistently demonstrated scores, in comparison to the sample, that resulted in a Mahalanobis distance beyond a χ^2 critical value of 22.46 ($p < .001$, two-tailed test), which is consistent with existing conventions for identifying outliers (Tabachnick & Fidell, 2007). When the case was removed from the dataset, the frequency distributions, box plots, and descriptive statistics met the assumption of normality. Further, the six assumptions specifically associated with multi-linear modeling were evaluated

and determined to be adequately met for the level one and level two random coefficients and residuals.

Descriptive analyses. Table 5 reports the means and standard deviations at baseline for the writing indices used in the study. Results from the Test of Written Language-Third Edition, Spontaneous Writing Portion Form A (Hammill & Larsen, 1978; 1983) suggest that, overall, students performed between the below average and average range. Students assigned to the performance feedback condition had a mean standardized writing quotient of 80.19 (*SD* = 27.08) at baseline, which falls within the below average range. Students assigned to the school-home performance feedback with home-based writing condition had a mean standardized writing quotient of 90.73 (*SD* = 22.83) at baseline, which falls within the average range of functioning. Consequently, on this outcome measure, it appeared the students assigned to the school-home performance feedback with home-based writing condition scored higher at baseline on the Test of Written Language-Third Edition than the students assigned to the performance feedback condition, t (93) = -2.05, p = .04, d = .43 (CI: .01 to .75).

Though students appeared to fall in the average or just below average range on norm-referenced measures of writing competency, results of the Curriculum-Based Measurement in Written Expression suggested that students overall performed well-below third-grade benchmarks (Mirkin et al., 1981). Differences between the conditions on correct writing sequences at baseline were evaluated using Level 2 multi-level modeling analyses. There was no statistically significant difference found between the two conditions for correct writing sequences during the baseline assessment, t (364) = 1.73, p = .08, d = .32 (CI: -.05 to .69), with the students in the performance feedback condition yielding a baseline estimate of 19.17 (*SD* = 9.45) correct writing sequences per 3 minutes and the students assigned to the school-home

performance feedback with home-based writing condition producing a baseline mean of 20.84 (*SD* = 9.36) correct writing sequences per 3 minutes. Further, the mean total words written at baseline for the students assigned to the performance feedback condition was 22.77 (*SD* = 9.56 words) per 3 minutes with the majority of students (89.4%) performing at the frustrational level based on instructional placement criteria established by Mirkin et al. (1981). The mean total words written at baseline for the students assigned to the school-home performance feedback with home-based writing condition was 24.08 (*SD* = 9.49) words per 3 minutes. Similar to students assigned to the performance feedback condition, the majority of students in the school-home performance feedback with home-based writing condition (87%) were performing at the frustrational level at baseline.

Table 6 reports the correlations between writing indices (i.e., total words written, correct writing sequences, standard scores on Test of Written Language-III). Overall, statistically significant correlations were observed between the two scoring techniques assessed on the Curriculum-Based Measurement in Written Expression probes (i.e., total words written and number of correct writing sequences). These positive correlations were very high (range, .91 to .99). In addition, statistically significant correlations were observed between the standard scores on the Test of Written Language-III and the writing fluency scoring techniques of number of total words written and number of correct writing sequences (range, .36 to .43).

Major Analyses

Multi-level modeling was used to model students' academic skill growth and differences between intervention conditions over time. A mixed-model repeated measures design (PROC MIXED function in SAS 9.1, SAS Institute, 2010) was used to examine the between condition differences (i.e., school-home performance feedback with home-based writing activities versus a

standard classroom-based performance feedback intervention) in the trajectory of students' writing fluency growth over time. The primary research hypothesis was evaluated using a multi-level model approach with Level 1 and Level 2 analyses specified. The goal of the Level 1 analysis was to estimate the individual growth patterns by a linear model containing intercept (i.e., estimated performance at baseline) and slope (i.e., rate of change in performance across sessions). Subsequently, the Level 2 model examined the interindividual differences in the intercept and slope as a function of condition (i.e., intervention) and other predictor variables that were found to contribute a significant amount of variability to the model.

The results of the analysis are summarized in Table 7. The unconditional model indicated a significant variation between conditions on students' correct writing sequences across sessions, t (100) = 8.23, $p < .001$, with 61% of the variance explained by intercept and 24% of the variance explained by slope. Therefore, it was determined the multi-level modeling was an acceptable statistical approach for the dataset. Next, predictor variables were added to the model to explore their contribution in the model variance and determine if additional predictor variables should be included in the conditional growth model. Initial level of writing fluency, students' sex, and students' school placement were explored as predictor variables. Initial level of writing fluency (i.e., frustrational, instructional, mastery) was found to contribute significant variance to the model, t (364) = -2.00, p = .05, with 52% of the variance explained in intercept (*pseudo* R^2 = .52) and 13% of the variance explained in slope (*pseudo* R^2 = .13). Given this finding, initial level of fluency was included as a covariate in the final conditional growth model. In addition, the predictor variable of school placement (i.e., School 1 or 2) explained a statistically significant amount of variance in the model, t (364) = 1.97, p = .05. Specifically, school placement contributed a small percentage of variance in intercept (*pseudo* R^2 = .01), but explained more

variance in slope (*pseudo* r^2 = .14). Conversely, students' sex as a predictor variable did not explain a statistically significant amount of variance in the model, t (364) = 0.15, p = .88, with a small amount of variance in intercept (*pseudo* R^2 = .02) and in slope (*pseudo* R^2 = .002). Therefore, school placement was included as a predictor variable in the final conditional growth model, which indicated a significant gain in students' correct writing sequences across sessions (i.e., Level 1), t (98) = 4.15, $p < .01$, d = .77 (CI: .35 to 1.15). However, the conditional growth model revealed no statistically significant differences in participants' slope over time by condition and school placement after controlling for students' initial level of writing fluency (i.e., Level 2), t (364) = -0.15, p = .87, d = -.03 (CI: -.34 to .40).

Initial level of writing fluency. Based on the conditional growth model, an examination of the parameter estimates for those students functioning at a frustrational level in writing suggested that students across both conditions performed similarly across time, yet both conditions in the second school gained nearly double the average number of correct writing sequences per week than students in the first school (see Table 8). Specifically, those students who were writing at the frustrational level in the first school and who were assigned to the performance feedback condition gained an average of 1.57 correct writing sequences per session. Students writing at a frustrational level and assigned to the performance feedback condition in the second school performed better across time, as they gained an average of 2.35 correct writing sequences per session. A similar pattern was found for students who were assigned to the school-home performance feedback with home-based writing condition and began at the frustrational level. For this condition, students in the first school gained an average of 1.52 correct writing sequences per session and students in the second school gained an average of 2.31 correct writing sequences per session (refer to Figure 2).

Students who began at the instructional level of writing fluency appeared to demonstrate fewer gains across time than students who began at the frustrational level. However, students assigned to the performance feedback condition in both schools appeared to have greater gains in average number of correct writing sequences across time than all students assigned to the school-home performance feedback with home-based writing condition (refer to Figure 3). In summary, students assigned to the performance feedback condition in the first school gained an average of .48 correct writing sequences per session. Similarly, students assigned to this condition in the second school gained an average of .45 correct writing sequences per session. Conversely, students in the first and second schools who were assigned to the school-home performance feedback with home-based writing condition and initially fell at the instructional level had nearly zero gains, with an average of .08 and .04 correct writing sequences per session, respectively (see Table 8).

Finally, the results for those students who were initially writing at the mastery level of writing fluency was inconclusive. Only two students fell in this category and both were assigned to the performance feedback condition (see Figure 4). The student assigned to this condition who was enrolled in the first school demonstrated a decrement in performance across sessions (M = -1.11 correct writing sequences per session), whereas the student enrolled in the second school demonstrated an increase in performance across sessions (M = 1.94 correct writing sequences per session) (refer to Table 8).

Non-Parametric Analysis of Instructional Placement

A McNemar-Bowker test was conducted to evaluate changes in students' writing fluency across instructional levels (e.g., frustrational, instructional, or mastery) over time. The results of the McNemar-Bowker test indicated a statistically significant change across instructional levels

for all students, X_{MB}^2 (4, N = 93) = 15.41, p = .004 (see Table 9). Overall, by the end of the study, 57% of the students were assessed at the frustrational level, 11% of the students were assessed at an instructional level, and 32% of students were assessed at the mastery level.

An examination of changes in instructional placement criteria for students assigned to each of the conditions suggested a similar pattern of findings. That is, there was a statistically significant shift across instructional levels for students in the performance feedback condition, X_{MB}^2 (4, N = 47) = 10.48, p = .03 (see Table 10). At the conclusion of the study, approximately 60% of the students in the performance feedback condition were assessed at the frustrational level, 15% of the students were assessed at the instructional level, and 25% of the students were assessed at the mastery level.

For those students assigned to the school-home performance feedback with home-based writing condition, a statistically significant shift across instructional levels was observed, X_{MB}^2 (4, N = 46) = 9.78, p = .04 (see Table 10).At the conclusion of the study, approximately 54% of the students were assessed at the frustrational level, 6% of the students were assessed at the instructional level, and 39% of the students were assessed at the mastery level.

Secondary Analyses

Two standard multiple regression analyses were conducted to examine how well demographic variables and intervention components predicted students' growth in writing fluency. Students' growth in writing fluency was based on individual students' slope values computed as part of the multilevel modeling computation. Prior to conducting the multiple regression analyses, assumptions of multicollinearity and singularity, the presence of outliers, normality, homoscedasticity, and independence of residuals were evaluated across independent variables in both conditions. For the performance feedback condition, assumptions were

evaluated across two variables: (a) students' race; and (b) students' acceptability of performance feedback procedures. For the school-home performance feedback with home-based writing condition, assumptions were evaluated across eight variables: (a) students' race; (b) total home-based work completed; (c) total number of parent signatures; (d) student acceptability of performance feedback procedures; (e) students' acceptability of school-home performance feedback with home-based writing procedures; (f) parents' race/ethnicity; (g) parents' educational degree obtained; and (h) parents' procedural acceptability. For parents and students assigned to the performance feedback condition, all assumptions were met and the two variables were retained. Table 11 presents the intercorrelation matrix for these retained variables. For the school-home performance feedback with home-based writing condition, high intercorrelations were found between variables (range, r = .73 to .93), although low tolerance values and high variance of inflation factors were obtained. Consequently, two variables (i.e., students' acceptability of performance feedback procedures; total number of parent signatures obtained) that contributed to the singularity and low tolerance issues were removed. Upon removal, a violation of normality, which was primarily due to the small sample size (n = 9) associated with one variable (i.e., parents' acceptability of intervention procedures), was detected. Therefore, this variable was excluded from the model. As a result, the final model, which met all statistical assumptions for the standard multiple regression, included five variables: (a) students' race; (b) total home-based work completed; (c) student acceptability of home-based procedures; (d) parents' race/ethnicity; and (e) and parents' degree obtained. Table 12 presents the intercorrelation matrix for these retained variables.

Regression analysis for performance feedback condition. Results of the multiple regression analysis that examined the combination of two student factors, race and intervention

acceptability, in predicting students' growth in writing fluency indicated that the combination of predictor variables did not explain a significant proportion of the variance in students' growth in writing fluency, F (2, 44) = 0.78, p = .47, with an R-squared value of .03 (see Table 13).

Regression analysis for school-home performance feedback with home-based writing condition. Results of the standard multiple regression analysis suggested that the combination of five predictor variables (i.e., students' race, total home-based work completed, student acceptability of home-based procedures, parents' race/ethnicity, and parents' degree obtained) did not explain a significant proportion of the variance in students' growth in writing fluency, F (5,36) = 1.74, p = .15, with an R-squared value of .20 (Table 14).

Student intervention acceptability. Intervention acceptability was evaluated through descriptive analyses (see Table 15). For the students assigned to the performance feedback condition, the acceptability of the classroom-based performance feedback procedures, based on the average composite score for feedback procedures, was determined to be slightly unacceptable (M = 3.95, SD = 0.97). Inspection of individual items suggested that most students enjoyed writing stories each week and liked receiving reports on their performance in the form of total words written. However, students in the performance feedback condition conveyed less satisfaction with the timing procedures associated with the study.

For the students assigned to the school-home performance feedback with home-based writing condition, the acceptability of the procedures was rated as slightly unacceptable (M = 3.80, SD = 0.94). Similar to the students in the performance feedback condition, most students in the school-home performance feedback with home-based writing condition enjoyed writing each week and receiving feedback on their writing performance in the form of total words written; yet, these students indicated that the timing procedures were unacceptable. In addition, the students

in the school-home performance feedback with home-based writing condition conveyed decreased satisfaction with the overall parent involvement and home-based writing procedures, as indicated by the average composite score for the school-home performance feedback with home-based writing condition (M = 3.75, SD = 1.13) (see Table 15). Students reported the most satisfaction with their parents' receipt of reports on their writing progress, their responsibility to bring the reports home, and engaging in writing stories with their parents. However, student ratings indicated that they did not want to write more than one story each week with their parents and sometimes did not want to write their weekly composition. It is important to note that there was moderate variability in responses on this measure, with some students finding the procedures highly acceptable and other students finding the intervention procedures unacceptable.

Parent intervention acceptability. Intervention acceptability, as reported by the parent participants involved in the school-home performance feedback with home-based writing condition, was assessed through descriptive statistics. The average composite score for parents' acceptability of the intervention procedures (i.e., school-home performance feedback with home-based writing activities) appeared to be high (M = 5.20, SD = 0.77) (see Table 16). Overall, parents reported liking the procedures used in the intervention and a willingness to carry out the intervention. They indicated feeling that there were few disadvantages to the intervention and that the intervention would not be disruptive to their family life. The mean scores suggested that parents believed the intervention to be reasonable given their child's writing abilities and felt the intervention was likely to be effective and make permanent improvements in their child's writing. Upon follow-up, parents continued the view the intervention as acceptable and engaged their child in writing at home (M = 4.32, SD = 0.43) (Table 16). Furthermore, parents strongly

acknowledged wishing that they were continuing to receive feedback on their child's writing performance in class and writing activities to participate with their child at home.

Teacher intervention acceptability. The teachers' overall acceptability of the classroom-based performance feedback and school-home performance feedback with home-based writing intervention was evaluated through descriptive analyses (see Table 17). The average composite score indicated that teachers found the intervention to be acceptable (M = 4.73, SD = 0.52). Inspection of individual items suggested that most teachers felt the intervention is acceptable for students' writing problems, liked the intervention procedures, and would use the intervention. In addition, teachers rated their students' writing difficulties as severe enough to warrant the use of the intervention, felt the intervention would be appropriate for use with a variety of students, and deemed the intervention would not result in negative side effects for the students.

Discussion

Although the primary focus of research directed towards increasing elementary students' writing competency has been within the area of classroom-based fluency interventions (i.e., individualized performance feedback), a number of researchers suggested that students' academic competencies can be improved by incorporating parent involvement strategies (Atkenson & Forehand, 1979; Christenson, 2004; Fan & Chen, 2001; Jeynes, 2005; U.S. Department of Education, 2008). Epstein et al. (2002) defined a number of strategies to elicit parent involvement in education, with communication through school-home notes and home-based writing activities as the specific method utilized in the current study. Based on previous work in the area of school-home notes (Blechman et al., 1998; Dolliver et al., 1985; Rheinheimer, 2009; Strukoff et al., 1987) and home-based educational activities (Fiala &

Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006), the use of parent involvement methods resulted in increased homework completion and greater gains in students' reading accuracy and fluency, reading comprehension, mathematics accuracy, spelling accuracy, and writing fluency compared to intervention procedures that did not include parent involvement methods.

Despite empirical support for incorporating performance feedback and parent involvement methods of school-home notes and home-based educational activities to improve students' academic achievement, several limitations to the current research base exist. First, the school-home notes literature has primarily focused on interventions that target global academic outcomes (e.g., grade point average) rather than specific academic skills. Second, although the home-based educational activities literature has concentrated on increasing children's performance in specific academic skills (e.g., reading fluency, spelling accuracy, and mathematics accuracy), the academic domain of writing has been neglected. Third, research studies have highlighted the isolated effects of performance feedback, school-home notes, and home-based educational activities; however, no study has evaluated the effectiveness of combining performance feedback and school-home notes strategies with home-based educational activities, even though this type of parent involvement program has been identified as a focus for future research efforts (Fiala & Sheridan, 2003).

The purpose of the present study was to examine the effectiveness of combining performance feedback and school-home notes with home-based writing activities as an intervention to improve elementary-aged students' writing fluency. The primary aim of the study was to examine whether a combined school-home performance feedback with home-based writing activities intervention improved students' writing fluency to a greater extent than if

students were not provided with the school-home feedback and home-based writing program. Overall, the results of this study found that students improved their writing fluency over the course of the study, with no significant differences between the two intervention conditions. However, the degree of improvement varied as a function of condition, school, and the students' initial level of writing fluency. The next section of the discussion will review the results of the study in relation to the three primary research hypotheses.

Effectiveness of Performance Feedback on Students' Writing over Time

Based on previous research suggesting that individualized performance feedback procedures are effective in increasing students' writing fluency (Eckert et al., 2006; McCurdy et al., 2008; Rheinheimer, 2009; Van Houten, 1979), it was anticipated that students who engaged in performance feedback procedures would demonstrate statistically significant gains in their writing fluency over time. Results of the current study indicated that students, regardless of condition assignment, who received classroom-based individualized performance feedback procedures showed statistically significant gains across time (d = .77, CI: .35 to 1.15); thus, this hypothesis was supported. Specifically, students assigned to the performance feedback condition gained an average of 1.43 and 2.25 correct writing sequences per week in the first and second schools, respectively. Students assigned to the school-home performance feedback with home-based writing condition gained an average of 1.36 and 2.19 correct writing sequences per week in the first and second schools, respectively.

The large effects observed in the present study are consistent with effects found in recent studies. Previous research studies have compared individualized performance feedback procedures to a control condition or an alternative intervention and found large intervention effects. In one study, Eckert and colleagues (2006) demonstrated that students assigned to the

performance feedback condition gained an average of 1.69 more words per week than the control condition (*d* = .81). Truckenmiller (2011) found that students assigned to an individualized performance feedback intervention ascertained greater gains in correct writing sequences across time (i.e., gained .96 correct writing sequences per week) compared to a writing practice condition with no performance feedback (i.e., lost .24 correct writing sequences per week). Finally, Rheinheimer (2009) reported that students who participated in a school-home notes intervention demonstrated more growth in writing fluency, with gains of 2.33 words per week (*d* = 2.05), compared to students assigned to a performance feedback condition who gained 1.75 words per week (*d* = 1.39). Notably, though large fluency gains across both conditions in the current study were expected, the writing fluency gains for students assigned to both conditions were remarkably higher than national norms, which indicate an average rate of improvement of .5 correct writing sequences per week given typical classroom instruction (Pearson Education, Inc., 2009). Given the large improvement in students' writing fluency, the comparability of results to previous studies, and the significant gains in comparison to national data, the present study provides support for the use of classroom-based performance feedback interventions for improving elementary-aged students' fluency in written expression.

