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Abstract

This examination of normal functioning second grade students investigated the effect of child-centered play therapy (CCPT) on academic achievement. The treatment group was provided with biweekly play therapy sessions consisted of 30 minutes for a period of eight weeks. The results demonstrated the second graders who participated within the study (n=27) exhibited a statistically significant increase on the Woodcock Johnson III Total Brief Achievement Score (Mather & Woodcock, 2001) in comparison to the children within the waitlist control group (n=23). Findings advocate the usage of CCPT as an intervention for academic achievement.

**Play Therapy within Elementary
Schools**

Child-centered play therapy (CCPT) implementation within the school system has been a growing topic of investigation in play therapy research. Research showing evidence of the positive impact play therapy is having on children when implemented early in the school settings, may be the cause of this growing area of interest in the field (Ray, Armstrong, Balkin, & Jayne, 2014). Allen and Barber (2015) indicated child-centered play therapy, when implemented in the school, can ameliorate emotional and social issues that impact academics. Additionally, Green & Christensen (2006) further described the positive impact play therapy research has demonstrated in elementary-aged children as a creative intervention used in schools to promote academic, social, and emotional development. Developing play therapy programs in the school setting has been

suggested to be the most likely way children will receive the mental health interventions, a service necessary for the deemed crisis expanding among youth (Blanco & Ray, 2011). Moreover, meta-analyses such as one by Ray et al. (2014) determined the use of CCPT in schools is a positive intervention in a school setting. In a review of play therapy within the school system, Perryman (2016) stated many initial mental health issues within children are identified when children enter into the school, therefore, "it seems both optimal and crucial for interventions to be implemented at this point...because it is the most developmentally appropriate method" (p. 487).

Child-centered play therapy is a developmentally appropriate, culturally sensitive, and greatly researched and support intervention for elementary school-aged children (Blanco & Sheely-Moore 2012; Trice-Black, Bailey, & Kiper, 2013). Within the play therapy

session, children are able to express themselves through their natural language of play (Bratton, Edwards, & Landreth, 2009). Through play children can learn to express themselves, accept and respect themselves, to make choices and take responsibility for themselves and those choices, to be resourceful and creative, and self-control (Landreth, Ray, & Bratton, 2009).

Play therapy is not only developmentally appropriate is has the ability to be successfully implemented with children at various academic levels and with diverse needs (Trice-Black, Bailey, & Kiper, 2013). In a meta-analysis, CCPT was shown to be an effective in-school intervention positively effecting internalizing behaviors, externalizing behaviors, total problems, self-efficacy, academic performance and other problems at statistically significant levels (Ray, et al, 2014). CCPT provides children with means of expression that transcend language, sociopolitical, and cultural barriers through the use of nonverbal and symbolic means (Lin & Bratton, 2015). It has shown to be culturally sensitive due to its ability to present empathy, acceptance, and genuineness to students equally within a multicultural structure (Trice-Black, et al, 2013).

Child-centered play therapy remains optimal due to its effectiveness “across presenting issues, (has) demonstrated the greatest benefit for broad-spectrum behavioral problems, children’s self-esteem, and caregiver-child relationship stress” (Lin & Bratton, 2015, p. 54). Reviewing the multiple meta-analyses over play therapy interventions, it has been determined that CCPT is a positive intervention that is effective in the

real-world school setting (Ray et al., 2014). Due to the existing evidence of the efficacy of play therapy within the school setting and the accessibility of offering mental health care to children within the schools, it is imperative that this form of therapy becomes more utilized within such an influential environment.

Effects of Child-Centered Play Therapy on Academic Performance

CCPT and its influence on academic performance has been a prevalent topic of study in recent years in an effort to incorporate play therapy more easily within the elementary school setting. Research suggests that play therapy can aid in children’s academic acquisition through the provision of opportunities to address and subdue emotional difficulties which can delay intellectual growth (Trice-Black, Bailey, & Riechel, 2013). Allen and Barber (2015) asserted that play is instrumental for academic readiness achievement in the school due to play having been demonstrated as an integral component in aiding children for the proper acquirement of language and cognition. Based on this, one could infer that play therapy, when implemented within the school system, would only be supportive of the development and application of these language and cognitive skills.

