

# Brief Report

## Art Therapy with a Child Experiencing Sensory Integration Difficulty

Diane Kearns, West Linn, OR

### Abstract

*An increasing number of students diagnosed with difficulties such as attention deficit hyperactivity disorder and Asperger's syndrome are being seen in schools. Sensory integration difficulties may be part of the symptomatology of these disorders. These difficulties may result in difficulties with both classroom behaviors and academic performance. This single-case study investigated the effectiveness of art therapy with a 5-year-old white male with sensory integration difficulties. Art therapy focused on preart activities using three media. Teacher ratings assessed classroom behavior for improvement. Each of the varied media sessions was compared to control sessions where a nonart experience was offered. Results indicated an increase in positive behaviors after art sessions as well as postponement of the first incidence of negative behaviors. Art therapy was found to be a useful intervention.*

### Introduction

Today's educators see many children whose academic performance is negatively impacted by an inability to focus and apply innate abilities in the classroom. This difficulty can be pronounced in individuals who experience difficulty integrating sensory input—a challenge often associated with attention deficit disorder as well as other increasingly common diagnoses such as Asperger's syndrome. To help these students improve classroom performance, school systems may focus on behavioral controls, which can be an important component of an overall program. However, this approach does not address the possibility that sensory integration (SI) difficulties contribute to a student's symptomatology. SI is the ability to organize, integrate, and use sensory information from the body and the environment (Mauer, 1999). Introducing a multisensory art therapy program might improve the classroom performance of an individual who exhibits symptoms of SI difficulties that

often result in problems with attention and behavior. For this study of classroom performance, an elementary school child in the public school system was exposed to art therapy activities that provided opportunities for sensory exploration as well as opportunities to integrate experience through the creation of artwork rooted in personal experience. The classroom performance of this kindergarten student with apparent SI difficulties was observed to determine if a program of individual, multisensory art therapy increased the student's ability to utilize academic skills and conform to classroom expectations.

In this research, two areas of interest were addressed. First, the student's classroom performance was evaluated to determine if improvement could be seen after the student was exposed to individual art therapy focusing on both kinesthetic experience and personal expression. Second, the student's level of appropriate classroom performance was evaluated to determine which, if any, of three multisensory art activities had the greatest impact.

### Literature Review

A number of children in mainstream classrooms with no identifiable neurological issues or general developmental delays experience problems with academic achievement, behavioral organization, and social development. For some, these challenges have been linked to SI difficulties (Chu, 1996). Indeed, researchers have found that the incidence of problems related to SI difficulties among schoolchildren is significant (Foodman & McPhillips, 1996).

### Sensory Integration

SI difficulties can be seen in "normal" children, as well as in students diagnosed with attention deficit hyperactivity disorder (ADHD), attention deficit disorder (ADD), autism spectrum disorders, and fetal alcohol exposure (Kranowitz, 1998). Since school systems are educating increasing numbers of students with these diagnoses, as well as others who experience difficulty in the classroom setting, it becomes ever more important to explore ways in which these students' academic and behavioral performance can be facilitated. Few studies, however, have examined the ef-

---

**Editor's note:** Diane Kearns, MA, ATR, holds a Post Graduate Certificate in Art Therapy Counseling and is employed by the Canby School District, Canby, Oregon. Correspondence concerning this article may be addressed to her via e-mail at dkearns006@aol.com.

fects of sensory integrative therapy on children with ADHD (Mulligan, 1996).

Challenges to integrating sensory stimulation are seldom addressed in the classroom or school setting unless they are seen as part of a spectrum of pervasive developmental delays. Students with ADHD are sometimes referred to occupational therapy—not because of attentional or hyperactive symptoms, but because of related concerns such as poor motor planning and poor visuomotor skills (Cermak, as cited in Mulligan, 1996). These associated problems are often viewed as disorders of SI (Fisher, Murray, & Bundy, 1991). The impact of SI difficulties on classroom performance can be tremendous.