Effects of Parent Involvement on Writing Fluency

Previous research in the area of parent involvement (Dolliver et al., 1985; Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006; Rheinheimer, 2009; Strukoff et al., 1987) indicated that the use of school-home notes and home-based educational activities increased student performance across global and specific academic domains compared to control conditions or interventions without parent involvement. Accordingly, the second hypothesis of this study asserted that students assigned to the school-home performance feedback with home-

based writing activities would demonstrate significantly greater improvement in their writing fluency compared to those students assigned solely to an individualized performance feedback condition with no parent involvement. The results of this study did not support this second hypothesis. Specifically, after controlling for students' initial level of writing fluency, no statistically significant differences in students' writing fluency were observed between the two conditions. This finding suggests that incorporating parent involvement methods did not improve students' writing fluency over time to a greater extent than providing students solely with performance feedback. Further, the results of the present study suggest that the performance feedback intervention was overall slightly more effective than the school-home performance feedback in producing fluency gains among the sample of students participating in the study. Specifically, students assigned to the performance feedback condition gained on average between 1.43 (school one) and 2.25 (school two) correct writing sequences per week, whereas students assigned to the school-home performance feedback with home-based writing condition gained on average between 1.36 (school one) and 2.19 (school two) correct writing sequences per week.

One factor that may contribute to this finding is that students assigned to the performance feedback condition made writing fluency gains over the course of the study (e.g., 2.25 correct writing sequences per week) that have never been reported in comparable research studies (range, .96 to 1.75 total words written per week). As a result, students assigned to the school-home performance feedback with home-based writing condition needed to demonstrate improvements of at least four or five correct writing sequences per week in order for this second hypothesis to be supported.

Another consideration is that although several variables considered important in promoting student achievement were incorporated in the present study (i.e., interest and assistance with homework, discussion of progress, and parents' contact with school), additional procedures utilized in previous parent involvement research studies (Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998) were missing from the present intervention procedures, including weekly phone calls to parents, parent training on the academic intervention procedures, and parent involvement activities sustained over a longer duration of time. The incorporation of these types of additional parent involvement procedures may be essential to changing students' academic skills.

Similarly, the exclusion of additional supports from the study procedures, such as weekly phone calls and parent training, may have served as a barrier to successful parent involvement in the intervention condition. Hoover-Dempsey and Sandler (1997) suggested that parents' sense of self-efficacy (i.e., beliefs about their skill level) to help their children in school is necessary for successful parent involvement in education. It is possible that parents with low self-efficacy may have avoided involvement with home-based assignments due to their perceived inadequacies and beliefs that they have no impact on their child's school success. It is additionally plausible that parents' abilities to assist their children with home-based assignments were overestimated and they could have benefited from more direction from researchers.

In addition to the exclusion of additional intervention procedures, robust effects on the dependent measure (i.e., writing fluency) may not have been acquired due to the school-home performance feedback with home-based writing intervention training for fluency and generalization rather than fluency alone. As part of the home-based writing assignments, parents and students were provided instructions to utilize writing conventions, such as titles, descriptive

words, and related sentences, rather than directions to write with speed and accuracy. Though the school-home performance feedback aimed to increase students' writing fluency, methodology related to the home-based writing assignments targeted generalization. Changing the methodology of the home-based writing assignments by providing instructions specific to training writing fluency may have resulted in different effects than those observed in the current study.

Although no appreciable gains were observed from combining the home-based writing activities with the classroom-based performance feedback intervention, it can be argued that there were likely benefits associated with the parent involvement intervention methods that were not measured in the present study. Previous research suggests (Christenson et al., 1992; Cox, 2005; Epstein et al., 2002; Fan & Chen, 2001; Jeynes, 2005) that students, teachers, and parents additionally benefit from the use of parent involvement procedures. For example, changes to students' externalizing classroom behavior, change in parents' involvement in other academic domains, or change in parents' perceptions of education and expectations for their children have been observed in other studies involving parent involvement methods. It is possible that the current study's scope was too narrow to account for some of the broad benefits of parent involvement methods shown to be indirectly related to children's educational success.

Change across Instructional Placement Levels

An additional method to evaluate the effectiveness of the intervention procedures was to examine the clinical significance of intervention effects at the conclusion of the study. Accordingly, the third hypothesis stated that students in both conditions would demonstrate a shift in their instructional placement in written expression, based on criteria developed by Mirkin et al.(1981). The results of this study suggested that overall, students demonstrated statistically

significant shifts across instructional placement levels from pre-intervention to post-intervention. Therefore, these findings provide support for the third hypothesis and indicate that performance feedback procedures in written expression, whether classroom-based or home-based, are effective in increasing students' writing fluency.

It was further hypothesized under this study aim that students participating in the school-home performance feedback with home-based writing condition would show greater shifts across instructional levels compared to students assigned to the performance feedback condition. Results of this study indicated that students assigned to both conditions demonstrated statistically significant shifts across instructional placement criteria, providing no support for this hypothesis. These findings are somewhat similar to findings by Rheinheimer (2009), who reported 42% of the students assigned to the school-home notes condition demonstrated statistically significant shifts across instructional placement criteria, yet much smaller improvements were observed for the performance feedback condition. Factors previously discussed (e.g., benefits not measured) may explain the similar pattern of findings between the two conditions. Ultimately, the results of the present study suggest that this type of intervention is appropriate for promoting students' academic growth in writing.

Predictor Variables in Growth of Writing Fluency

Secondary analyses attempted to evaluate the degree to which parent and student demographic variables as well as intervention components predicted students' writing fluency growth. The purpose of the secondary analysis was exploratory in nature and the results of the analysis indicated that none of the predictor variables (i.e., students' race, total home-based work completed, student acceptability of home-based procedures, parents' race/ethnicity, and parents' degree obtained) explained a statistically significant proportion of the variance in students'

writing fluency growth. This finding is most likely related to the significant impact that initial level of writing fluency and school placement had on students' writing fluency growth, and is discussed below. Most of the variance associated with students' writing fluency growth (i.e., 52% of intercept and 27% of slope) was accounted for by these variables.

School Placement and Baseline Performance on Students' Fluency Gains

Although not originally hypothesized, an unexpected and interesting pattern of results were observed in students' writing fluency gains. These findings suggested that students' gains in writing fluency varied as a function of the students' school placement and initial level of writing fluency at baseline. Specifically, there appeared to be a significant effect of school enrollment on students' growth in writing fluency, with greater gains observed for those students who were enrolled in school two. Overall, students who were enrolled in school two gained on average almost one correct writing sequence per week more than students enrolled in school one.

It is possible that the between schools differences were due to the novelty of the intervention procedures, such that students in school two were not previously exposed to parent involvement procedures on their writing performance and thus, had a greater response. However, according to teachers' reported instructional practices, the teachers in school two reported frequently utilizing feedback-type procedures (e.g., weekly student-teacher conferencing on writing progress) whereas teachers in school one reported infrequently utilizing feedback-type procedures (e.g., monthly conferencing with students). Considering that students in school two had prior exposure to performance feedback yet had a great response to the study procedures, it is possible that the explicit feedback procedures used in the study (e.g., feedback on total words written) compared to those previously used by teachers (e.g., reviewing compositions) resulted in greater responding. In addition, teachers in school two utilized a wide variety of writing curricula

(e.g., Four-Square, 6+1 Traits, Scott Foresman, NYS English/Language Arts Standards) whereas teachers in school one utilized a smaller number of writing curricula (e.g., Lucy Calkins and Scott Foresman). Given the larger improvements made by students in school two, it is possible that an interaction exists between the intervention procedures and students' exposure to a variety of curricula. Furthermore, teachers in the school one reported allocating on average 100 minutes of writing instruction or composition practice compared with teachers in school two, who reported an average of 60 minutes of writing instruction allocated to composition, handwriting, and spelling practice. As suggested by previous research (Abbott & Berninger, 1993; Berninger et al., 1992; Chard, Vaughn, & Tyler, 2002), improvements and automaticity in motor skills, as targeted by handwriting and spelling, directly affects writing fluency. Such discrepancies in instruction practices are important differences that may have impacted students' performance at the school level and resulted in the reported differences between students enrolled in the two schools.

In addition to students' gains in writing fluency varying as a function of school placement, there was an effect of students' initial level of writing fluency on their subsequent fluency gains. Specifically, students who began the study at a frustrational level of writing fluency, regardless of condition assignment, demonstrated large gains in their writing fluency across time. Students assigned to the school-home performance feedback with home-based writing condition demonstrated similar gains in their writing fluency (i.e., gained 1.52 and 2.31 correct writing sequences per week) as students assigned to the classroom-based performance feedback condition (i.e., gained 1.57 and 2.35 correct writing sequences per week). Given that nearly 90% of the students began writing at the frustrational level of fluency, these students had considerable room for growth, which may be an explanation for the substantial gains that were

observed. These finding suggest that performance feedback procedures, with and without parent involvement components, are effective in building students' writing fluency particularly when students' are initially writing at a frustrational level.

For those students who began the study at the instructional level, greater improvements were observed among those students assigned to the performance feedback condition. Results indicated that students assigned to the performance feedback condition gained approximately .50 writing sequences per week, whereas students assigned to the school-home performance feedback with home-based writing program demonstrated nearly zero gains in their writing fluency (range, .04 to .08 writing sequences per week). Compared to previous research that suggested positive effects of school-home notes on students' writing fluency (Rheinheimer, 2009), the minor gains obtained by students who received the school-home performance feedback with home-based writing intervention suggests that the added home-based writing components did not promote fluency gains for students functioning at an instructional level.

These findings may have been due to a number of factors. First, though not directly measured, it is plausible that students who were initially writing at the instructional level of fluency were supported at home prior to the study's inception. Thus, the additional school-home performance feedback and home-based writing components had a minimal positive effect on students' performance. Second, it is possible that for students writing within an instructional level, further practice in the form of home-based assignments (e.g., homework) may have no effect or an adverse effect on students' academic progress (Cooper, Lindsay, Nye, & Greathouse, 1998). Similarly, the home-based assignments may have been interpreted as homework by the students. Cooper (1989) suggested that students' negative beliefs regarding homework may influence their achievement, yet elementary students' attitudes toward homework is highly

variable (Cooper et al., 1998). Consequently, these findings suggest that it may be necessary to adapt parent involvement intervention procedures, namely school-home performance feedback with home-based writing, for elementary students writing at various instructional levels.

Finally, students who began the study at a mastery level of writing fluency demonstrated contrasting results, with one student demonstrating improvements and the other student demonstrating a decrement in writing fluency. However, given the very small sample size (n = 2) it is difficult to draw reliable conclusions regarding the impact of these two interventions for students who have developed proficiency in writing.

Consumer Satisfaction of Intervention Procedures

The study additionally explored student, parent, and teacher acceptability of the intervention procedures across both conditions. Results concluded that students rated both intervention procedures as slightly unacceptable. Overall, students reported moderate to high acceptability associated with writing stories each week and receiving individualized performance feedback (e.g., total words written the previous week). However, many of the students indicated dissatisfaction with the timing component associated with the intervention procedures. Despite the effectiveness of an intervention, dissatisfaction with intervention procedures has the potential to result in students' decreased effort, thus impacting outcomes (Elliott, Witt, Kratochwill, & Stoiber, 2002). Given these results and the need for socially valid intervention procedures, it may be concluded that weekly classroom-based writing assignments with individualized feedback may be an appropriate intervention for students, though the timing procedures should be either modified or eliminated.

For those students receiving the school-home performance feedback with home-based writing procedures, the highest ratings, though falling just below acceptability, were with respect

to providing parents with feedback reports, being responsible for bringing the reports from school to home, and writing weekly compositions. Previous literature on school-home notes interventions without home-based assignments (Strukoff et al., 1987; Rheinheimer, 2009) indicated high acceptability ratings across all intervention procedures. Despite students' satisfaction with home-based educational activities in reading (Fiala & Sheridan, 2003; Reutzel et al., 2006), perhaps a home-based writing component should be reconsidered for interventions in writing fluency.

Similar to previous studies in the school-home note (Dolliver et al., 1985; Strukoff et al., 1987; Blechman et al., 1998) and home-based educational activities literature (Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Reutzel et al., 2006), parents and teachers rated the school-home performance feedback with home-based writing program intervention as highly acceptable. Specifically, teachers reported that the intervention was an acceptable approach to address their students' writing problems. Teachers also reported that they liked the intervention procedures and would employ the intervention with a variety of students. Similarly, parents indicated that they enjoyed the intervention and were willing to carry it out. Parents reported that the intervention was not disruptive to their home life and believed it was likely to make improvements in their child's writing performance. Further, four weeks following the completion of the intervention, parents reported that they continued the view the intervention as acceptable and wished their students were still receiving the intervention.

In addition to parent and teacher ratings of their satisfaction with the school-home performance feedback with home-based writing intervention, parents engaged in the intervention procedures and anecdotally reported enjoying writing with their child, reading their child's imaginative stories, and believed the practice was beneficial to their child's progress in written

expression. As previous literature has indicated (Christenson, 2004; Fan & Chen, 2001; Jeynes, 2005), variables such as high levels of direct or indirect types of parent involvement at home or in school are associated with increased positive parental attitudes regarding education. Although this study did not broadly evaluate these factors prior to or during the implementation of the intervention, several researchers suggest that this type of commitment to communication and support of school-related academic activities (e.g., assistance with homework and engagement in home-based learning activities) is critical to imparting the importance of school and promoting academic achievement (Barge & Loges, 2003; Christenson et al., 1992; Epstein et al., 2002) among parents. Furthermore, Christenson (2004) highlighted the educational benefits of providing parents explicit invitations to incorporate academic practices in the home, especially procedures that parents perceive as helpful to their child.

Limitations of the Present Study

Although the present study attempted to address many shortfalls in the current literature base, several limitations existed. First, as reflected by the low average to average performance on a norm-referenced measure of writing competency, the population sample was one of convenience. Though the sample was reflective of urban elementary students, it was not representative of a national sample. Additionally, although the methodology and the dependent measures were not affected, randomization failed as there were differences between groups on the Test of Written Language – III (Hamill & Larson, 1978; 1983). Second, it is important to note that a control group was not included in this study. Therefore, gains in writing fluency across time could not be compared to a group of students who were not receiving individualized performance feedback. Consequently, it may be argued that students' practice in writing, despite the receipt of performance feedback, could account for the observed effects. Third, several

variables were not under experimental control and may have impacted the students' response to intervention. For one, diffusion of treatment and compensatory rivalry by respondents receiving the less desirable treatments (e.g., cross-talk between students and knowledge of treatment differences) may have impacted outcomes. Because these potential confounds were not formally evaluated, they cannot be ruled out. Fourth, additional factors operating within classrooms, such as, teachers' use of similar parent involvement practices for other academic competency areas, were not controlled. Fifth, writing fluency was the primary and only outcome variable examined in this study. It is possible that other important variables related to students' school success (e.g., students' perceptions of school, parents' perceptions of school, students' classroom behavior) may have impacted results. Finally, the generalizability of the results is limited to third-grade students within the specified demographic.

Additional limitations were present that apply specifically to the school-home performance feedback with home-based writing intervention condition. First, adherence to the intervention procedures was inconsistent, which may have compromised treatment implementation thereby underestimating the effects associated with this condition. For example, many students consistently submitted parent signatures on their feedback notes as well as written compositions from home whereas other students' adherence was variable. Additionally, the study did not employ procedures to monitor specific characteristics of parents' participation. The integrity of parents' use of differential reinforcement for students' improvement in writing, engagement in their children's home-based writing activities, and amount of time spent on writing practice at home was not examined. Similarly, the extent to which the stories completed in the home-based writing assignments complied with the detailed instructions (e.g., use titles, character names, and descriptive words) was not examined. Second, the school-home

performance feedback with home-based writing intervention was proposed to last for 6 weeks, yet was terminated at 5 weeks due to unforeseen state testing conflicts. Previous research in home-based educational activities implemented interventions over a range of 11-weeks to the entire school year (Rasinski & Stevenson, 2005; Reutzel et al., 2006; Shaver & Walls, 1998). Although such procedures may be impractical for teachers and parents to sustain, a longer intervention period may be necessary to obtain effects.

Directions for Future Research

The results of the present study provide a number of directions for future research. Although past research demonstrates strong support for school-home communication and home-based educational activities, the current study suggests that a classroom-based performance feedback procedure is as effective, and in some cases (i.e., initial level of fluency at an instructional level) more effective, than a performance feedback intervention incorporating a home-based writing component. Due to the differences observed as a function of the students' initial writing level, it may be important for researchers to consider this factor in future studies. It is important for future research studies to explore the relative impact parent involvement strategies for students functioning at varying levels of instructional placement.

In addition, the current study was unable to provide evidence to support the superiority of parent involvement procedures for improving students' academic performance over classroom-based interventions. However, the study was rather narrow in scope with the majority of outcome measures assessing student performance. Previous literature suggests (Christenson, 2004; Cox, 2005; Epstein et al., 2002; Fan & Chen, 2001; Jeynes, 2005) that high levels of direct or indirect types of parent involvement are associated with additional variables that may have an indirect effect on student achievement. In the present study, such factors were not measured or evaluated.

It may be important for future studies to further examine the effect of parent involvement strategies across a broad range of parent measures as well as compare these effects relative to parents who are not receiving parent involvement strategies.

Similarly, to date, little is known regarding predictor variables associated with writing fluency. The current study conducted exploratory analyses of predictor variables, such as initial level of writing fluency, school placement, student sex, student race, parent race/ethnicity, parent education, intervention integrity, and consumer satisfaction. However, future research may consider evaluating the relationship between various predictor variables and writing fluency by employing larger sample sizes across diverse populations of student and parent participants (e.g., socio-economic status, grade level, typically-developing students, low-achieving students, and students with disabilities).