However, Blanco and Ray (2011) issued a study which assessed the effects of play therapy on academic achievement within the school setting with students identified as academically at-risk. This study further indicated that those students who received CCPT improved in multiple domains of academic achievement. The observed effect of CCPT could be due to the environment which characterized

warmth and unconditional positive regard towards the children that were in the experimental group. Past research indicated that overall behavior, academic improvement, speech improvement, and a rise in self-esteem have occurred through the use of CCPT (Blanco & Ray, 2011; Danger & Landreth, 2005; Kot, Landreth, & Giordano, 1998; Post, McAllister, Sheely, & Flowers, 2004; Perryman, 2016, p. 500). In addition, this permissive environment has been theorized to give children a sense of freedom to develop internal coping strategies, responsibility for their actions, and in response to implantation of this facilitative environment, children have become more open to learning (Blanco & Ray, 2011). When children perceive warmth, caring, and safety in their environments, they are more likely to be able to concentrate on their learning and what is going on in the school environment (Blanco & Ray, 2011).

Moreover, Authors (under review) conducted a study with academically at-risk kindergarten children which determined the growth of certain academic skills in Reading, Mathematics, and Spoken Language when children were administered play therapy. In a follow-up study focused on long-term CCPT and academic achievement, findings suggest that a continued use of this intervention in the school settings leads to gradual positive increases on overall academic composite scores on the YCAT (Blanco, Ray, & Holliman, 2012). This finding supports other research that has found CCPT intervention in the schools to yield positive results, and further suggests that this positive effect can increase gradually with the continued use of this intervention (Blanco et al., 2012).

Academic Achievement and Play Therapy with Normal Functioning Children

Play therapy has proven to be an effective intervention for normal functioning children. According to Moustakas (1953) play therapy, “presents a unique experience for normal children (by offering) a relationship in a situation where the boundaries are greatly expanded” (p. 19). In this manner, the child’s imaginative play can be molded into anything they want it to be. There are no preexisting conditions for the child to meet when entering the therapeutic relationship as it honors the child for who they are, their actions, impulses, and projections as they express what is going on in their world (Moustakas, 1953). In observing how normal children engage in play therapy, Moustakas (1953) found that normal children do not hesitate to express negative feelings and to take responsibility for those feelings and are not so intense and serious within their play. He also discovered normal children are more spontaneous and decisive, and often discuss their play experiences with important people in their lives, including aggressive and regressive aspects of their play (Moustakas, 1953). Moreover, with normally functioning children, Moustakas (1953) found that the most important part of the play experience tends to be focused on the child’s relationship with the therapist and is created in a short span of time.

Blanco, Muro, Holliman, Stickley, and Carter (2015) examined the effects of CCPT on normal functioning children and found the CCPT was effective in increasing academic achievement scores with this population. This study deduced that CCPT is an effective intervention for

school counselors to provide to children as a way of providing academic support as well as emotional support to help a wide range of students in a school setting, not only those considered at-risk, but normally functioning children as well (Blanco et al., 2015). A follow-up study by Blanco, Holliman, Muro, Toland, and Farnam (2017) investigated the long-term effectiveness of CCPT on academic achievement with normal functioning first grade students, and found that normal functioning children who participated in 26 sessions of CCPT demonstrated improved performance on an overall achievement composite, and improved continuously throughout treatment. This study concluded that continued play therapy has an effect on normally functioning children, thus making CCPT appear to be an important intervention that can be applied across the academic continuum as an in-school intervention (Blanco et al. 2017).

Other studies examining the effects of play therapy on the improvement of social skills in children, have found play therapy to assist children in development of many social skills such as: decision-making, language, intellectual growth, and problem-solving skills (Kafaki, Hassanzandeh, & Jadidi, 2013). This study also described play therapy as a developmentally appropriate medium for children to develop relationships with adults, facilitate critical thinking skills, and process life experiences that assist with the learning of appropriate social skills (Kafaki et al., 2013). Play therapy, CCPT specifically, is an intervention that has been shown to have positive and statistically significant effects across diverse populations, problems, social skills, and the academic continuum. It has shown to be effective in the school setting

with a wide range of applicability, and is an important intervention to be implemented in the schools to fight the mental health crisis occurring across the U.S. (Blanco & Ray, 2011; Schottelkorb, Swan, Jahn, Haas & Hacker, 2015; Swan & Ray, 2014).

Preventative Measures of Play Therapy

CCPT can also be implemented as a preventative measure for normal functioning children. Moustakas (1953) stated that when play therapy is used in this manner, normal functioning children “use it as a way of growing in their own self-acceptance and respect and also as a way of looking at attitudes that might not be easily explored in school or at home” (p. 21). Perryman (2016) asserted that the earlier CCPT is implemented in children’s lives the less likely they are to feel the impact of adverse choices made in the future. She also stated that prior research “clearly indicates early intervention plays an important role in how children perceive themselves and their future success as students, community members, family members, and human beings” (Perryman, 2016, p. 487).