SI difficulties refer to a broad spectrum of tactile, visual, auditory, vestibular, and proprioceptive hyper- and hypo-sensitivities. Research has shown that the effects of these SI difficulties can be long-lasting and greatly impact classroom performance in both the short and long term. Children do not typically “grow out” of these problems (Chu, 1996). Children with SI difficulties may manifest symptoms seen as “clumsiness” by the adults who work with them. These children have been found to have lower than average verbal and performance IQ scores and poorer academic performance as much as 10 years after the SI difficulties were noted (Davidson & Williams, 2000).

Given the long-lasting nature of sensory issues and the impact of these difficulties on the academic, social, and emotional life of the child, exploration of strategies to assist in overcoming these difficulties may greatly benefit their success in the classroom. Much of the current thinking about addressing SI difficulties focuses on developing a “sensory diet” for the affected individual. This diet often includes a variety of sensory stimulation through activities involving both large and small motor activities, including manipulation of resistive materials such as clay (Kranowitz, 1998). Therapy may proceed from child-directed activities to those that emphasize multimodal input (Linderman & Stewart, 1999).

## Art Therapy and SI

While such strategies address some of the physical needs at the root of the problems the child with SI difficulties experiences, they do not address the social and emotional aspects of the child’s internal experience. This is especially true with respect to interactions with peers and adults. Art therapy can include art and preart activities that allow for therapeutic physical activity and sensory stimulation while also providing opportunities to explore nonverbally topics and concerns of personal significance. Through artwork, these broad areas of concern can be addressed simultaneously.

The kinesthetic activities recommended by occupational therapy for the SI-challenged child are consistent with those often used with children striving for psychological integration. Waters and Silberg (2002) found that the tactile experiences of art and preart activities with clay helped dissociative children to integrate experience through the opportunity to “touch, create and form ob-

jects” (p. 176). They stress the value of the fusion experiences inherent in claywork.

Smitheman-Brown and Church (1996) noted that the impulsive behaviors of children diagnosed with ADD or ADHD point to the need to facilitate relaxation and offer opportunities for centering. Smitheman-Brown and Church found that offering art therapy group members a centering, mandala-based art activity at the beginning of group sessions facilitated focus and improved performance in the group session. As part of a comprehensive program of treatment, such strategies might help these students more readily attend to tasks and achieve their potential. For a young student whose SI challenges manifest as behavioral and attentional problems, offering a centering art activity as the initial experience of the school day may provide a similar effect.

Henley (1998) describes a number of successful art therapy activities for children with ADHD. Henley cited Jackson’s discovery that exciting guided imagery exercises, implemented as a drawing, attained the same kind of paradoxical effect seen with stimulant medication. Despite their stimulating content, such exercises helped impulsive children be calmer and more focused. It appears that projects that inspire excitement and novelty can enhance focus in children with ADHD.

Although such novelty and excitement may be helpful in curbing the impulsivity of the child with ADHD, routine and regimen are also critical to the containment of impulsive behavior, particularly during the time between activities. In the educational setting, emphasis even for the young student is on product rather than process. Completion of classroom assignments can provide a great challenge to the child whose SI difficulties manifest as attentional symptoms (Henley, 1997). Focusing an art therapy session on the experience of the art or preart activity could minimize the pressure to produce an end product comparable to those of same-age peers. This would allow the student to avoid feelings of being overwhelmed or intimidated and potentially to experience positive behavioral effects as a result of the art activity.

## Method

The research hypothesis was that individual art therapy focused on multimodal, stimulating art activities would increase the participant’s ability to focus and conform to classroom expectations. To test this hypothesis a quasi-experimental, single-case design was used. Diamond (1992) states that such a design is useful in assessing whether change has occurred as a result of a specific variable—in this case, art therapy. This study took the form of A-B-A-B with A representing the no-treatment condition and B representing the intervention. Measures of classroom performance were used throughout the 10-week study to monitor treatment effect.

## Participant

The participant, who shall be referred to as Michael, is the only child of divorced parents. He spends time in

the homes of both parents. At the time of this pilot study, he was 5 years old and attended a half-day kindergarten program. According to Michael's mother, there is a suspicion that he was sexually abused as a very young child. His developmental history was unremarkable. Measures of academic performance placed him on the low-average end of the spectrum of same-age peers. Socialization problems were seen before Michael entered public school and he recognized that "no one wants to play with me." Problematic classroom behaviors included regular tantrums, screaming, hiding under tables, hitting his head on the wall, and aggression toward peers. He often refused to engage in classroom activities and would not follow classroom rules.