Finally, future research may wish to conduct similar studies on the effects of school-home performance feedback and home-based educational activities while sustaining greater experimental control over the home-based educational activities. Though levels of parents' treatment integrity did not predict students' performance in the current study, Shapiro (1987) emphasized treatment integrity as integral in determining treatment effectiveness. Unlike previous research evidencing significant effects of school-home note and home-based educational activities on students' reading and mathematics achievement (Fiala & Sheridan, 2003; Rasinski & Stevenson, 2005; Shaver & Walls, 1998), the current study did not enforce parents' treatment integrity. For example, unlike previous research that has incorporated home-based educational activities, the present study did not provide parent training on the intervention protocol and home-based activities, conduct weekly phone calls to parents, or require a specified

level of treatment integrity. It may be important for future research to focus on establishing and maintaining treatment integrity associated with the home-based activities.

Conclusions

Although the present study did not demonstrate that the parent involvement intervention (e.g., school-home performance feedback with home-based writing) was superior to the performance feedback intervention, there are several notable conclusions that can be drawn. First, an increase in students' writing fluency over time was observed across both conditions. Depending on the students' school placement, these weekly gains in writing fluency were similar to or remarkably greater than comparable research studies (Eckert et al., 2006; Truckenmiller, 2011) as well as national averages (Pearson Education, Inc., 2009). Relatedly, the initial levels of students' writing performance closely mirrored the findings reported in the Condition of Education (Persky et al., 2003), wherein 88% of elementary-aged children eligible for free and/or reduced price lunch could not write at the Proficient Level. In the present study, although approximately 88% of the students were not functioning at grade-level standards in writing fluency at the onset of the study, approximately 43% were functioning at or above grade level standards at the study's conclusion. Therefore, this study provides further support for performance feedback-based interventions as effective tools for improving students' writing fluency.

It is important to keep in mind, however, that not all students benefited from the procedures used in this study. At the conclusion of the study, a large percentage of students, regardless of condition assignment, remained below the grade-level placement criterion for writing fluency. This finding suggests that it is important to identify additional strategies that

may improve the writing fluency of these students as well as examine factors that might predict those students who will not evidence improvements over time.

Finally, there remain considerations regarding the effectiveness of parent involvement strategies, specifically school-home feedback with home-based writing, on students' writing fluency. This study indicated that an intervention utilizing parent involvement methods did not improve students' writing fluency over time to a greater extent than providing students with performance feedback without parent involvement procedures. However, at the frustrational level of fluency, the school-home performance feedback with home-based writing intervention yielded results similar to those obtained by students assigned to the classroom-based performance feedback intervention. Further, parents and teachers expressed satisfaction with the intervention procedures and it is important to consider the potential influence of parent involvement on numerous variables related to education that were not explicitly evaluated in this study (Christenson et al., 1992; Cox, 2005; Fan & Chen, 2001; Jeynes, 2005). Therefore, this study provides preliminary groundwork for the positive effects of direct and indirect methods of parent involvement on writing fluency, particularly for students below proficiency. The field may benefit from expanding research on the effects of parent involvement on written expression as well as further examine of the influence of initial level of proficiency on the effects of parent involvement across various academic domains.

Appendix A

Teacher Consent Form

School-Home Performance Feedback with Home-Based Writing Activities: The Effects on Elementary Students' Writing Fluency

Dear Third Grade Teacher, January 2010

My name is Jennifer Rymanowski and I am a doctoral candidate in School Psychology at Syracuse University. I am working on a research project attempting to improve students' writing skills. I am trying to see how much students' writing skills improve over time, if they are given the opportunity to practice independent writing once a week. For all students who participate in this project, a graduate student or myself will be telling them how they are doing in writing to see if this procedure is helpful and improves their writing skills over time. For a randomly selected group of students, a graduate student or myself will also inform the students' parents of their child's progress and ask students and parents to complete home-based writing activities once per week. We hope to see if these additional procedures are helpful in improving the students' writing skills over time.

I am asking for your consent to participate in this research study. You will be asked offer your classroom once per week for approximately 10-15 minutes so your students may engage in the weekly writing activity and intervention. By participating in this project, you will be advancing our knowledge of writing interventions and parent involvement activities. Additionally, you will be provided with compensation for participation in the form of a gift certificate. Should you choose to withdraw from the study at any time, the compensation will be prorated in recognition of your time and effort prior to the withdrawal (i.e., $5.00 compensation for each week involved).

If you choose to participate in this research project, a graduate student or myself will be working in your classroom once each week for approximately 8 weeks. The first session and the last session will occur in your classroom and will last approximately 15 minutes. All other sessions in your classroom will last approximately 10-12 minutes. A graduate student or myself will work with all of the students in a group format and ask each child to independently write one story. For example, the students may be asked to write about a favorite school activity. Working with your students on completing independent writing stories may help them improve their writing skills and hopefully help the students enjoy writing. Also, we may be asking the students to provide their parent(s) with feedback on how they are writing and engage in home-based writing tasks with their parents. Each week, we will ask the students to bring home a progress report and writing activity to their parent(s). Parent(s) will be asked to sign the bottom of the report and

return the report and completed activity to school with their child. Providing parents with feedback on their child's writing may promote parent involvement in education and help further improve students' writing.

You may choose to participate in this research project. Also, you may choose to withdraw from the project at any time without negative results. If you choose to participate in this study, all of the information from this project will be kept confidential. I will not be sharing any of this information with the school or with your students' parents. I will not be including any specific information in a written report. However, I may summarize the general results of all the participating teachers, students, and parents in a summary of the overall project's results. Your name or any other identifying information would not be included in this written summary. Once this project has been completed, all of the materials will be contained in a locked filing cabinet that only I will have access to.

The potential risks of participating in this research project include increased time demands (allowing the research study in your classroom during school hours), and any discomfort that may accompany our presence in the classroom. This research project will require that you stop instruction while the class is working on my project. This may interrupt your daily schedule, however, you will be asked to identify a time that is good for you and all the students in the class. These potential risks will be minimized by our completion of the classroom-based writing tasks at a time that is most convenient for you. In addition, while we briefly work with the class, you may take that time for planning, grading, or completing necessary work.

Attached to this letter is a signature page. Please review the attached page and indicate whether you are willing to participate in this project. Please return the attached page in the accompanying stamped, self-addressed envelope. This letter is for your records and you do not need to return it. If you have any questions, concerns, or complaints regarding this research project, you may contact me, Jennifer Rymanowski (607-743-3577). If you have any questions, concerns, or complaints that you wish to address with someone other than the investigator, or if you cannot reach the investigator, you may contact my graduate advisor, Dr. Tanya Eckert (315-443-3141). In addition, you may contact Syracuse University's Institutional Review Board (315-443-3013) if you have questions regarding your rights as a participant and/or if you have any questions, concerns, or complaints that you wish to address to someone other than the investigator or if you cannot reach the investigator. Anyone you contact will be glad to answer questions or address any concerns. Thank you.

Sincerely,

Jennifer L. Rymanowski, M.S.
Doctoral Candidate
Department of Psychology
School Psychology Program
(607) 743-3577

Tanya L. Eckert, Ph.D.
Associate Professor of Psychology
Department of Psychology
School Psychology Program
(315) 443-3141

TEACHER CONSENT FORM

Instructions: Please complete this form and return it in the stamped, self-addressed envelope. Thank you!

Your name: _____

I hereby consent to participate in the study, following the procedures and guidelines described above. I also certify that I am eighteen years or older.

☐ I hereby consent to participate in the study, following the procedures described in the letter.

_____ _____
Signature of Participant Date

☐ I do not consent to participate in the study, following the procedures described in the letter.

_____ _____
Signature of Participant Date

_____ _____
Name of Investigator (Printed) Date

_____ _____
Signature of Investigator Date

Appendix B

Student Assent Form

Important Question

I would like to work with you each week for the next couple of months. We will be working on writing stories in school and you may be chosen to write stories with your parents too. Your teacher has said that it is okay that I work with you. However, I want to make sure that it is okay with you. If you change your mind it is okay to stop working with me at any time.

Would it be okay if I worked with you on writing?

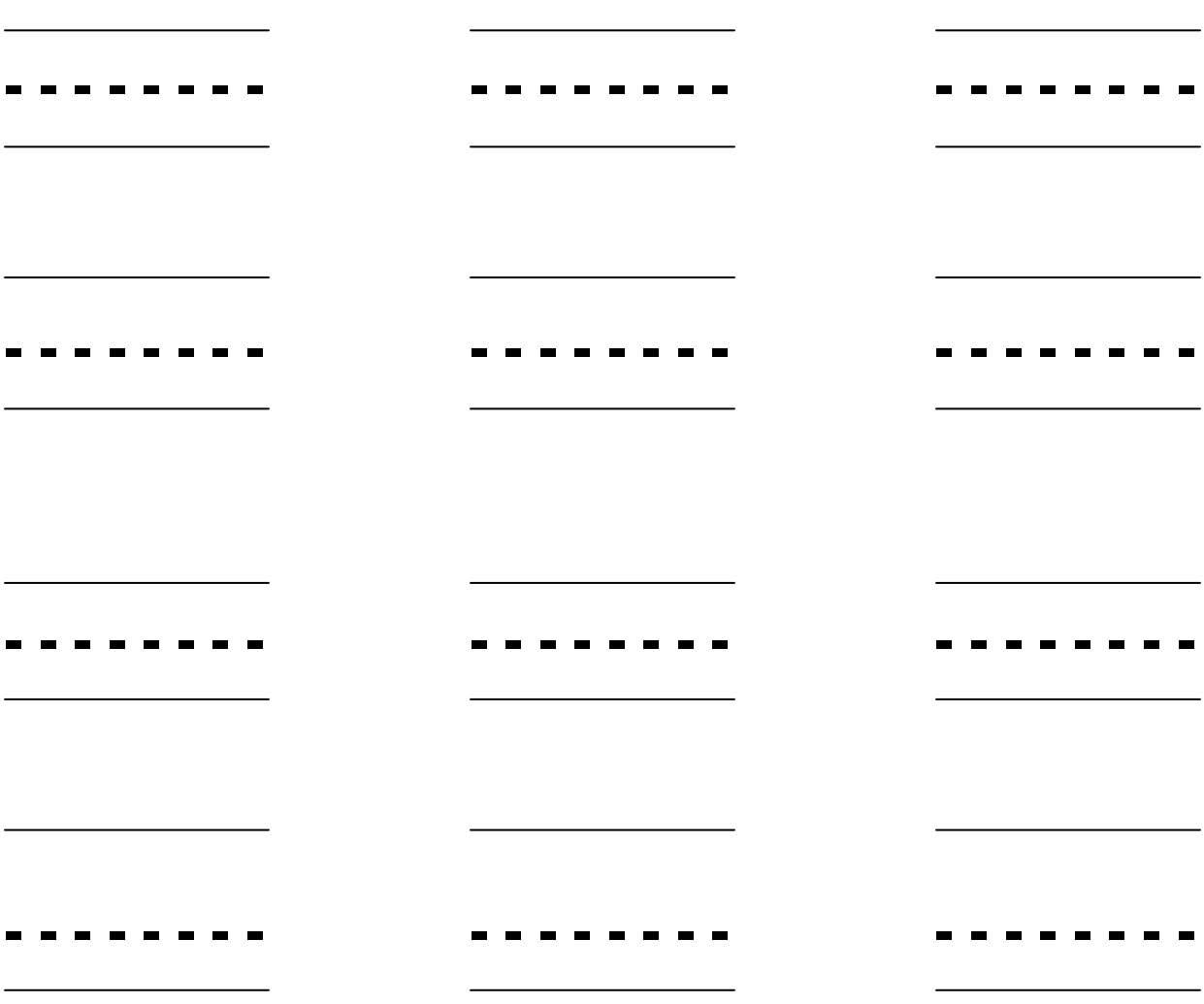
Yes **No** **I don't know**

Name:_____

Appendix C

Handwriting Screening Measure

We want you to PRINT each letter that you hear. Please wait for our directions.



Appendix D

Curriculum-Based Measurement in Written Expression Probe Packet

Syracuse University

2009 - 2010 Writing Project

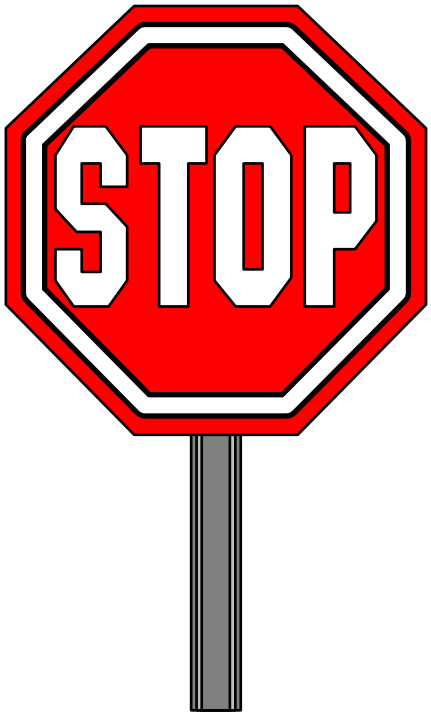
_____*Elementary School*

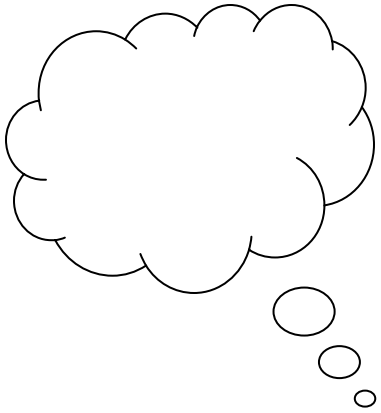
3rd grade

Name: _____

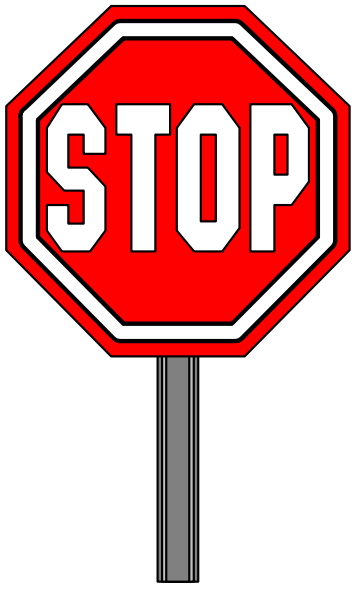
Classroom: _____

Probe # _____


STOP



I was talking to my friends when all of a sudden . . .



I was talking to my friends when all of a sudden _____

Keep going 

Appendix E

List of Curriculum-Based Measurement probes in Written Expression

Probe 1. I was on my way home from school and...

Probe 2. One night I had a strange dream about...

Probe 3. One day I found the most interesting thing...

Probe 4. I was talking to my friends when all of a sudden...

Probe 5. I found a note under my pillow that said...

Probe 6. One day my friend told me the strangest story...

Probe 7. One day I went to school but nobody was there except me…

Appendix F

Parent Demographic Information Questionnaire

Parent or Guardian's Name: _____ Date: _____

Child's Name: _____

Thank you for participating in the writing study! For the purpose of the study, we would like to ask some questions about you. Please complete this questionnaire and return it to your child to bring into school by _____. Or you may return the completed questionnaire in the enclosed self-addressed stamped envelope by _____. Again, thank you for your time and cooperation!

☐ I choose to not participate in this portion of the study.

Some Information About You:

1. What is your relationship to your student?
    1) Biological Mother
    2) Biological Father
    3) Adoptive Mother
    4) Adoptive Father
    5) Other relative (grandparent, aunt, etc)
    6) Legal Guardian
    7) Other _____

2. Are you your student's primary parent?
    1) Yes
    2) No

3. What is your race/ethnic background? (please choose one; specify if needed)
    1) American Indian or Alaska Native
    2) Asian
    3) Native Hawaiian or Pacific Islander
    4) Black or African American
    5) Hispanic or Latino
    6) White
    7) Two or More Races
    8) Other

4. What is your highest grade level completed? (1-12=High School; 13-16=College; 16+=Post College) Please circle your answer

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

5. What is the highest degree you've obtained?

1) None
2) HS Diploma/GED
3) Vocational Degree/Certification
4) Associates Degree (2-year college degree)
5) Bachelor's Degree (4-year college degree)
6) Master's Degree
7) Doctorate (e.g. Ph.D., M.D., J.D., Ed.D., etc.)

Appendix G

Parent Informational Letter

SYRACUSE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES
Department of Psychology

PARENT INFORM
ATIONAL LETTER

Treatment Research in Academic Competence
Examining Elementary-Aged Children's Written Expression Skills

Principal Investigator: Jennifer Rymanowski, M.S.
Dept. of Psychology, Syracuse University
Phone: (607) 743-3577
Co-Principal Investigator: Tanya Eckert, Ph.D.
Dept. of Psychology, Syracuse University
Phone: (315) 443-3141

Dear Parent or Guardian,

My name is Jennifer Rymanowski and I am a doctoral candidate in the Department of Psychology at Syracuse University, working under the supervision of Dr. Tanya Eckert. I am working on a research study in your child's school in an attempt to better understand and improve children's writing skills. I am trying to see how much children's writing skills improve over time.

The purpose of this study is to determine how much children's academic skills change over time when given weekly feedback with writing practice. During the months of March, April, and May, myself and other students from Syracuse University will be working with your child's classroom for 15 minutes per week. During those 15 minutes, students will be practicing writing and told how they are doing in writing. Also, a group of children will be selected to practice writing at home. One writing activity will be sent home once each week asking children to write a story with their parents and guardians. Also, parents and guardians of these children will receive a progress note on how well their child is writing in the classroom.

If for any reason you do not want your child to participate in this study, please call me at 607-743-3577. Your decision will **NOT** affect your child's grades or your child's educational program. Thank you!