Additionally, Blanco et al. (2017) suggested due to play therapy’s success in alleviating disrupted behaviors in normal functioning children, “CCPT is encouraged as a preventative approach for not only maladjusted and disorderly children, but for healthy functioning children as well” (p. 1916). It appears that providing a safe, welcoming, supportive environment in the school setting is something that can benefit most children. Perryman (2016) furthermore suggested the incorporation of a play therapy program within the school setting can benefit most children in the school system,

with the intention of fostering academic and emotional growth.

Purpose of Study

There exists a strong precedence in the literature for a link between academic achievement and emotional health (Romasz, Kantor, & Elias, 2004; De Lugt, 2007; Guay, Marsh, and Boivin 2003; Hemlke & van Aken, 1997; Marsh and Yeung 1997; Skaalvik, & Hagtvet, 1990). In light of this link which is well established in the professional literature, there is a necessity to provide school based interventions that target emotional health in order to improve academic outcomes.

The purpose of the current study was to examine the impact of CCPT on the academic achievement of normal functioning 2nd grade students as measured by the Woodcock Johnson III ACH. While past studies involving CCPT and academic achievement have focused on younger children (Blanco & Ray, 2011; Blanco, Ray, & Holliman, 2012), this study focuses on second graders to expand the exploration of CCPT and academics to children in the middle years of elementary school. This study also focuses on normally achieving children. The decision to include normally achieving children was based upon the theoretical importance of play for all children, not just those who are academically at-risk. Moustakas states, "... Play therapy is a type of preventative program of mental hygiene for normal children" (1953, p.21). The research question for the current study: What is the impact of CCPT treatment on normally achieving second graders in regard to academic achievement?

Method

Participants

In this investigation, 50 student participants within three elementary schools in the southwestern United States were included. All three elementary schools were classified as Title 1 schools which were selected for school-wide assistance by the state due to the percentage of students qualifying for free or reduced lunch. School 1 recorded 49.6% of its students as economically underprivileged, School 2 listed 46.3% of its students as economically underprivileged, and School 3 listed 40.4% of its students as economically underprivileged. The school counselors provided written informed consent documents to all parents or guardians of second grade students within the chosen classrooms. These classrooms were decided upon by their identification as a mainstream classroom and the individual instructor's inclination to having students abstracted for services. Due to the linguistic impediments of the assessment instruments utilized, bilingual classrooms were not chosen for the study. Rather than determining students who may be at-risk for success within the school, all students in the chosen school rooms were able to participate in the study as the researchers recruited a sample of average students. The student's enrollment in the 2nd grade was the only criteria for inclusion in the study. Screening procedures were not used at this point in the study, and written informed consents for 50 students were obtained in accordance with the procedures of the local institutional review board.

Children were randomly assigned into one of two treatment groups based upon the amount of participants per school. There were 23 student participants

in School 1, 19 children were served in School 2, and 8 children were served in School 3. The final participant amount of 50 students represented 27 students designated to CCPT treatment group and 23 students designated to the wait-list control (WC) group. In total, 25 boys and 25 girls participated in the study. In regards to the boys, 11 were designated to the play treatment (PT) group and 14 were designated to the WC group. In regards to the girls, 16 were designated to the PT group and 9 were designated to the WC group. Throughout the investigation, all participants were within the ages of seven and eight years old. Ethnicity analysis were as follows: (a) nine were African American (six PT group, three WC group), (b) one was Asian American (one PT group, zero WC group), (c) 32 were Caucasian (17 PT group, 15 WC group), and (d) six were Hispanic (three PT group, three WC group), (e) two did not specify ethnicity (zero PT group, two WC group).

Instrument

Woodcock Johnson III Total Brief Achievement (WJIII ACH; Mather & Woodcock, 2001). WJIII ACH is an instrument battery that measures the academic achievement capabilities of individuals ages 2-99+. The WJIII ACH appraisal contributes material regarding an assortment of academic subjects, gathering cluster scores in academic areas of reading, oral language, written expression, and mathematics (Mather & Woodcock, 2001). For this examination, the Brief Achievement cluster assessments were used to generate a brief achievement score obtained by the administration of three subtests taking approximately 10-15 minutes per test: (a) Letter-Word Identification, (b) Spelling, and (c) Applied Problems.