After signed consent was received from his mother, Michael's classroom teacher completed a questionnaire to determine if he displayed traits associated with SI difficulty, particularly in the areas of attention and behavior. This questionnaire was compiled by Balzer-Martin (Kranowitz, 1998) for use by elementary school staff. Michael received maximum scores on the attentional-behavioral and auditory sensitivity portions of the scale, indicating a reasonable likelihood that he was experiencing some SI difficulties.

With the help of this researcher, Michael also completed the Touch Inventory for Elementary Aged Children (TIE) (Royeen, 2002), a self-assessment of touch sensitivity. His responses placed him above the 75th percentile on this measure. This score also suggests that SI difficulties contribute to his classroom challenges.

## Measures

Art therapy treatment began and concluded with the Formal Elements Art Therapy Scale (FEATS) (Gantt & Tabone, 1998) assessment. The FEATS uses the "person picking an apple from a tree" (PPAT) drawing task. The subscales on this measure were shown to have interrater reliabilities between .88 and .98 in an initial study. Pre- and posttest drawings were evaluated for evidence of changes in various qualities over the course of the research period. The subscales used were "prominence of color," "color fit," "implied energy," "use of space," "integration," "realism," "details of objects and environment," and "developmental level." Each of these involves rating more or less of the particular variable on a 5-point scale.

Classroom performance was evaluated using an observational system whereby the student's behavior was rated by the teacher and recorded. The form used by the teacher had a series of boxes, one for each 30-minute segment of Michael's school day. The teacher subjectively rated each 30-minute block of time for every day Michael attended school during the study period. A block was rated as positive when his behavior approximated that expected of kindergarten students. A block was rated as negative when problematic behaviors, as described above, predominated during that period. The classroom teacher was unaware of which days an art activity was utilized during the daily session and which days were controls when no art was done. Patterns of behavior were examined for both short- and

long-term effects that might have been associated with art therapy interventions.

## Procedure

The interventions chosen for this study—oil-based clay work, fingerpainting, and easel painting—offered the opportunity for various types of kinesthetic stimulation in addition to visual stimulation. To a lesser degree, auditory stimulation was provided by encouraging Michael to attend to the sounds of shaking or squishing paint. Days when he was offered a morning session without art activities provided a control. The classroom teacher was unaware of the schedule of activities taking place within the sessions. She was uninformed concerning the program design in order to reduce the chance of conscious or unconscious contamination of the results.

Fingerpainting is sometimes seen as an overly stimulating medium. Its inclusion in this study is supported by Henley's (1998) opinion regarding the paradoxical effect of stimulating art activities. It also involves both small and large motor systems. Clay was selected as one of the media options since many "sensory diet" plans, including one offered by the Ayres Clinic (n.d.), utilize "squeezable materials." Easel painting was included because it engages the student in large motor activity while also providing the stimulation inherent in the art process.

Sensory stimulation is most effective in the context of active engagement in meaningful activity. Active involvement has been found to have an organizing effect in conjunction with vestibular and tactile input (Anzalone & Murray, 1998). The design of the art therapy sessions met this requirement.

Balancing stimulation and structure is important to maximize the impact of the sensory activities for the child with ADHD. The medium available for a session was rotated on a daily basis. Every clay-work day was followed by an easel-painting day, which was followed by a fingerpainting day. Control sessions without art activity were interjected on random days, but Michael was always made aware of these days in advance. Decisions on which days were designated control days were made based on practical reasons, including maintaining a balance of days of the week. Each early morning session lasted approximately 20 minutes. This design was intended to control for possible effects from days of the week—for example, difficulty coming off the weekend. There were 12 control sessions, 10 easel-painting sessions, 9 clay sessions, and 8 fingerpainting sessions.