Appendix H

Individualized Performance Feedback Form

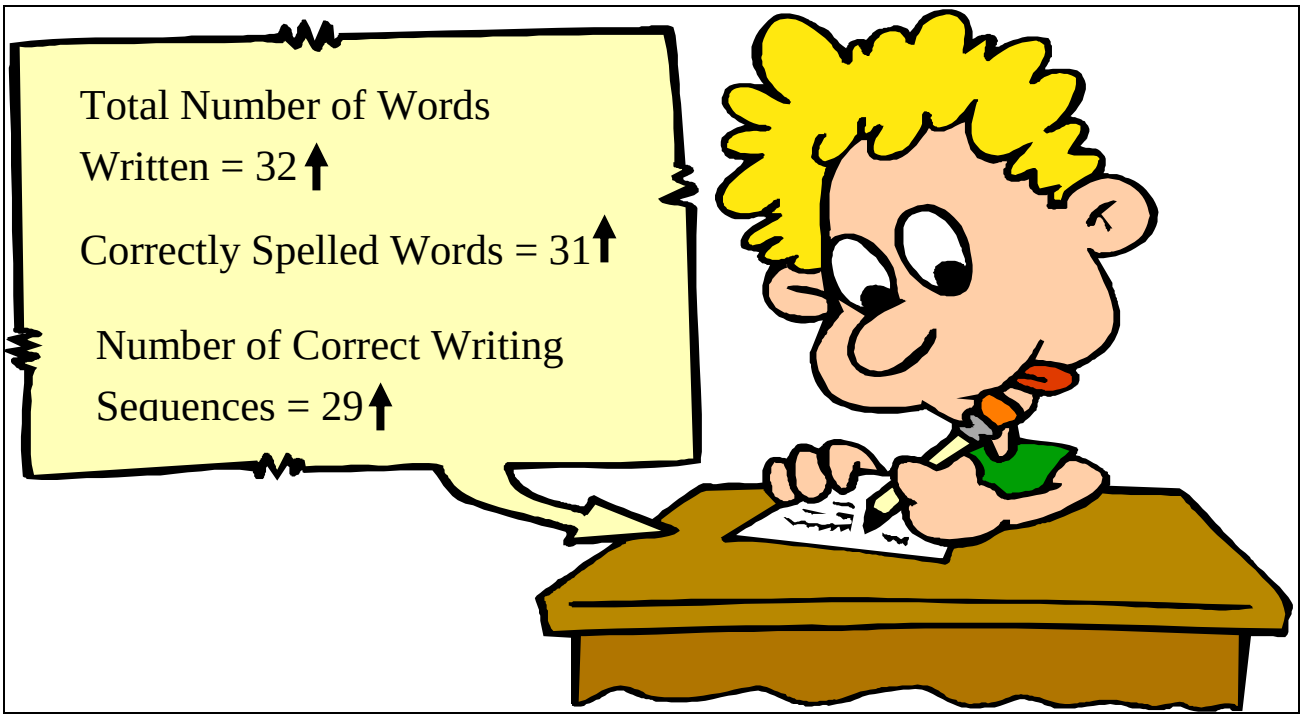
Here is how you are doing in writing:

32

Appendix I

Parent Feedback Note

Here is how _____ wrote this week!



Learning to write usually begins with having the kids take oral language (i.e., saying words) and putting those words onto paper in the form of written language.

During the early stages of learning to write, we want kids to write fast and write many words within a short period of time – when kids can do this, it means that writing is automatic and easy! We measure kids' ease in writing through the total number of words they wrote.

Even if the kids are writing lots of words, we also want kids to begin to spell their words correctly. This is measured by counting how many words they spelled correct in their story.

Also, we want kids to begin to put together sentences that make sense and use correct grammar. For example, kids should write "I will build a house" instead of "I will built a house." We measure grammar through counting how many correct writing sequences kids write in their story.

We want kids to keep getting better at writing so we want Total Words Written, Number of Correctly Spelled Words, and Number of Correct Writing Sequences to go UP every week! Above is how your child wrote this week! If your child improved from last week, you may reward his/her success!!

Signature _____ Date _____ Relation to Child _____

Appendix J

Home-Based Writing Activity

WEEK 1 WRITING ACTIVITY

Due Date: _____

Creating stories can be so much fun because anything goes!! Writing stories can be especially fun when parents and kids get to write together. Parents get to see their kid's imagination run wild and parents get to go back to being a kid again! Also, the extra practice outside of school can help kids improve their writing skills.

Each week, we will give you a writing task asking you and your child to build a story based on a short sentence. Feel free to spend between five to ten minutes writing your story.

This week's activity is to write a story that begins with this sentence:

One day it rained candy.

Remember, a great story has many details! This includes:

1. Giving your story a title
2. Using descriptive words
3. Naming characters
4. Making sure all of the sentences are related

One day it rained candy…

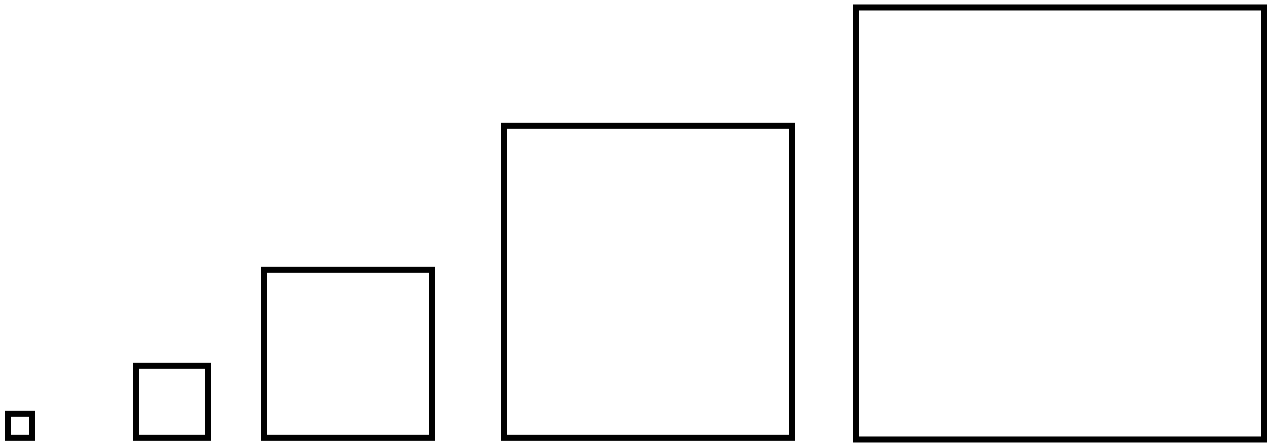
Parents, we would love to hear your comments or suggestions!

Appendix K

Student Intervention Acceptability Questionnaire

Question #1

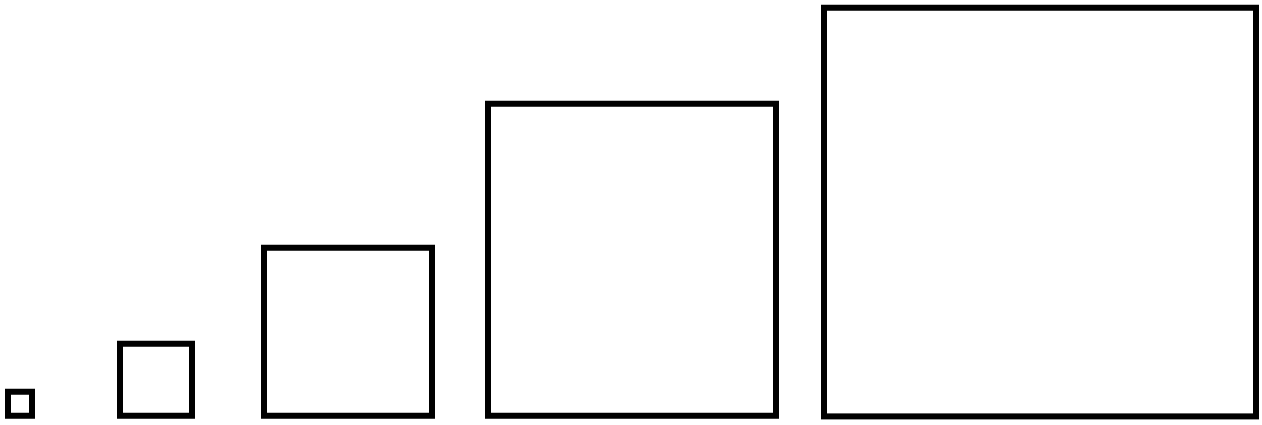
How much do you like writing stories with us each week?



Not at all **A little bit** **Some** **A lot** **Very, very much**

Question #2

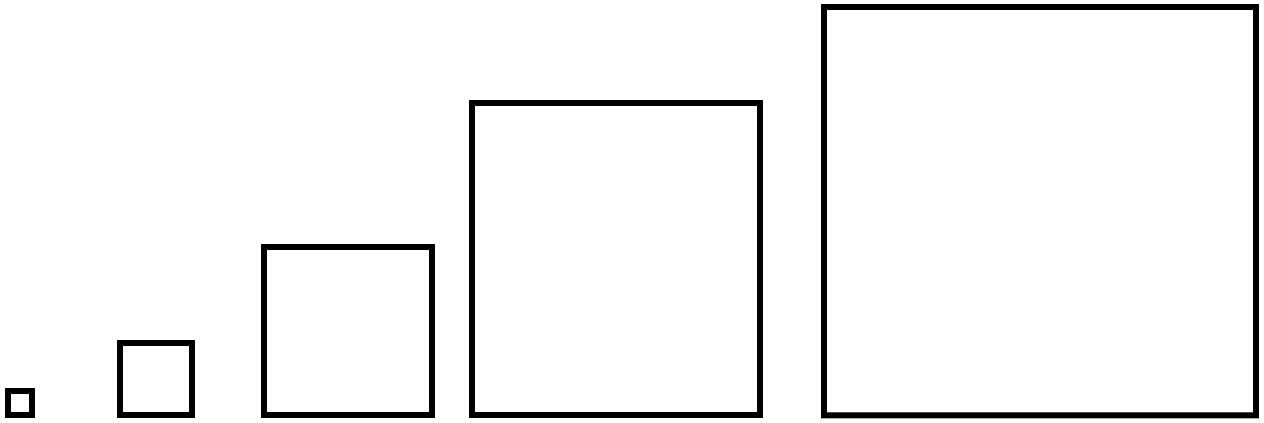
How much do you like being timed while you are writing your stories?



Not at all **A little bit** **Some** **A lot** **Very, very much**

Question #3

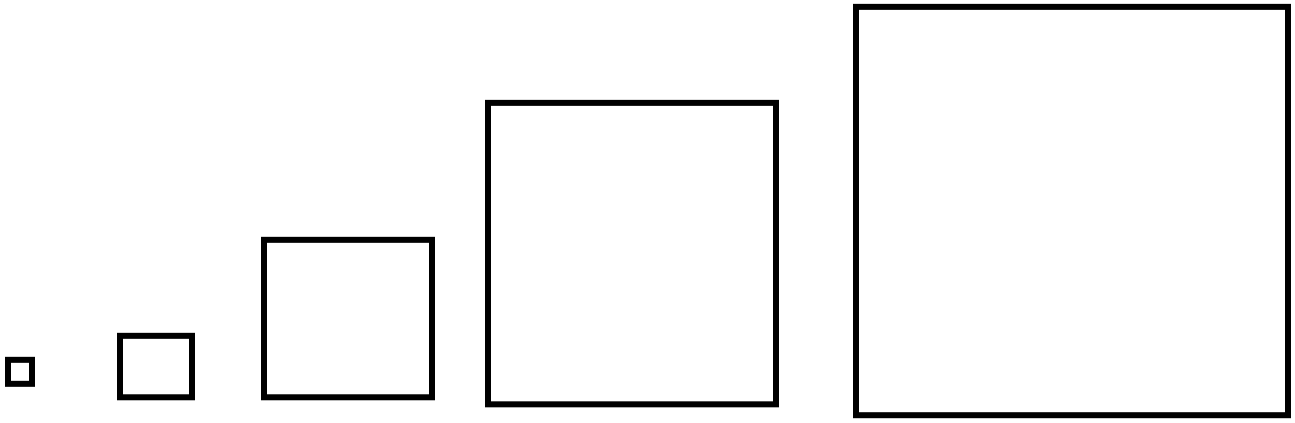
Were there times when you did not want to write a story?



Never **A couple times** **Sometimes** **A lot of times** **Many, many times**

Question #4

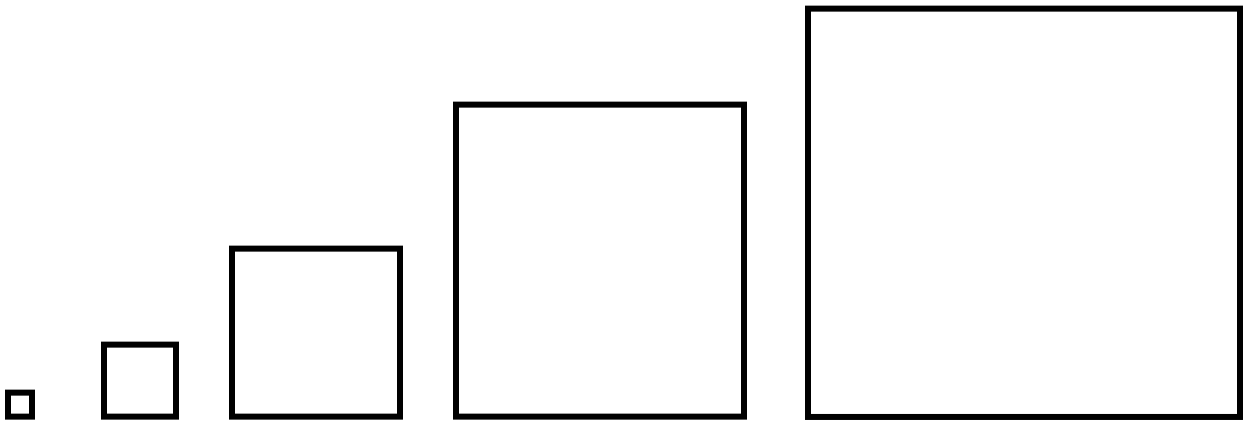
Were there any times when you wished you could write more stories?



Never **A couple times** **Sometimes** **A lot of times** **Many, many times**

Question #5

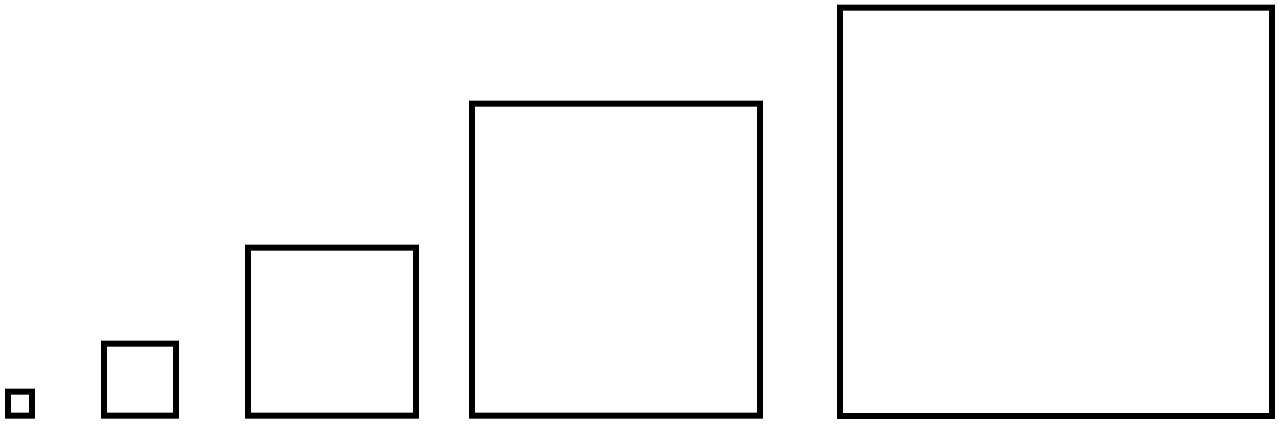
How much do you like being told how many words you wrote?



Not at all **A little bit** **Some** **A lot** **Very, very much**

Question #6

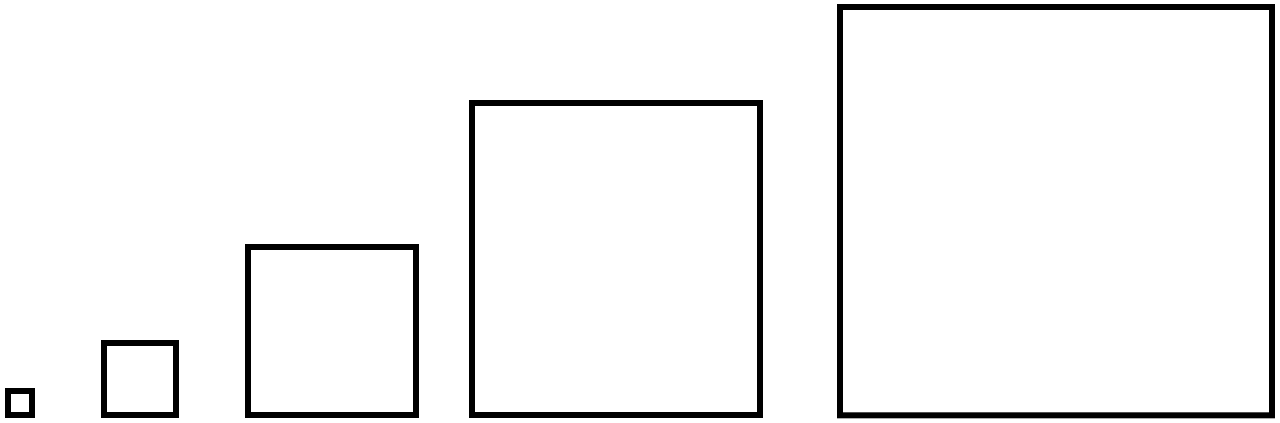
How much do you like it when your parents get reports on how well you are writing?



Not at all **A little bit** **Some** **A lot** **Very, very much**

Question #7

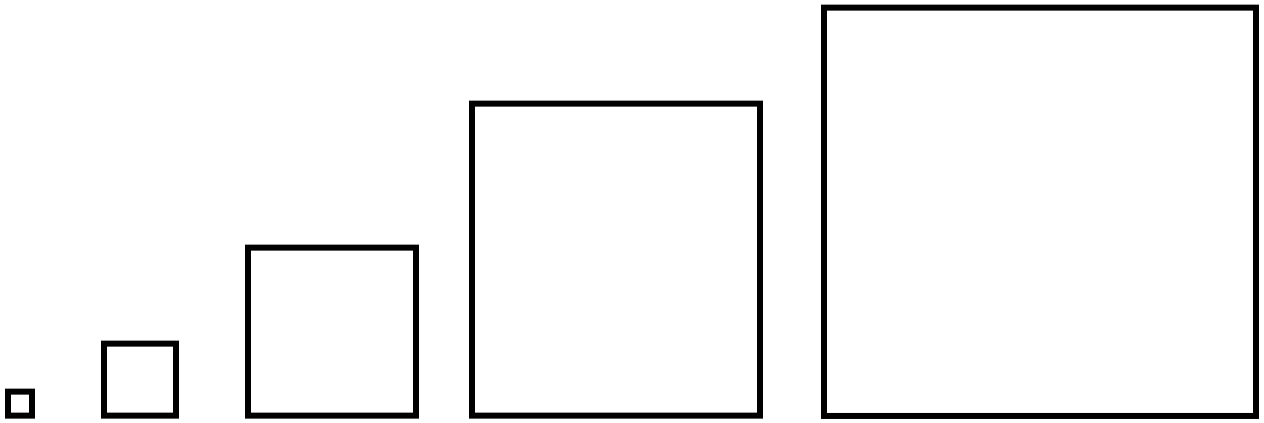
How much do you like being the person who brings the reports home?