The WJIII ACH is a well-established instrument with adequate psychometric properties.. Many investigations have secure reliability through the usage of test-retest, internal consistency, and inter-rater reliability. Internal cohesion authenticity estimations, such as the point to which the items correspond to one another for the Brief Achievement Cluster varied from .97-.96 for school aged children (McGrew, Schrank, & Woodcock, 2007). The WJIII ACH was selected for this investigation due to its high psychometric standards and wide range for ages appropriate to be administered the instrument.

Procedures

All participants were administered the WJIII ACH when informed consent was received. Masters level graduate students who were trained in assessment administered the instrument to participants before they were assigned to one of the two treatment groups. The masters level instrument administrators had previously completed a graduate level course in psychometrics, as well as being provided four hours of supplementary preparation reviewing the administration of instruments used in the study. Participants were then randomly assigned to one of the two treatment groups which consisted of eight weeks of no intervention or eight weeks of play therapy throughout the fall semester. At the end of eight weeks, each participant was administered the WJIII ACH as a post measure.

PT group. Within the PT group, twenty-seven students were designated to 16 sessions of CCPT scheduled over a period of eight weeks. Students who received play therapy engaged in two 30-minute sessions each week for a span of

eight weeks using on-site and equipped school classroom playrooms. Each play therapy session was provided in accordance to a CCPT treatment manual (Ray, 2009) and were facilitated by masters-level counseling students trained in play therapy. The student therapists who facilitated sessions incorporated both nonverbal and verbal skills as outlined by Ray (2009): (a) maintaining a leaning forward, open stance; sustaining a forward leaning, open stance; (b) appearing to be interested; enact interest; (c) remaining comfortable; (d) having a matching tone with the child's affect; (e) having appropriate affect in responses; (f) using frequent interactive responses; (g) using behavior-tracking responses; (h) responding to verbalizations with paraphrases; (i) reflecting the child's emotions; (j) facilitating empowerment through returning responsibility; (k) encouraging creativity; (l) using self-esteem-boosting statements;; and (m) providing relational responses. Every play therapist had previously completed or were concurrently enrolled in a play therapy graduate course. Prior to treatment, each play therapist additionally attended training sessions specific to school-based play therapy. In addition to training sessions, each play therapist received weekly one-hour play therapy supervision throughout the duration of the investigation in order to confirm each therapist was following CCPT protocol. During each supervision time, the play therapists, with their respective supervisors present, were required to audit their video recorded play therapy sessions; every play therapist supervisor ensured that the play therapists were acting in accordance to CCPT protocol through the implementation of the Play Therapy Skills Checklist (PTSC; Ray, 2009). To ensure CCPT procedures were used throughout

each play therapy session, periodic audits were conducted by the research team using the PTSC. Student therapists were required to adhere to CCPT principle standards in 93% of play therapy sessions, thus therapists who diverged from these principles were guided in supervision to adhere more stringently to CCPT. The results of these audits indicated that the student therapists adhered to the principles of CCPT throughout the duration of the study.

WC group. The WC group in which participants received no treatment intervention throughout the duration of the study consisted of twenty-three children. Every WC group student was placed in CCPT following post-administration of instruments.

Data Analysis

Following the completion of treatment, the researchers scored the pre-test and post-test data using procedures outlined in the WJ-III Manual. The data from protocols were then entered in the WJ-III ACH-Brief scoring software to generate individual test scores and brief achievement scores. To measure impacts of CCPT on academic achievement, a mixed between-within subjects' analysis of variance was conducted on each of the dependent variables, including the three individual tests of the WJ-III ACH Brief and the Brief Achievement score. For the purposes of hypothesis testing, an alpha of .05 was used as a criterion for establishing the results as statistically significant. Effect sizes were measured by the Cohen's D statistic and interpreted by Cohen's guidelines (1988) as small (.20), medium (.50) and large (.80).

Results

The results of the mixed between-within subjects analysis of variance on the WJIII- Brief Achievement score indicated a statistically interact effect between treatment group and time, Wilks Lambda = .920, $F(1,48)=4.188$, $p=.046$, Cohen's $d = .21$. The main effect for time yielded statistically insignificant results, Wilks Lambda=.972, $F(1,48)=1.391$, $p=.244$. The main effect for treatment group did not yield statistically significant results $F(1,48)=.804$, $p=.374$. Overall, the results of this analysis indicated that those subjects participating in CCPT demonstrated an increase in academic achievement scores with a small effect (as evidenced by the Cohen's d of .21), while those in the wait-list control group received a slight decrease in scores over time.