Each 20-minute treatment session followed the same pattern. Michael had a brief verbal check-in. Following this, he selected his materials. He then engaged in his art or preart activity. Once the bell rang to announce the beginning of the school day, finishing touches were given to the art and transition to the classroom was addressed. The measures described above were examined for indications that art therapy assisted Michael in the integration of sensory experiences thereby increasing his ability to perform closer to the level of same-age peers in the classroom. Results were also examined for evidence of overall trends.



Figure 1  
Easel painting



Figure 2  
Fingerprinting "Snowman"

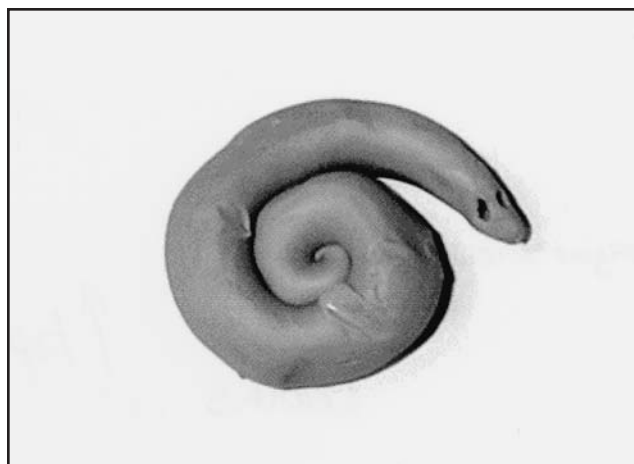


Figure 3  
Clay construction "Snake"

For example, did the kinesthetic and personal expression-based art experiences have an increasing effect on academic and behavioral performance?

## Results

In sum, Michael's teacher rated his behavior as positive for more blocks of the day, on average, when his morning check-in session included art activities. On art days, the average first occurrence of a negatively rated block fell later in Michael's day. There was some variation in the effects seen following the various types of art interventions.

## Artwork

Michael was very consistent in the work he produced. His work with all three media exhibited a preart level of involvement with the kinesthetic and visual aspects of the experience. In the easel painting activity, no attempt was made to represent images. All pieces focused on color blending and experimentation with the brush stroke. A typical example of Michael's work at the easel can be seen in Figure 1.

Michael's work with the clay and fingerpaints was also very consistent. All fingerpaintings began with an extended period of color blending done directly on the table surface. Michael would then draw a snowman and ask to "print it." A representational piece can be seen in Figure 2.

All clay work consisted of rolling "snakes," coiling them, and then adding eyes by poking the piece with a pencil. Occasionally he would squish portions of the form. An example of the "snake" form can be seen in Figure 3.

## Behavioral Reports

Daily reports assessed the incidence of positive behavior blocks on all days of the experimental period. This study focused on increasing Michael's appropriate behavior in the classroom. Increases in total number of positive behavior blocks during the day and postponement of the first block where a predominance of inappropriate behav-