Not at all **A little bit** **Some** **A lot** **Very, very much**

Question #8

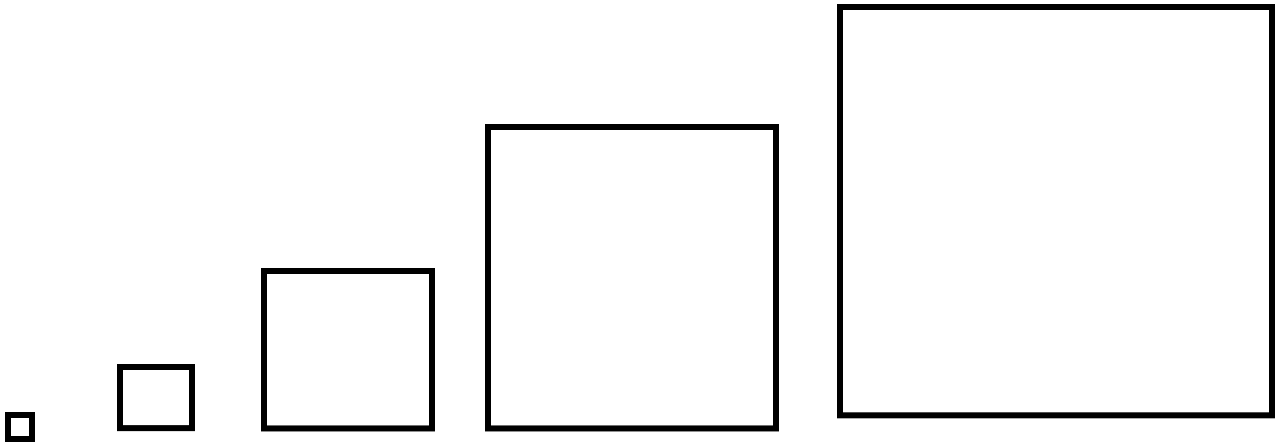
How much do you like writing stories with your parents?



Not at all **A little bit** **Some** **A lot** **Very, very much**

Question #9

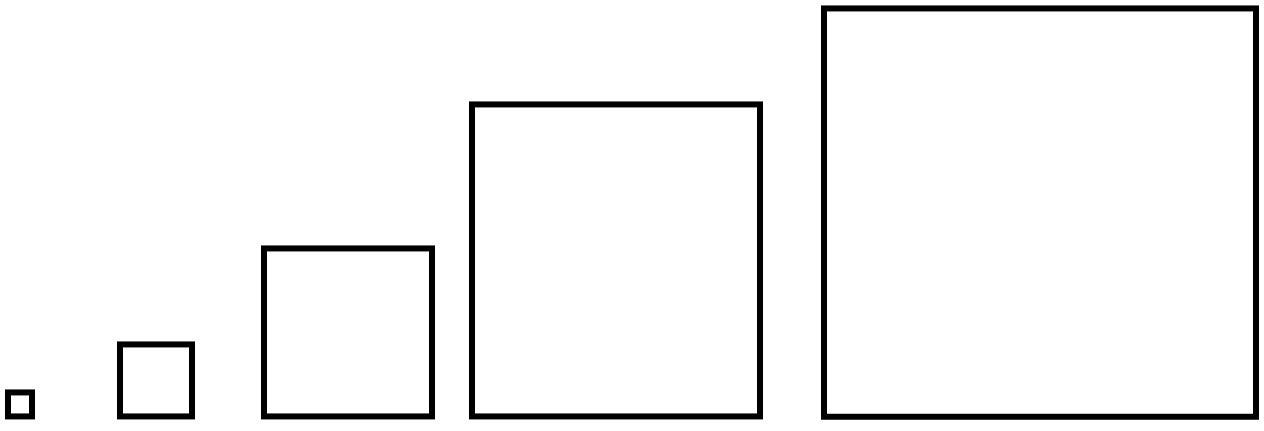
Were there times you wished you could write more stories with your parents?



Never **A couple times** **Sometimes** **A lot of times** **Many, many times**

Question #10

Were there times when you did not want to write a story with your parents?



Never **A couple times** **Sometimes** **A lot of times** **Many, many times**

Appendix L

Treatment Acceptability Rating Form – Revised (TARF-R)

Parent's Name: _____ Date: _____

Child's Name: _____

Thank you for participating in the writing intervention with your child! We hope that you enjoyed the experience! As a final step in the research study, we would like to ask you questions regarding your feelings about the writing intervention. Please complete this questionnaire and return it to your child to bring into school by _____. Or you may return the completed questionnaire in the enclosed self-addressed stamped envelope by _____. Thank you for your time and cooperation in the study!

☐ I choose to not participate in this portion of the study.

1	2	3	4	5	6	7
Not at all			Neutral			Very

1. How clear is your understanding of this writing intervention?	1	2	3	4	5	6	7
2. How acceptable do you find the writing intervention to be regarding your concerns about your child's writing?	1	2	3	4	5	6	7
3. How willing are you to carry out this writing intervention?	1	2	3	4	5	6	7
4. Given your child's writing abilities, how reasonable do you find the writing intervention to be?	1	2	3	4	5	6	7
5. How costly will it be to carry out this writing intervention?	1	2	3	4	5	6	7
6. To what extend do you think there might be disadvantages in following this writing intervention?	1	2	3	4	5	6	7
7. How likely is this writing intervention to make permanent improvements in your child's writing abilities?	1	2	3	4	5	6	7
8. How much time will be needed each day for you to carry out this writing intervention?	1	2	3	4	5	6	7
9. How confident are you that the writing intervention will be effective?	1	2	3	4	5	6	7

10. Compared to other children with writing difficulties, how serious are your child's writing problems?	1	2	3	4	5	6	7
11. How disruptive will it be to the family (in general) to carry out this writing intervention?	1	2	3	4	5	6	7
12. How effective is this writing intervention likely to be for your child?	1	2	3	4	5	6	7
13. How affordable is this writing intervention for your family?	1	2	3	4	5	6	7
14. How much do you like the procedures used in the proposed writing intervention?	1	2	3	4	5	6	7
15. How willing will other family members be to help carry out this writing intervention?	1	2	3	4	5	6	7
16. To what extent are undesirable side-effects likely to result from this writing intervention?	1	2	3	4	5	6	7
17. How much discomfort is your child likely to experience during the course of this writing intervention?	1	2	3	4	5	6	7
18. How severe are you child's writing difficulties?	1	2	3	4	5	6	7
19. How willing would you be to change your family routine to carry out this writing intervention?	1	2	3	4	5	6	7
20. How well will carrying out this writing intervention fit with the family routine?	1	2	3	4	5	6	7

Appendix M

Intervention Rating Profile – 15 (IRP-15) – Teacher Version

Teacher's Name: _____ Date: _____

The purpose of this questionnaire is to get information that will help in the selection of treatments for children. Please circle the number which best describes your agreement or disagreement with each statement.

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1. This would be an acceptable intervention for students' writing problems.	1	2	3	4	5	6
2. Most teachers would find this intervention appropriate for writing problems in addition to the one described.	1	2	3	4	5	6
3. This intervention should prove effective in changing students' writing problems.	1	2	3	4	5	6
4. I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5. The students' writing problems are severe enough to warrant the use of this intervention.	1	2	3	4	5	6
6. Most teachers would find this intervention suitable for the writing problems described.	1	2	3	4	5	6
7. I would be willing to use this intervention in my classroom.	1	2	3	4	5	6
8. This intervention would not result in negative side effects for the students.	1	2	3	4	5	6

9. This intervention would be appropriate for a variety of students.	1	2	3	4	5	6
10. This intervention is consistent with those I have used in school.	1	2	3	4	5	6
11. The intervention is a fair way to handle the students' writing problems.	1	2	3	4	5	6
12. This intervention is reasonable for the writing problems described.	1	2	3	4	5	6
13. I like the procedures used in this intervention.	1	2	3	4	5	6
14. This intervention is a good way to handle the students' writing problems.	1	2	3	4	5	6
15. Overall, this intervention would be beneficial for the students.	1	2	3	4	5	6

Appendix N

Parent Follow-up Questionnaire

Parent's Name: _____ Date: _____

Child's Name: _____

We want to thank you again for participating in the writing intervention with your child! We would like to get your opinion on the writing intervention to see if your feelings have changed since the conclusion of the study four weeks ago. Please complete this questionnaire and return it to your child to bring into school by _____. Or you may return the completed questionnaire in the enclosed self-addressed stamped envelope by _____. Thank you for your time and cooperation in the study!

☐ I choose to not participate in this portion of the study.

1	2	3	4	5
Not at all		Neutral		Very Much

1. Now that the writing intervention has concluded, how acceptable did you find the intervention? 1 2 3 4 5
2. Do you wish that you were continuing to receive feedback on your child's writing performance in class? 1 2 3 4 5
3. Do you wish that you were continuing to receive writing activities to participate in with your child at home? 1 2 3 4 5
4. Have you engaged in writing with your child at home? 1 2 3 4 5
5. Has your child asked you to engage in any writing activities since the conclusion of the intervention? 1 2 3 4 5

Appendix O

Procedural Protocol

Directions: Please fill out each area detailed below. Please make sure that the identifying information (box 1) is complete before you submit the form.

I.	**Identifying Information**		
Name of primary research assistant:			
Name of secondary research assistant:			
Classroom:			
Date:			
Notes:			
II.	**Data Collection – Material Preparation**	**Circle**	
a.	Five (5) sharpened pencils	Yes	No
b.	Assessment packets	Yes	No
c.	Experimenter's copy of packet	Yes	No
d.	Two (2) stopwatches	Yes	No
e.	Insert the individual total words written and the appropriate ↑↓	Yes	No
f.	Insert the story starter	Yes	No
g.	Completed parent progress report on each student	Yes	No
h.	Home-based writing assignment	Yes	No
Notes:			

III.	**Data Collection Procedures** **[Please check [✓] each box as you complete each step]**	✓
1.	State to the students: "*Today we are going to be working with you on writing. First, if you have a Writing Club notebook, please take it out and put it on your desk. We will come around and collect them.*"	
2.	Research assistants will collect the notebooks and indicate on the checklist that the report is signed and the assignment is completed. Insert for each student: ☐ The new progress report ☐ Copy of the students' classroom-based writing assignment ☐ The next home-based writing assignment	
3.	State to the students: "*Please take out a pencil. If you do not have a pencil, raise your hand.*"	
4.	The research assistant should make sure each student has a pencil and provide pencils to those students without.	
5.	The research assistants will pass out the writing packet.	

6.	State to the students: "*Do not turn to any of the pages in this packet. Keep the page with the pencil facing you*." [The research assistant should point to the pencil on the coversheet of the packet.]	
7.	After all of the students received a packet, state to the students: "*Please turn to the next page of your packet and raise your hands high in the air!"*	
8.	The research assistant should scan the room to make sure all the students are on the page with the stop sign.	
9.	State to the students: *"After you wrote your story last week, we went home and counted **all** of the words that you wrote. In a minute, I am going to tell you to turn the page and you will see how many words you wrote last week."*	
10.	State to the students: *"Are you ready to see how you did? Okay, turn the page!"*	
11.	The research assistants should scan the room to make sure all the students are on the feedback page.	
12.	State to the students: *"The box in the middle tells you how many words you wrote. Also, there is an arrow next to the box. If the arrow is pointing up to the sky, that means you wrote more words last week than you did the week before. If the arrow is pointing down to the floor, that means you write the same or less words than you wrote the week before. Every week when I work with your class, I will tell you how you doing in writing and your goal is to keep writing more words."*	
13.	State to the students: *"Now, if you have a Writing Club notebook, please raise your hand."* [Wait for students to raise their hands.] *"We put a report in your notebook that lets your parents or grandparents know how you are doing in writing. We want you to bring the notebook home to your parents and show them how you are doing in writing with us. Make sure your parents sign the report so we know that they saw your hard work.*	
14.	State to the students: *"We also put a writing worksheet in your notebook for you to do with your parents or grandparents. Make sure to keep all your papers in your notebook and bring it back to school so we can see your stories! Does anyone have any questions?"*	

15.	State to the students: "*Now, everyone please turn to the next page in your packet. On this page, you will see a thought bubble at the top of the page. I am going to read a sentence to you and then I want you to write a story about what happens next. You will first have some time to think about the story you will write and then you will have some time to write it.*"	
16.	The research assistants should scan the room to make sure all the students are on the correct page – story-starter page with thought bubble at the top and stop sign at the bottom.	
17.	State to the students: "*For the next minute think about writing a story that begins with this sentence –* **I was talking to my friends when all of a sudden...** *Remember; take time to plan your story. A well-written story usually has a beginning, a middle, and end. It also has characters that have names and perform certain actions. Use paragraphs to help organize your story. Correct punctuation and capitalization will make your story easier to read.* *Do not write the story yet. Just think of a story that begins with this sentence –* **I was talking to my friends when all of a sudden..."**	
18.	The research assistants should begin the stopwatch and time the students for 1 minute. The research assistants should scan the classroom to make sure that all of the students are on the correct page and not writing.	
19.	At 30 seconds, state to the students: *"You should be thinking about* **I was talking to my friends when all of a sudden…."**	
20.	At the end of 1 minute, state to the students: "*Okay, stop thinking. Turn to the next page of your packet and raise your pencil high in the air!*"	
21.	The research assistant should scan the room to make sure all the students are on the correct page with their pencil raised.	
22.	State to the students: *"When I tell you to start, please begin writing your story. If you don't know how to spell a word, try and sound out the parts of the word as best as you can. If you fill up the first page, please turn to the next page and keep writing. Do not stop writing until I tell you to. Do your best work."*	
23.	State to the students: "*Okay, you can start writing! Remember, don't stop writing until I tell you to stop.*"	

24.	The research assistants should begin the stopwatch and time the students for 3 minutes.	
25.	The research assistant should monitor the students during the 3-minute period and make sure students are following the directions stated in step #23.	
26.	At 1 minute and 30 seconds, state to the students: *"Remember, you should be writing about:* **I was talking to my friends when all of a sudden…."**	
27.	After 3 minutes has elapsed, state to the students: *"Please stop writing and put your pencils down!"*	
28.	The research assistant should collect the writing packets from each student.	
29.	State to the students: *"We're done for today! Now that you have finished writing with us, we are going to give you back your Writing Club notebooks."*	
30.	Research assistants will hand back the notebooks with the new progress report and writing assignment.	
31.	State to the students: *"Remember, if you are getting a Writing Club notebook, bring your notebook home to your parents or grandparents tonight, get it signed, and do the writing worksheet with your parents or grandparents. Bring the notebook and all the worksheets back to school because I will be collecting them."*	
32.	State to the students: *"Thank you for working with us today! That is all of the writing that we are going to do. Everyone did a very nice job following my directions. We will be back next week to work on some more writing and let all of you know how you are doing!"*	

Total number of steps completed:		
Notes:		

Table 1

Student Demographic Information

	School One		School Two		Overall			
Characteristics	*%*	*(n)*	*%*	*(n)*	*%*	*(n)*	X^2	*p*
Sex							0.16	.69
Female	62.1	(36)	58.1	(25)	60.4	(61)		
Male	37.9	(22)	41.9	(18)	39.6	(40)		
Ethnicity							7.78	.005*
Hispanic	3.4	(2)	20.9	(9)	10.9	(11)		
Non-Hispanic	96.6	(56)	79.1	(34)	89.1	(90)		
Race						25.38	.001**	
Asian	1.7	(1)	0.0	(0)	1.0	(1)		
Black/African American	37.9	(22)	67.4	(29)	50.5	(51)		
Hispanic or Latino	3.4	(2)	20.9	(9)	10.9	(11)		
White (not Hispanic or Latino)	56.9	(33)	11.6	(5)	37.6	(38)		
Special Education							0.005	.95
Identified	12.1	(7)	11.6	(5)	11.9	(12)		
Non-identified	87.9	(51)	88.4	(38)	88.1	(89)		
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*t*	*p*
Age	8.44	(0.47)	8.57	(0.63)	8.49	(0.54)	-1.19	.24

* $p < .05$, ** $p < .01$.

Table 2

Student Demographic Information by Condition

	Performance Feedback		Home-Based Writing		Overall			
Characteristics	*%*	*(n)*	*%*	*(n)*	*%*	*(n)*	X^2	*p*
Sex							0.03	.69
Female	59.6	(31)	61.2	(30)	60.4	(61)		
Male	40.4	(21)	38.8	(19)	39.6	(40)		
Ethnicity							0.18	.67
Hispanic	9.6	(5)	12.2	(6)	10.9	(11)		
Non-Hispanic	90.4	(47)	87.8	(43)	89.1	(90)		
Race							1.18	.76
Asian	1.9	(1)	0.0	(0)	1.0	(1)		
Black/African American	51.9	(27)	49.0	(24)	50.5	(51)		
Hispanic or Latino	9.6	(5)	12.2	(6)	10.9	(11)		
White (not Hispanic or Latino)	36.5	(19)	38.8	(19)	37.6	(38)		
Special Education							3.02	.08
Identified	17.3	(9)	6.1	(3)	11.9	(12)		
Non-identified	82.7	(43)	93.9	(46)	88.1	(89)		
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*t*	*p*
Age	8.48	(0.55)	8.50	(0.54)	8.49	(0.54)	-0.19	.85

Table 3

Parent Demographic Information

	School One		School Two		Overall			
Characteristics	*%*	*(n)*	*%*	*(n)*	*%*	*(n)*	X^2	*p*
Relationship to Child							2.24	.52
Biological Mother	80.0	(24)	71.4	(10)	77.3	(34)		
Biological Father	13.3	(4)	28.6	(4)	18.2	(8)		
Other Relative (i.e., grandparent)	3.3	(1)	0.0	(0)	2.3	(1)		
Other Person (i.e., step-parent)	3.3	(1)	0.0	(0)	2.3	(1)		
Race/Ethnicity							13.42	.02*
American Indian/Alaska Native	6.7	(2)	0.0	(0)	4.5	(2)		
Black/African American	10.0	(3)	42.9	(6)	20.5	(9)		
Hispanic or Latino	3.3	(1)	21.4	(3)	9.1	(4)		
White (not Hispanic or Latino)	73.3	(22)	28.6	(4)	59.1	(26)		
Two or More Races	3.3	(1)	7.1	(1)	4.5	(2)		
Other	3.3	(1)	0.0	(0)	2.3	(1)		
Highest Degree Obtained							1.72	.87
No Degree	10.3	(3)	7.1	(1)	9.3	(4)		
HS Diploma/GED	37.9	(11)	28.6	(4)	34.9	(15)		
Vocational Degree/Certification	31.0	(9)	35.7	(5)	32.6	(14)		
Associates Degree	10.3	(3)	21.4	(3)	14.0	(6)		
Bachelors Degree	6.9	(2)	7.1	(1)	7.0	(3)		
Masters Degree	3.4	(1)	0.0	(0)	2.3	(1)		

*$p < .05$.