The results of the mixed between-within subjects analysis of variance on the WJ-III Letter-Word Recognition Test indicated a statistically significant interaction effect, Wilks Lambda=.915, $F(1,48)=4.468$, $p=.040$, Cohen's $d =.20$. The main effect for time yielded statistically insignificant results, Wilks Lambda= .986, $F(1,48)=.683$, $p=.413$. The main effect for group yielded statistically insignificant results $F(1,48)=.664$, $p=.419$. Overall, the results indicated that the treatment group experienced an improvement in Letter-Word Recognition scores over time with a small effect size (as evidenced by a Cohen's d of .20), while the control group appeared to be relatively stable over time.

The results of the mixed between-within subjects analysis of variance on the WJ-III Spelling test indicated a statistically significant interaction effect, Wilks Lambda = .902, $F(1,48)=5.192$,

$p=.027$, Cohen's $d=.36$. The main effect for time yielded statistically insignificant results, Wilks Lambda=.966, $F(1,48)=1.693$, $p=.199$. The main effect for group yielded statistically insignificant results, $F(1,48)=1.137$, $p=.292$. Thus it appears that the experimental group demonstrated a statistically significant difference with a small effect size as demonstrated by a Cohen's d of .36.

The results of the mixed between-within subjects analysis of variance on the WJ-III Applied Problems test indicated statistically insignificant interaction results Wilks Lambda=.998, $F(1,48)=.084$, $p=.773$, Cohen's $d = -0.045$. The main effect for time yielded statistically insignificant results, Wilks Lambda=.999, $F(1,48)=.069$, $p=.794$. The main effect for group yielded statistically insignificant results, $F(1,48)=.378$, $p=.542$. Thus the treatment group and experimental group did not demonstrate statistically significant differences in their scores on the applied problems subscale.

Discussion

The research question of this study sought to explore whether second grade children who were typically achieving would demonstrate improvement in academic achievement if provided CCPT. The results of the present study indicate that children who are identified as "normal functioning" in regard to their academic achievement and participate in child-centered play therapy sessions demonstrate growth in their academic achievement when compared to their peers who did not participate in CCPT. Specifically, our data indicated that children who participated in play therapy demonstrated gains in academic achievement, as measured by the WJ-III ACH, on a general measure of

achievement as well as on tests related to Letter-Word Identification and Spelling.

Historically, play therapy as a mental health intervention has been focused on emotional and behavioral problems (Ray, Schottelkorb, & Tsai, 2007; Paone & Douma, 2009; Ray, Blanco, Sullivan, & Holliman, 2009; Stulmaker & Ray, 2015). However, modern play therapy literature has explored academic achievement only minimally, despite the fact that the average child in primary school spends an inordinate amount of their day attending school. This study adds to a growing body of work that indicates that play therapy may be a practical intervention for improving academic achievement. Furthermore, there have been studies which indicated that play therapy may be important not only as an intervention, but also as a preventative measure. Most notably, Post (1999) conducted a study with elementary school children that demonstrated that while at times play therapy didn't improve children's measure on self-esteem, it did prevent drops in self-esteem which were noticed in other children. In the same way, some children in the waitlist control group demonstrated modest declines in their academic performance, whereas all children who received play therapy showed either growth or no change on academic achievement.

An important theoretical implication for the field of play therapy and the academic success of students is that the outcome of improved academic achievement may be a theoretical match with the intended goals of child centered play therapy. While CCPT doesn't have treatment objectives as we might find in other forms of play therapy, there are goals which seem to correlate with the

outcome of improved academic achievement. In 1997, Landreth and Sweeney outlined several important goals in CCPT including: the development of positive self-concept, greater self-responsibility, more self-direction, greater self-acceptance, more self-reliance, self-determined decision making, greater feelings of control, sensitivity to the process of coping, an internal source of evaluation, and a greater sense of trusting self. While none of these goals is directly related to academic achievement, there are several theoretical links between these goals and improved academics. Bills (1950) and Winn (1959) both engaged in research which suggested that changes in self-perception and self-concept were correlated to positive change in reading.