Table 4

Ratings of Teachers' Instructional Practices

Item	Response [a] (%)						
	1	2	3	4	5	6	7
How often are specific writing strategies modeled to your students?	11.1	0	0	44.4	33.3	0	11.1
How often do you re-teach writing skills and strategies?	0	0	22.2	22.2	22.2	22.2	11.1
How often do you conference with students about their writing?	11.1	0	11.1	33.3	33.3	11.1	0
How often do students share their writing with their peers?	11.1	11.1	22.2	44.4	11.1	0	0
How often do students help each other with their own writing?	11.1	11.1	22.2	33.3	22.2	0	0
How often do students select their own writing topics?	0	22.2	33.3	33.3	11.1	0	0
How often do students use invented spelling in their writing?	0	0	0	11.1	22.2	55.6	11.1
How often do you specifically teach handwriting skills?	33.3	22.2	0	22.2	11.1	11.1	0
How often do you specifically teach spelling skills?	0	11.1	0	33.3	11.1	44.4	0
How often do you specifically teach grammar skills?	11.1	22.2	0	22.2	33.3	11.1	0
How often do you specifically teach planning and revising strategies in writing?	0	22.2	22.2	33.3	22.2	0	0

Notes. $n = 9$.

Table 5

Mean Scores for Dependent Measures

	Performance Feedback Condition		Home-Based Writing Condition	
	Mean	SD	Mean	SD
Total Words Written	22.77	9.56	24.08	9.49
Correct Writing Sequences	19.17	9.45	20.84	9.36
TOWL-III Standard Scores	80.19	27.08	90.73	22.83

Table 6

Correlations between Dependent Measures at Baseline

	1	2	3
Total Words Written (TWW)	1		
Correct Writing Sequences (CWS)	.91*	1	
Test of Written Language – III Standard Scores	.36*	.43*	1

Notes. *p = .01.

Table 7

Parameter Estimates for Correct Writing Sequences

	Number of Correct Writing Sequences	
Parameter	Estimate	SE
Intercept	16.94**	1.44
Main Effect of Initial Level of Fluency	13.02**	2.21
Main Effect of Intervention Condition	3.92*	1.70
Main Effect of Session	1.43**	0.34
Main Effect of School	0.28	1.72
Condition by Session Interaction	-0.06	0.42
School by Session Interaction	0.82*	0.42

Note. **$p < .01$; * $p < .05$.

Table 8

Simple Effects Parameter Estimates for Correct Writing Sequences

	Number of Correct Writing Sequences	
Simple Effect Parameter	Estimate	SE
Initial Level of Fluency at Frustrational		
Intercept for Performance Feedback Group – School 1	16.50**	1.47
Slope of Performance Feedback Group – School 1	1.57**	0.36
Intercept of Home-Based Writing Group – School 1	20.44**	1.45
Slope of Home-Based Writing Group – School 1	1.52**	0.36
Intercept for Performance Feedback Group – School 2	17.22**	1.59
Slope of Performance Feedback Group – School 2	2.35**	0.39
Intercept of Home-Based Writing Group – School 2	21.16**	1.66
Slope of Home-Based Writing Group – School 2	2.31**	0.41
Initial Level of Fluency at Instructional		
Intercept for Performance Feedback Group – School 1	37.31*	9.41
Slope of Performance Feedback Group – School 1	0.48	1.78
Intercept of Home-Based Writing Group – School 1	36.67**	6.13
Slope of Home-Based Writing Group – School 1	0.08	1.14
Intercept for Performance Feedback Group – School 2	36.26**	9.65
Slope of Performance Feedback Group – School 2	0.45	2.02
Intercept of Home-Based Writing Group – School 2	35.62**	9.41
Slope of Home-Based Writing Group – School 2	0.04	1.79

Note. $^{**}p < .01$; $^{*}p < .05$.

Table 8 continued

Simple Effects Parameter Estimates for Correct Writing Sequences

	Number of Correct Writing Sequences	
Simple Effect Parameter	Estimate	SE
Initial Level of Fluency at Mastery		
Intercept for Performance Feedback Group – School 1	48.73	6.76
Slope of Performance Feedback Group – School 1	-1.11	1.74
Intercept for Performance Feedback Group – School 2	35.20	6.76
Slope of Performance Feedback Group – School 2	1.94	1.74

Table 9

Growth across Instructional Placement Levels – Total Sample

	Final Classification							
	Frustrational		Instructional		Mastery		Total at Pre-Intervention	
Baseline Classification	%	(*n*)	%	(*n*)	%	(*n*)	%	(*n*)
Frustrational	55.9	(52)	9.7	(9)	22.6	(21)	88.2	(82)
Instructional	0.0	(0)	1.1	(1)	6.5	(6)	7.5	(7)
Mastery	1.1	(1)	0.0	(0)	3.2	(3)	4.3	(4)
Total at Post-Intervention	57.0	(53)	10.8	(10)	32.3	(30)		

Note. X^2 (4, N = 93) = 15.41, p = .004.

Table 10

Growth across Instructional Placement Levels by Condition

		Final Classification					
		Frustrational		Instructional		Mastery	
	Baseline Classification	%	(*n*)	%	(*n*)	%	(*n*)
Performance Feedback Condition	Frustrational	57.4	(27)	14.9	(7)	17.0	(8)
	Instructional	0.0	(0)	0.0	(0)	6.4	(3)
	Mastery	2.1	(1)	0.0	(0)	2.1	(1)
Total at Post-Intervention		59.5	(28)	14.9	(7)	25.5	(12)
Home-Based Writing Condition	Frustrational	54.3	(25)	4.3	(2)	28.3	(13)
	Instructional	0.0	(0)	2.2	(1)	6.5	(3)
	Mastery	0.0	(0)	0.0	(0)	4.3	(2)
Total at Post-Intervention		54.3	(25)	6.5	(3)	39.1	(18)

Note. Performance Feedback Condition, X^2 (4, N = 47) = 10.48, p = .03; School-Home Performance Feedback with Home-Based Writing Condition, X^2 (4, N = 46) = 9.78, p = .04.

Table 11

Correlations between Predictors for the Performance Feedback Condition

	1	2
Race	1.0	
Student Acceptability of Feedback Procedures	.03	1.0

Notes. Acceptability of feedback procedures was computed as average ratings on acceptability items.

Table 12

Correlations between Predictors for the School-Home Performance Feedback with Home-Based Writing Condition

	1	2	3	4	5
Students' Race	1				
Total Number of Home-Based Assignments Completed	-.05	1			
Students' Acceptability of Home-Based Procedures	-.17	.20	1		
Parents' Race/Ethnicity	.03	-.12	.01	1	
Parents' Degree Obtained	-.29	.11	.02	-.11	1

Notes. Student acceptability was computed as average ratings on acceptability items. Parent educational status was measured as highest degree obtained.

Table 13

Regression Analysis for Variables Predicting Slope of Correct Writing Sequences in Performance Feedback Condition

Variable	B	SE B	β
Students' Race	-0.11	0.14	-0.12
Students' Acceptability of Feedback Procedures	0.14	0.14	0.14

Table 14

Regression Analysis for Variables Predicting Slope of Correct Writing Sequences in School-Home Performance Feedback with Home-Based Writing Condition

Variable	B	SE B	β
Students' Race	-0.23	0.14	-0.27
Total Number of Home-Based Assignments Completed	0.08	0.10	0.12
Students' Acceptability of Home-Based Procedures	0.14	0.11	0.20
Parents' Race/Ethnicity	-0.08	0.09	-0.13
Parents' Educational Degree Obtained	0.04	0.11	0.06

Table 15

Students' Intervention Acceptability

Items	Performance Feedback Condition		Home-Based Writing Condition	
	M	*SD*	*M*	*SD*
How much do you like writing stories with us each week?	4.23_a	1.25	4.14_c	1.04
How much do you like being timed while you are writing your stories?	3.58_a	1.60	3.46_d	1.70
Were there times when you did not want to write a story?	3.66_a	1.43	3.45_c	1.47
Were there any times when you wished you could write more stories?	3.89_a	1.61	3.80_c	1.46
How much do you like being told how many words you wrote?	4.40_b	1.14	4.12_c	1.38
Average Composite for Feedback Procedures	**3.95_b**	**0.97**	**3.80_c**	**0.94**
How much do you like it when your parents get reports on how well you are writing?			3.96_a	1.44
How much do you like being the person who brings the reports home?			3.94_a	1.36
How much do you like writing stories with your parents?			3.96_a	1.43
Were there times you wished you could write more stories with your parents?			3.52_b	1.54
Were their times when you did not want to write a story with your parents?			3.33_b	1.62
Average Composite for School-Home Performance Feedback with Home-Based Writing Procedures			**3.75_b**	**1.13**

Notes. [a]$n = 53$. [b]$n = 52$. [c]$n = 49$. [d]$n = 48$.

Table 16

Parents' Intervention Acceptability

	Home-Based Writing Condition	
Items	*M*	*SD*
How clear is your understanding of this writing intervention?	5.09_{a}	0.94
How acceptable do you find the writing intervention to be regarding your concerns about your child's writing?	5.55_{a}	1.21
How willing are you to carry out this writing intervention?	6.30_{B}	1.06
Given your child's writing abilities, how reasonable do you find the writing intervention to be?	5.45_{a}	0.93
How costly will it be to carry out this writing intervention?	5.18_{a}	1.83
To what extend do you think there might be disadvantages in following this writing intervention?	5.70_{b}	1.06
How likely is this writing intervention to make permanent improvements in your child's writing abilities?	5.64_{a}	1.29
How much time will be needed each day for you to carry out this writing intervention?	3.60_{b}	1.27
How confident are you that the writing intervention will be effective?	5.64_{a}	1.12
Compared to other children with writing difficulties, how serious are your child's writing problems?	3.91_{a}	1.58
How disruptive will it be to the family (in general) to carry out this writing intervention?	5.45_{a}	1.70
How effective is this writing intervention likely to be for your child?	5.45_{a}	1.04
How affordable is this writing intervention for your family?	5.27_{a}	1.62
How much do you like the procedures used in the proposed writing intervention?	5.45_{a}	0.93
How willing will other family members be to help carry out this writing intervention?	5.36_{a}	1.69
To what extent are undesirable side-effects likely to result from this writing intervention?	5.27_{a}	1.34
How much discomfort is your child likely to experience during the course of this writing intervention?	4.73_{a}	1.62
How severe are you child's writing difficulties?	4.00_{a}	1.34

Table 16 continued

Parents' Intervention Acceptability

	Home-Based Writing Condition	
Items	*M*	*SD*
How willing would you be to change your family routine to carry out this writing intervention?	4.82_{a}	1.17
How well will carrying out this writing intervention fit with the family routine?	4.45_{a}	1.21
Average Composite for School-Home Performance Feedback with Home-Based Writing Procedures	$\mathbf{5.20_{c}}$	**0.77**
Now that the writing intervention has concluded, how acceptable did you find the intervention?	4.45_{a}	0.69
Do you wish that you were continuing to receive feedback on your child's writing performance in class?	4.73_{a}	0.65
Do you wish that you were continuing to receive writing activities to participate in with your child at home?	4.50_{b}	0.71
Have you engaged in writing with your child at home?	3.91_{a}	0.94
Has your child asked you to engage in any writing activities since the conclusion of the intervention?	3.64_{a}	0.92
Average Composite for Acceptability at Follow-up	$\mathbf{4.32_{b}}$	**0.43**

Notes. [a]$n = 11$. [b]$n = 10$. [c]$n = 9$.

Table 17

Teachers' Intervention Acceptability

Items	Home-Based Writing Condition	
	M	*SD*
This would be an acceptable intervention for students' writing problems.	4.80	0.45
Most teachers would find this intervention appropriate for writing problems in addition to the one described.	4.60	0.55
This intervention should prove effective in changing students' writing problems.	4.40	0.55
I would suggest the use of this intervention to other teachers.	4.60	0.55
The students' writing problems are severe enough to warrant the use of this intervention.	5.40	0.55
Most teachers would find this intervention suitable for the writing problems described.	4.40	0.55
I would be willing to use this intervention in my classroom.	4.80	0.84
This intervention would not result in negative side effects for the students.	5.20	0.45
This intervention would be appropriate for a variety of students.	5.00	0.71
This intervention is consistent with those I have used in school.	3.80	1.10
The intervention is a fair way to handle the students' writing problems.	4.80	0.45
This intervention is reasonable for the writing problems described.	4.60	0.55
I like the procedures used in this intervention.	5.00	0.71
This intervention is a good way to handle the students' writing problems.	4.80	0.84
Overall, this intervention would be beneficial for the students.	4.80	0.84
Average Composite for Home-Based Writing Procedures	**4.73**	**0.53**

Notes. $n = 5$

Figure 1. Participant flow chart following Consolidated Standards of Reporting Trials Guidelines

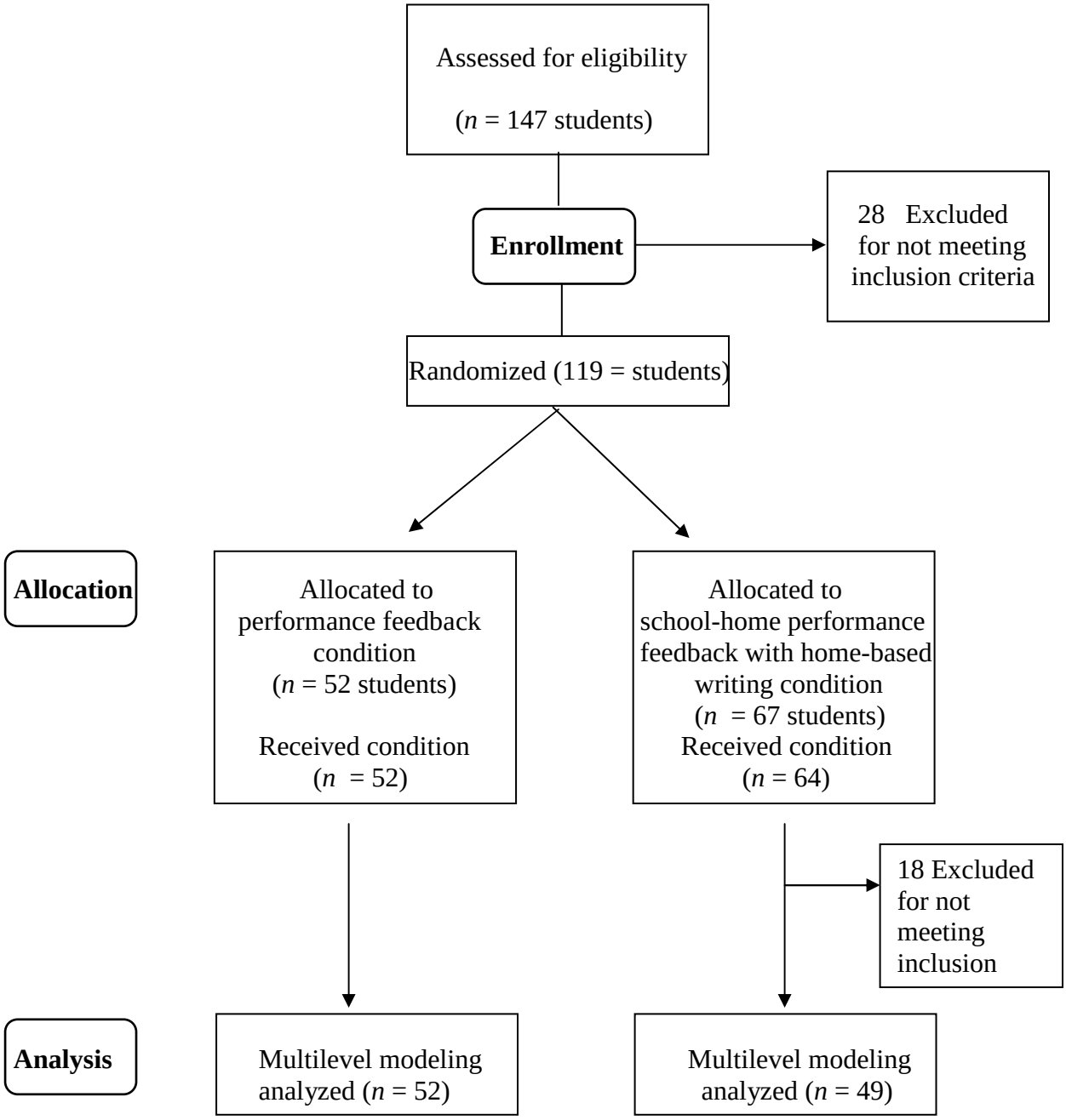


Figure 2. Change in Writing Fluency for Students at the Initial Frustrational Level