In any research endeavor, an important implication is how results may impact practice. The results of this particular study have several practical implications. First, it suggests that play therapists may begin to reconsider potential clients for play therapy. As previously discussed, play therapy has of late focused its importance as an intervention for mental health issues (Ray, Schottelkorb, & Tsai, 2007; Paone & Douma, 2009; Ray, Blanco, Sullivan, & Holliman, 2009; Stulmaker & Ray, 2015). This seems to be somewhat the effect of a medical model perspective which has pervaded mental health disciplines as a whole. However, in recent years the wellness perspective has been an increasingly emphasized in certain mental health circles (Myers, 2003; Roscoe, 2009; Myers & Sweeney, 2009). Thus, this research may indicate that play therapy not only serves as an intervention, but also as prevention. So in the future play therapists may provide services not only for children who are struggling in academics, but to children who are normally achieving to

serve as a protective and preventive measure.

Play therapy as an intervention for academic achievement also seems to indicate that some skills improve from exposure to play therapy in the short-term, while some skills tend to improve over the long-term. Specifically in this study there was growth in general academic achievement as well as in Spelling and Letter-Word Identification, two subtests which the WJ III ACH associates with academic ability of general knowledge and writing. The applied skills (arithmetic application) test in this particular study did not show significant improvement in the short-term. This result is consistent with the finding of past studies. Past studies conducted tended to indicate that some skills such as mathematics, reading, and spoken language grow over the long-term, while skills such as general information, comprehension of knowledge, and writing tend to expand over the short-term (Blanco & Ray, 2011; Blanco, Ray, & Holliman, 2012; Blanco et al., 2015). Thus play therapists may expect different response rates based on length of treatment.

Another important implication of the results is the impact of a school-based play therapy program. Many intervention studies focus on the provision of services for children being provided in a clinical setting. However, this study focused on embedding play therapy services in the school, to determine the effectiveness of school-based play therapy services. Play seems to be a disappearing element in elementary schools with a trend towards reduction of play to focus on instructional endeavors (Murray et al., 2013). However, the incorporation of play into a therapeutic program provides much needed counseling for students in schools. There is overall a shortage of mental

health services across the world (Kazdin & Rabbit, 2013), and incorporating school-based play therapy is one of many novel methods to address this shortage.

Limitations and Directions for Further Research

In considering the results of a study, one must consider the limitations of the study. There is no such thing as a flawless study, and as such imperfections must be considered carefully when understanding the study and its implications for both clinical practice and future clinical research. One such limitation of the current study is that the participants represent a limited segment of the population. The participants were limited by age and geography, as they were all 2nd grade students in school districts in the southwestern United States. To improve generalizability of the study, future research projects should increase both the sample size and diversity of the sample to include a wide range of students to improve generalizability.

Another limitation to consider in interpreting the results of this study are the use of a wait-list control group. While the experimental group did show many results which were superior to non-treatment, the question remains if CCPT would prove to be superior to an active control, such as another mode of psychotherapeutic treatment. A direction for future research might include an active control group such as peer mentoring or another activity which provided one-on-one attention for the participant. Alternatively, future studies might also compare CCPT to another form of play therapy or child psychotherapy.

Conclusion

Ultimately, the result of this study suggests that CCPT is a method that can be utilized by mental health professionals in schools to impact academic achievement. While play therapy has historically been relegated to emotional and behavioral problems, this study advances the idea that CCPT is helpful in addressing academic concerns and bears consideration by the school counselor as an intervention to impact academics. This study provides continuing evidence for the school counselor to implement therapeutic interventions for academic concerns and links between the emotional and academic health of children.

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Table 1.

Pre and post-test means of the WJIII Total Brief Achievement.

	<u>PT Group (N=27)</u>		<u>WC Group (N=23)</u>	
	<i>Pre-test</i>	<i>Post-test</i>	<i>Pre-test</i>	<i>Post-test</i>
<i>Letter Word Identification (subtest)</i>				
<i>M</i>	105.33	107.52	110.26	109.30
<i>SD</i>	15.00	15.11	15.89	12.68
<i>Spelling (subtest)</i>				
<i>M</i>	95.63	100.41	103.53	102.22
<i>SD</i>	17.43	17.20	16.44	15.47
<i>Applied Problems (subtest)</i>				
<i>M</i>	102.26	102.22	104.61	105.35
<i>SD</i>	16.36	17.63	17.93	12.93
<i>Woodcock Johnson III (ACH) Total</i>				
<i>M</i>	101.89	104.96	108.26	107.43
<i>SD</i>	18.36	18.65	18.58	14.58