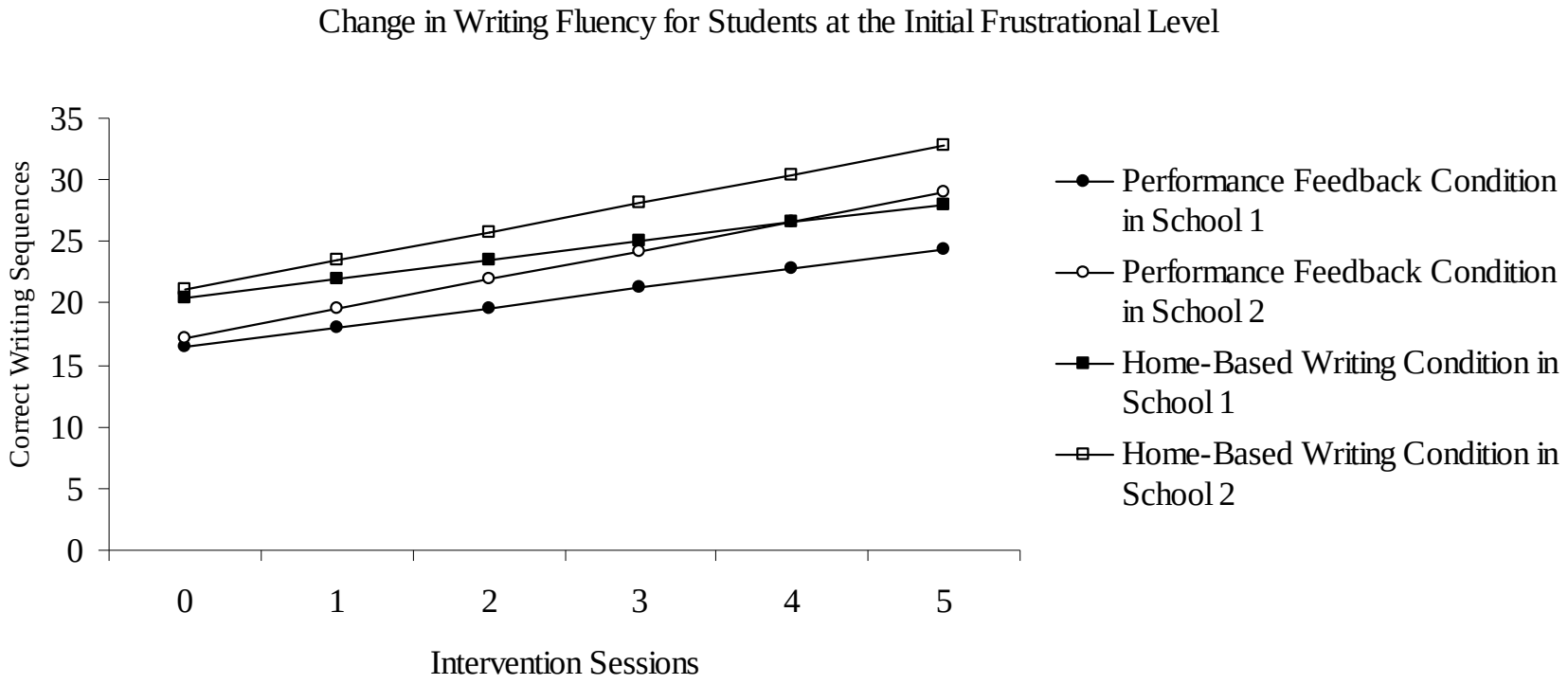


Figure 3. Change in Writing Fluency for Students at the Initial Instructional Level

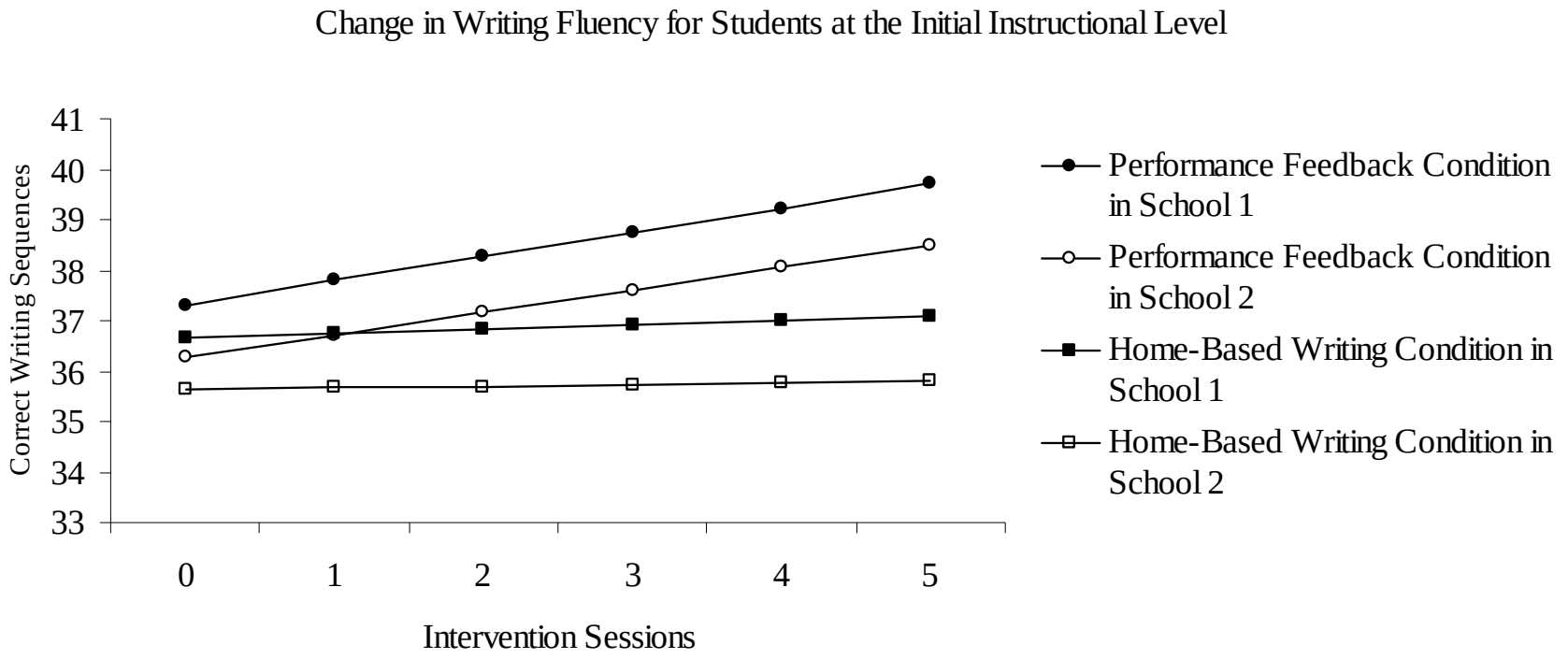
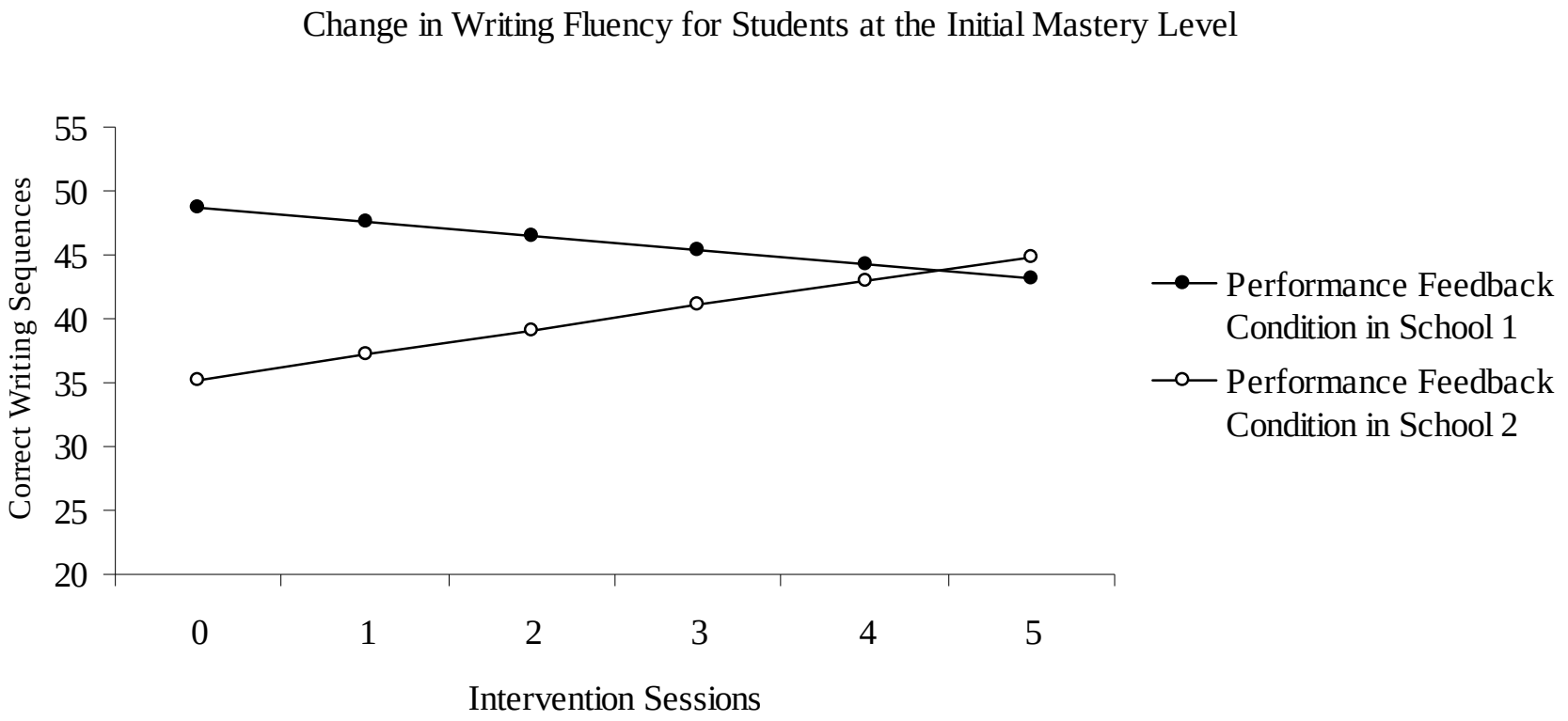


Figure 4. Change in Writing Fluency for Students at the Initial Mastery Level



References

Abbott, R. D. & Berninger, V. W. (1993). Structural equation modeling of relationships among developmental skills and writing skills in primary- and intermediate-grade writers. *Journal of Educational Psychology, 85*, 478-508.

Anderson, J. R. (1993). *Rules of the mind.* Hillsdale, NJ: Erlbaum.

APA Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist, 61,* 271-285.

Atkeson, B. M. & Forehand, R. (1979). Home-based reinforcement programs designed to modify classroom behavior: A review and methodological evaluation. *Psychological Bulletin, 86(6),* 1298-1308.

Barge, J. K. & Loges, W. E. (2003). Parent, student, and teacher perceptions of parental involvement. *Journal of Applied Communication Research, 31(2),* 140-163. doi: 10.1080/0090988032000064597.

Becker, H. J. & Epstein, J. L. (1982). Parent involvement: A survey of teacher practices. *The Elementary School Journal, 83(2),* 85-102.

Berninger, V. W. & Amtmann, D. (2003). Preventing written expression disabilities through early and continuing assessment and intervention for handwriting and spelling problems: Research into practice. In H. L. Swanson, K.R. Harris, & S. Graham (Eds.) *Handbook of Learning Disabilities.* New York: Guilford.

Berninger, V. W., Rutberg, J. E., Abbott, R.D., Garcia, N., Anderson-Youngstrom, M., Brooks, A., & Fulton, C. (2006). Tier 1 and Tier 2 early intervention for handwriting and composing. *Journal of School Psychology, 44,* 3-30. doi: 10.1016/j.jsp.2005.12.003

Berninger, V., Yates, C., Cartwright, A., Rutberg, J., Remy, E., & Abbott, R. (1992). Lower-level developmental skills in the beginning of writing. *Reading and Writing: An Interdisciplinary Journal, 4,* 257-280.

Blechman, E. A., Taylor, C. J., & Schrader, S. M. (1981). Family problem solving versus home notes as early intervention with high-risk children. *Journal of Consulting and Clinical Psychology, 49(6),* 919-926.

Chard, D. J., Vaughn, S., & Tyler, B. J. (2002). A synthesis of research on effective interventions for building reading fluency with elementary students with learning disabilities. *Journal of Learning Disabilities, 35,* 386-406.

Christenson, S. L. (2004). The family-school partnership: An opportunity to promote the learning competence of all students. *School Psychology Review, 33(1),* 83-104.

Christenson, S. L., Rounds, T., & Franklin, M. J. (1992). Home-school collaboration: Effects, issues, and opportunities. In S.L. Christenson & J.C. Conoley (Eds.), *Home-School Collaboration: Enhancing Children's Academic and Social Competence* (pp. 19-51). Silver Spring, MD: The National Association of School Psychologists.

Cooper, H. (1989). *Homework.* White Plains, NY: Longman.

Cooper, H., Lindsay, J. J., Nye, B., & Greathouse, S. (1998). Relationships among attitudes about homework, amount of homework assigned and completed, and student achievement. *Journal of Educational Psychology, 90(1),* 70-83.

Cox, D.D. (2005). Evidence-based interventions using home-school collaboration. *School* Psychology Quarterly, 20(4), 473-497.

Daly, E. J., Martens, B. K., Hamler, K. R., Dool, E. J., & Eckert, T. L. (1999). A brief experimental analysis for identifying instructional components needed to improve oral reading fluency. *Journal of Applied Behavior Analysis, 32(1),* 83-94.

Dawson, M., Cummings, J. A., Harrison, P. L., Short, R. J., Gorin, S., & Palomares, R. (2003/ 2004). The 2002 multisite conference on the future of school psychology: Next steps. *School Psychology Quarterly, 18,* 497-509. *School Psychology Review, 33,* 115-125.

Deno, S. L., & Mirkin, P. K. (1977). *Data-based program modification: A manual.* Reston, VA: Council for Exception Children.

Doherty, W. J. & Peskey, V. E. (1992). Family systems and the school. In S.L. Christenson & J. C. Conoley (Eds.), *Home-School Collaboration: Enhancing Children's Academic and Social Competence* (pp. 1-18). Silver Spring, MD: The National Association of School Psychologists.

Dolliver, P., Lewis, A. F., & McLaughlin, T. F. (1985). Effects of a daily report card on academic performance and classroom behavior. *Remedial and Special Education, 6(1),* 51-52.

Dougherty, E. H. & Dougherty, A. (1977). The daily report card: A simplified and flexible package for classroom behavior management. *Psychology in the Schools, 14(2),* 191-195.

Eckert, T. L., Codding, R. M., Truckenmiller, A. J., & Rheinheimer, J. L. (2009). Improving children's fluency in reading, mathematics, spelling, and writing: A review of evidence-based academic interventions. In A. Akin-Little, Little, Bray, & Kehle (Eds.), *Behavioral Interventions in Schools: Evidence-Based Positive Strategies* (pp. 111-124). Washington, DC: American Psychological Association.

Eckert, T. L., Lovett, B. J., Rosenthal, B. D., Jiao, J., Ricci, L. J., & Truckenmiller, A. J. (2006). Classwide instructional feedback: Improving children's academic skill development. In S. Randall (Ed.), *Learning disabilities: New research*. Hauppauge, NY: Nova Science Publishers.

Eckert, T. L., Truckenmiller, A. J., Rheinheimer, J. L., Perry, L. J., & Koehler, J. L. (2008). Improving children's academic achievement: Benefits and barriers associated with fluency-based interventions. In D. H. Molina (Ed.) *School Psychology: 21st Century Issues and Challenges*. Hauppauge, NY: Nova Science Publishers.

Elliott, S. N., Witt, J. C., Kratochwill, T. R., & Stoiber, K. C. (2002). Selecting and evaluating classroom interventions. In Shinn, Walker, Hill M., & Stoner (Eds.), *Interventions for Academic and Behavior Problems II: Preventive and Remedial Approaches* (pp. 243-294). Washington, DC: National Association of School Psychologists.

Epstein, J. L., Sanders, M. G., Simon, B. S., Salinas, K. C., Rodriquez Jansorn, N., & Van Voorhis, F. L. (2002). School, family, and community partnerships: Your handbook for action (2nd ed.). Thousand Oaks, CA: Corwin Press.

Fan, X. & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. Educational Psychology Review, 13(1), 1-22.

Fiala, C. L. & Sheridan, S. M. (2003). Parent involvement and reading: Using curriculum-based measurement to assess the effects of paired reading. *Psychology in the Schools, 40(6),* 613-626. doi: 10.1002/pits.10128

Firsthand (2008). *Lucy Calkins Units of Study for Teaching Writing.* Retrieved August 13, 2010 from http://www.unitsofstudy.com/iuos/default.asp.

Gansle, K. A., Noell, G. H., VanDerHeyden, A. M., Naquin, G. M., & Slider, N. J. (2002). Moving beyond total words written: The reliability, criterion validity, and time cost of alternate measures for curriculum-based measurement in writing. *School Psychology Review, 31(4),* 477-497.

Gettinger, M. & Guetschow, K. W. (1998). Parental involvement in schools: Parent and teacher perceptions of roles, efficacy, and opportunities. *Journal of Research and Development in Education, 32(1),* 38-52.

Gould, J. S., & Gould, E. J. (1999). *Four Square Writing Method for Grades 1-3.* Carthage, IL: Teaching & Learning Company.

Graham, S., Harris, K. R., MacArthur, C., & Fink, B. (2002). Primary grade teachers' theoretical orientations concerning writing instruction: Construct validation and a nationwide survey. *Contemporary Educational Psychology, 27,* 147-166.

Graham, S., MacArthur, C. A., & Fitzgerald, J. (2007). *Best Practices in Writing Instruction.* New York, NY: Guilford.

Hammill, D. D. & Larsen, S. C. (1978, 1983). *Test of Written Language.* Austin, TX: PRO-ED.

Hayes, J. & Flower, L. (1980). Identifying the organization of the writing process. In: L. W. Gregg and E. R. Steinberg (Eds.), *Cognitive process in writing,* pp. 3-30. Hillsdale, NJ: Erlbaum.

Henderson, A. T. (2007, March). *Effective strategies for engaging parents and communities in schools.* Testimony presented at the U.S. Senate Committee on Health, Education, Labor, and Pensions NCLB Reauthorization, Washington, D.C.

Henderson, A. T. & Mapp, K. L. (2002). A new wave of evidence: The impact of school, family, and community connections on student achievement. Austin, TX: Southwest Educational Developmental Laboratory.

Hoover-Dempsey, K. V. & Sandler, H. M. (1997). Why do parents become involved in their children's education? *Review of Educational Research, 67(1),* 3-42.

Hox, J. J. (2002). *Multilevel Analysis: Techniques and Applications*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Jeynes, W. M. (2005). A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education, 40(3),* 237-269. doi: 10.1177/0042085905274540

Jurbergs, N., Palcic, J., & Kelley, M. L. (2007). School-home notes with and without response cost: Increasing attention and academic performance in low-income children with attention-deficit/hyperactivity disorder. *School Psychology Quarterly, 22(3),* 358-379.

Kazdin, A. E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance knowledge, and improve patient care. *American Psychologist, 63(3),* 146-159.

Kelley, M. L. & Jurbergs, N. (2009). School-home notes: Home-based consequences for classroom behavior. In A. Akin-Little, Little, Bray, & Kehle (Eds.), *Behavioral Interventions in Schools: Evidence-Based Positive Strategies* (pp. 221-230). Washington, DC: American Psychological Association.

Kelley, M. L. & McCain, A. P. (1995). Promoting academic performance in inattentive children: The relative efficacy of school-home notes with and without response cost. *Behavior Modification, 19(3),* 357-375.

Kratochwill, T. R. & Shernoff, E. S. (2003/2004). Evidence-based practice: Promoting evidence-based interventions in school psychology. *School Psychology Quarterly, 18,* 389-408. *School Psychology Review, 33,* 34-48.

Kratochwill, T. R. & Stoiber, K. C. (2002). Evidence-based interventions in school psychology: Conceptual foundations of the procedural and coding manual of division 16 and the society for the study of school psychology task force. *School Psychology Quarterly, 17(4),* 341-389.

Lahey, B. B., Gendrich, J. G., Gendrich, S. I., Schnelle, J. F., Gant, D. S., & McNees, M. P. (1977). An evaluation of school-home notes with minimal teacher and parent contacts as an efficient method of classroom intervention. *Behavior Modification, 1(3),* 381-394.

Marcon, R. (1999). Positive relationships between parent school involvement and public school inner-city preschoolers' development and academic performance. *School Psychology Review, 28(3),* 395 – 414.

Martens, B. K., Eckert, T. L., Begeny, J. C., Lewandowski, L. J., DiGennaro, F. D., Montarello, S. A., Arbolino, L. A., Reed, D. D., & Fiese, B. H. (2007). Effects of a fluency-building program on the reading performance of low-achieving second and third grade students. *Journal of Behavior Education, 16,* 39-54. doi: 10.1007/s10864-006-9022-x

Martens, B. K., Witt, J. C., Elliott, S. N., & Darveaux, D. X. (1985). Teacher judgments concerning the acceptability of school-based interventions. *Professional Psychology : Research and Practice, 16(2),* 191-198.

McCurdy, M., Skinner, C., Watson, S., & Shriver, M. (2008). Examining the effects of a comprehensive writing program on the writing performance of middle school students

with learning disabilities in written expression. *School Psychology Quarterly, 23(4),* 571-586. doi: 10.1037/1045-3830.23.4.571

McMaster, K. L., & Campbell, H. (2006). *Advances in monitoring progress in writing.* Paper presented at the Progress Monitoring Conference, Minneapolis, MN.

McMaster, K. L., & Campbell, H. (2008). New and existing curriculum-based writing measures: Technical features within and across grades. *School Psychology Review, 37(4),* 550-556.

McMaster, K. L., & Espin, C. (2007). Technical features of curriculum-based measurement in writing: A literature review. *Journal of Special Education, 41*, 68-84.

Mirkin, P. K., Deno, S. L., Fuchs, S. L., Wesson, C., Tidal, G., Marston, D., et al. (1981). Procedures to develop and monitor progress on IEP goals. Minneapolis, University of Minnesota, Institute for Research on learning Disabilities.

Moher, D., Schulz, K. F., & Altman, D. for the CONSORT group (2001). The CONSORT statement: Revised recommendations for improving the quality of reports of parallel-group randomized trials. *Journal of the American Medical Association, 285,* 1987-1991.

National Commission on Writing. (2006). Writing and school reform including the neglected "R": The need for a writing revolution. The College Board.

New York State Education Department (2009). *English Language Arts Learning Standards.* Retrieved August 13, 2010 from http://www.emsc.nysed.gov/ciai/ela/elastandards/elamap.html.

Persky, H. R., Daane, M. C., & Jin, Y. (2003). *The Nation's Report Card: Writing 2002* (NCES 2003-529). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Pearson Education, Inc. (2009). *AIMSweb progress monitoring and RTI system*. Upper Saddle River, NJ: Author. http://www.aimsweb.com.

Pearson Education (2011). *Scott Foresman Reading Street.* Retrieved August 13, 2010 from http://www.sfreading.com.

Powell-Smith & Shinn (2004). Administration and scoring of written-expression curriculum-based measurement (WE-CBM) for use in general outcome measurement. *Aimsweb Training Workbook.* Eden Prairie, MN: Edformation, Inc.

Power, T. J., Dombrowski, S. C., Watkins, M. W., Mautone, J. A., & Eagle, J. W. (2007). Assessing children's homework performance: Development of multi-dimensional, multi-informant rating scales. *Journal of School Psychology, 45,* 333-348.

Rasinski, T. & Stevenson, B. (2005). The effects of fast start reading: A fluency-based home involvement reading program, on the reading achievement of beginning readers. *Reading Psychology, 26,* 109-125. doi: 10.1080/02702710690930483

Reimers, T. M., Wacker, D. P., Cooper, L. J., & De Raad, A. O. (1992). Acceptability of behavioral treatments for children: Analog and naturalistic evaluations by parents. *School Psychology Review, 21(4),* 628-643.

Reutzel, D. R., Fawson, P. C., & Smith, J. A. (2006). Words to go!: Evaluating a first-grade parent involvement program for "making" words at home. *Reading Research and Instruction, 45(2),* 119-159.

Rheinheimer, J. L. (2009). *Promoting Elementary Students' Writing Fluency with a School-Home Notes Feedback Program*. Unpublished Master's Thesis: Syracuse University.

Salahu-Din, D., Persky, H., & Miller, J. (2008). *The nation's report card: Writing 2007* (NCES 2008 – 468). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

SAS Institute Inc. (2010). *SAS 9.1.3 Help and documentation*. Cary, NC: SAS Institute.

Schumaker, J. B., Hovell, M. F., & Sherman, J. A. (1977). An analysis of school-home notes and parent-managed privileges in the improvement of adolescents' classroom performance. *Journal of Applied Behavior Analysis, 10(3),* 449-464.

Shapiro, E. S. (2004). *Academic Skill Problems: Direct Assessment and Intervention*. New York: Guilford.

Shapiro, E. S., (1987). Intervention research methodology in school psychology. *School Psychology Review, 16(3),* 290-305.

Shaver, A. V. & Walls, R. T. (1998). Effect of title I parent involvement on student reading and mathematics achievement. *Journal of Research and Development in Education, 31(2),* 90-97.

Sheridan, S. M. & D'Amato, R. C. (2003). Partnering to chart our futures: School psychology review and school psychology quarterly combined issue on the multisite conference on the future of school psychology. *School Psychology Quarterly, 18(4),* 352-357.

Shinn, M. R. (1989). *Curriculum-based measurement: Assessing special children*. New York: Guilford.

Singer, J. D. & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence.* New York: Oxford University Press.

Solomon D. & Rosenberg, L. (1964). Teacher-student feedback and classroom social structure. *Journal of Social Psychology, 62*, 197-210.

Spandel, V. (2005). *Creating writers through 6-trait writing assessment and instruction.* Boston, MA: Pearson Education, Inc.

SPSS, Inc. (2007). *About SPSS Inc.* Retrieved August 1, 2007 from http://www.spss.com/corpinfo/?source=homepage&hpzone=nav_bar.

Strukoff, P. M., McLaughlin, T. F., & Bialozor, R. C. (1987). The effects of a daily report card system in increasing homework completion and accuracy in a special education setting. *Journal for Remedial Education and Counseling, 3,* 19-26.

Tabachnick, B.G. & Fidell, L.S. (2007). *Using Multivariate Statistics* (5th ed). Boston: Allyn and Bacon.

Thorndike, E. L. (1931). *Human learning.* New York: Century.

Truckenmiller, A. J. (2011). *Modeling Elementary Aged Students' Fluency Growth in Written Expression: Predicting Fluency Growth for Girls and Boys in General Education.* Unpublished Doctoral Dissertation: Syracuse University.

Truckenmiller, A. J., Eckert, T. L., Perry, L. J., Doyle, N. M., & Rheinheimer, J. L. (March, 2007). Using group feedback as a writing intervention for elementary-aged children. Paper presented at the annual convention of the National Association of School Psychologists, New York, NY.

U.S. Department of Education (2009). *Conditions of Education: Indicator 30 Parent and Family Involvement in Education.* Retrieved September 1, 2009 from http://nces.ed.gov/pubs2009/2009081.pdf.

U.S. Department of Education (2008). *Helping Your Child Series*. Retrieved June 1, 2009 from http://www.ed.gov/parents/academic/help/hyc.html.

Van Houten, R. (1979). The performance feedback system: Generalization of effects across time. *Child Behavior Therapy, 3,* 219-236.

Van Houten, R., Hill, S., & Parsons, M. (1975). An analysis of a performance feedback system: The effects of timing and feedback, public posting, and praise upon academic performance and peer interaction. *Journal of Applied Behavior Analysis, 8,* 449-457.

Van Houten, R., Morrison, E., Jarvis, R., & McDonald, M. (1974). The effects of explicit timing and feedback on compositional response rate in elementary school children. *Journal of Applied Behavior Analysis, 7,* 547-555.

CURRICULUM VITAE

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EDUCATION

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DEGREES AWARDED

Doctorate of Philosophy in School Psychology, 2011 (Expected), Syracuse University

Master of Science in Psychology, 2009, Syracuse University

Bachelor of Arts in Psychology, Cum Laude, 2002, State University of New York, College at Geneseo

AWARDS AND HONORS

Graduate Tuition Scholarship, Syracuse University, 2006-2011

National Association of School Psychologists Graduate Student Research Grant, Honorable Mention, 2009-2010

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Allport Research Grant, Syracuse University, December 2006 and 2009

Department of Psychology Research Grant, Syracuse University, January 2008

Summer Fellowship, Syracuse University, Summer 2007

Psi Chi International Psychology Honors Society, State University of New York, College at Geneseo, 2001- 2002

PROFESSIONAL EXPERIENCE

School Psychologist, The Kessler Center of Easter Seals, Rochester, NY, 2011-present

Pre-Doctoral Psychology Intern, Elmcrest Children's Center, Syracuse, NY, 2010-2011

Graduate Student Therapist, Psychological Services Clinic at Syracuse University, Syracuse, NY, 2009-2010

Consultant, Home-Based Applied Behavior Analysis Services, Syracuse, NY, 2009-2010

Co-Facilitator, The Incredible Years Parent Training Program, SUNY Upstate Medical University, Department of Psychiatry and Behavioral Sciences, Syracuse, NY, 2009

Co-Facilitator, The Incredible Years Child Training Program, SUNY Upstate Medical University, Department of Psychiatry and Behavioral Sciences, Syracuse, NY, 2009

Psychological Evaluator, SPICE Program at Elmcrest Children's Center, Syracuse, NY, 2008-2009

ADHD Clinic Coordinator, SUNY Upstate Medical University, Department of Psychiatry and Behavioral Sciences, Syracuse, NY, 2007 - 2008

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RESEARCH EXPERIENCE

Primary Investigator, Improving Students' Academic Performance through School-Family Partnerships, Syracuse University, Syracuse, NY, 2007-2011

Researcher, Effects of Stimulus Control on Functional Analysis Outcomes, Syracuse University, Syracuse, NY, 2007-2010

Researcher, Treatment Research in Academic Competencies, Syracuse University, Syracuse, NY, 2006-2010

Project Coordinator of the M.I.G.H.T. Program, Mt. Hope Family Center, University of Rochester, Rochester, NY, 2004-2006

Researcher on the Toddler Continuation Program, Mt. Hope Family Center, University of Rochester, Rochester, NY, 2002-2004

Researcher, Sibling and Peer Relations Research Laboratory, State University of New York, College at Geneseo, Geneseo, NY, 2000-2002

TEACHING EXPERIENCE

Teaching Assistantship, Syracuse University - PSY 205 Foundations of Human Behavior, Syracuse, NY, 2006-2007, 2010

Teaching Intern, State University of New York, College at Geneseo - PSY 100 Introductory Psychology, Geneseo, NY, 2001

BOOK CHAPTERS

Eckert, T. L., Codding, R. M., Truckenmiller, A. J., & Rheinheimer, J. L.* (2009). Improving children's fluency in reading, mathematics, spelling, and writing: A review of evidence-based academic interventions (pp. 327-343). In A. Akin-Little, Little, Bray, & Kehle (Eds.), *Handbook of Behavioral Interventions in the School*. Hauppauge, NY: Nova Science Publishers.

Eckert, T. L., Truckenmiller, A. J., Rheinheimer, J. L.*, Perry, L. J., & Koehler, J. L. (2009). Improving children's academic achievement: Benefits and barriers associated with fluency-based interventions (pp. 111-124). In D. H. Molina (Ed.) *School Psychology: 21st Century Issues and Challenges.* Hauppauge, NY: Nova Science Publishers.

Koehler, J. L., Eckert, T. J., Truckenmiller, A. J., Rymanowski, J. L., & Koenig, E. A. (2009). Transition for high school special education students to post-secondary environments: Best practices, benefits, and barriers (pp. 169-182). In M. T. Burton (Ed.) *Special Education in the 21st Century*. Hauppauge, NY: Nova Science Publishers.

Eckert, T. L., Truckenmiller, A. J., Rheinheimer, J. L.*, Koehler, J. L., Koenig, E. A., & Heir, B. O. (in press). Curricular Assessment (86) in Volume III (School Psychology). In K. F. Geisinger (Ed.) *APA Handbook of Testing and Assessment in Psychology.* American Psychological Association.

PEER-REVIEWED JOURNAL PUBLICATIONS

Martens, B. K., Gertz, L. E., Werder, C. S., & Rymanowski, J. L. (2010). Agreement between descriptive and experimental analyses of behavior under naturalistic test conditions. *Journal of Behavioral Education, 19,* 205-221.

PRESENTATIONS AND POSTERS

Koenig, E. A., Eckert, T. L., Hier, B. O., Rymanowski, J. L., & Koehler, J. L. (2011, February). *Performance feedback and goal setting: Comparing two writing interventions.* Poster presented at the annual convention of the National Association of School Psychologists, San Francisco, CA.

Truckenmiller, A. J., Eckert, T. L., Rymanowski, J. L., Koehler, J. L, & Koenig, E. A. (2011, February). *Predicting writing fluency growth for elementary-aged children.* Poster

presented at the annual convention of the National Association of School Psychologists, San Francisco, CA.

Truckenmiller, A. J., Eckert, T. L., Rymanowski, J. L, Koehler, J. L., & Koenig, E. A. (March, 2011). Predicting Writing Fluency Growth for Elementary-aged Children. Paper to be presented at the National Association of School Psychologists Convention, San Francisco, CA.

Rymanowski, J. L., Eckert, T. L., Truckenmiller, A. J., Koehler, J. L., Koenig, E. A., & Hier, B. O. (March, 2010). School-Home Notes: Students' and Parents' Perceptions of Involvement and Satisfaction. Paper presented at the National Association of School Psychologists Convention, Chicago, IL.

Eckert, T. L., Truckenmiller, A. J., & Rymanowski, J. L., (March, 2010). Writing Fluency Research: Improving the Compositional Skills of Elementary-Aged Children. Symposium presented at the National Association of School Psychologists Convention, Chicago, IL.

Martens, B. K., Gertz, L. E., Werder, C. S., & Rheinheimer, J. L.* (May, 2009). Effects of stimulus control on functional analysis outcomes. Paper presented at the Applied Behavior Analysis International Conference, Phoenix, A.Z.

Rheinheimer, J. L.*, Eckert, T. L., Truckenmiller, A. J., Koehler, J. L., & Koenig, E. A (February, 2009). Promoting students' writing fluency with a school-home notes program. Paper presented at the National Association of School Psychologists Convention, Boston, M.A.

Truckenmiller, A. J., Perry, L. J., Rheinheimer, J. L.*, Koehler, J. L., & Eckert, T. L. (February, 2009). Curriculum-based measurement in written expression: A criterion validity study. Paper accepted at the National Association of School Psychologists, Boston, MA.

Truckenmiller, A. J., Gertz, L. E., Rheinheimer, J. L.*, & Wildenger, L. K. (November, 2008). Role of differential reinforcement in reducing aggression by a student with emotional disturbance. In B. K. Martens (Chair), *Clinical Applications of Functional Behavior Assessment to Diverse Treatment Settings.* Symposium presented at the New York State Association for Behavior Analysis, Albany, NY.

Eckert, T. L., Truckenmiller, A. J., & Rheinheimer, J. L.* (February, 2008). Benefits and barriers associated with writing fluency interventions. Paper presented at the National Association of School Psychologists, New Orleans, LA.

Rheinheimer, J. L.*, Eckert, T. L., Truckenmiller, A. J., Ricci, L. J., & Koehler, J. L. (February, 2008). Relationship between parent involvement and students' adaptive and maladaptive behavior. Paper presented at the National Association of School Psychologists Convention, New Orleans, LA.

Truckenmiller, A. J., Eckert, T. L., Rheinheimer, J. L.*, Perry, L. J., & Koehler, J. L. (February, 2008). Effects of group feedback on children's writing fluency growth. Paper presented at the National Association of School Psychologists Convention, New Orleans, LA.

Truckenmiller, A. J., Eckert, T. L., Perry, L. J., Doyle, N. G., & Rheinheimer, J. L.* (March, 2007). Using group feedback as a writing intervention for elementary-aged children. Paper presented at the National Association of School Psychologists Convention, New York, NY.

Eckert, T. L., Perry, L. J., Truckenmiller, A. J., Rosenthal, B. D., Doyle, N. G., Rheinheimer, J. L.*, & Devlin, A. J. (March, 2007). Using classwide performance feedback to improve elementary-aged children's written compositions. Paper presented at the National Association of School Psychologists Convention, New York, NY.

INVITED LECTURES

Phaneuf, L. K. & Rymanowski, J. L. (April, 2011). *ABA Strategies in a Preschool Setting.* Lecture presented to advanced undergraduate students at State University of New York, College at Cortland, Cortland, NY.

Phaneuf, L. K. & Rymanowski, J. L. (April, 2011). *The ABA Program at Elmcrest Education Center*. Lecture presented to advanced undergraduate students at State University of New York, College at Cortland, Cortland, NY.

Phaneuf, L. K. & Rheinheimer, J. L.* (March, 2009). *Applying applied behavior analysis (ABA) principles to the classroom.* In-service presented to teachers and staff at Elmcrest Early Education Center, Syracuse, NY.