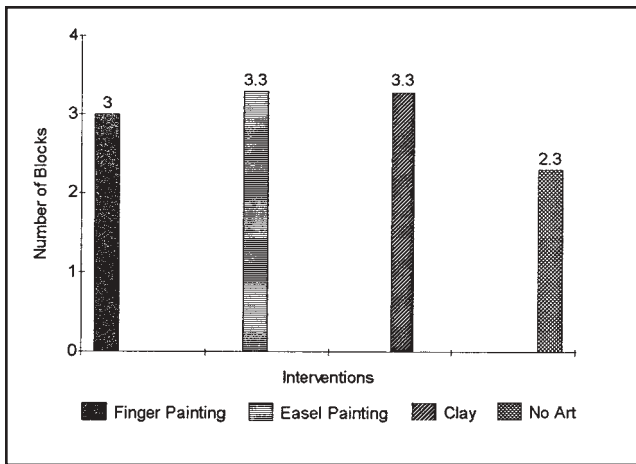


Figure 4

Average number of positively rated behavior blocks by intervention type

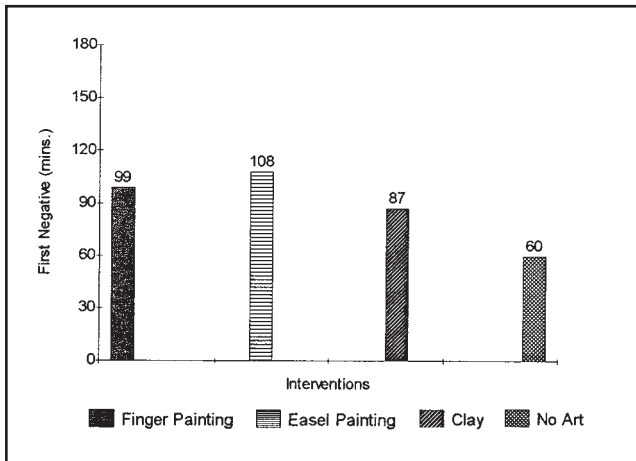


Figure 5

Average first occurrence of a negatively rated behavior block by intervention type

ior was observed were thought to indicate a positive effect.

Figure 4 illustrates the average number of positive behavior blocks per day for each type of intervention. Figure 5 illustrates the average time when the classroom teacher recorded the first negative behavior block. Although it is clear from both sets of data that none of the art interventions eliminated problematic behaviors, some benefit is apparent.

All check-in sessions that included art interventions provided some amelioration of inappropriate behavior. The number of negatively scored behavior blocks was less on days when Michael's check-in session included art activities. Additionally, on average, the first negative behavior block was recorded later in the day compared to the time of day it was recorded after the control sessions. These results suggest that the inclusion of art activities in the check-in session provided Michael with a greater ability to postpone the onset of negative behaviors, as well as to decrease the overall amount of negative behavior blocks.

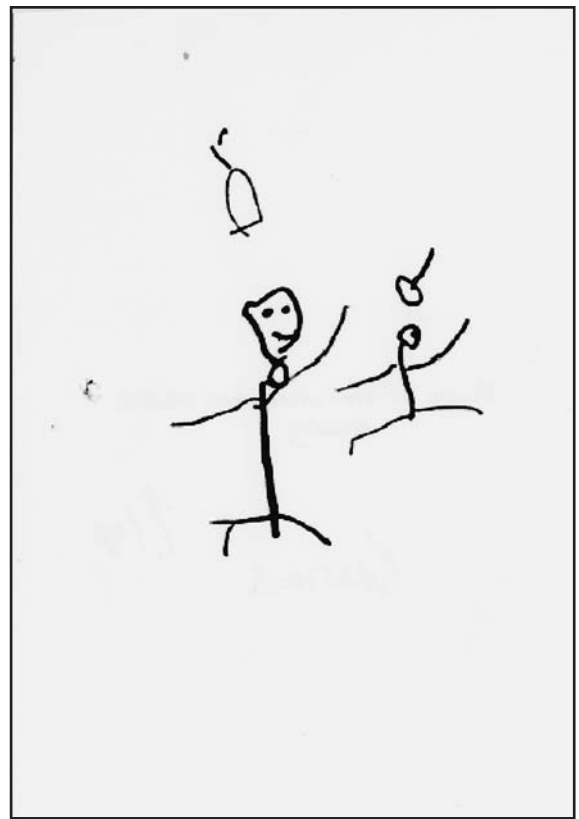


Figure 6

Preintervention FEATS drawing



Figure 7

Postintervention FEATS drawing

When the three art-based interventions were compared, results varied. There were negligible differences among easel painting, fingerpainting, and clay activities in generating positive behavior. Fingerpainting was associated with the lowest score for the three interventions (3.0 average positive behavior blocks). Greater differences were found among the average scores for the first incidence of negative behavior. Clay, the more traditional media in sensory diets, appeared to have the least impact on Michael's ability to delay negative behaviors. On average, he was able to maintain positive behaviors more than 20 minutes longer on days following an easel painting intervention than on those following clay activities. Ability to maintain positive behavior following fingerpainting fell in between the other two art interventions.

### Formal Elements Art Therapy Scale

Michael was asked to complete the FEATS art task as a pre- and posttest. This artwork can be seen in Figures 6 and 7. While neither drawing shows a tremendous amount of development, the differences seem to indicate positive movement over the study period. The two drawings were assessed on the FEATS subscales by a group of four experienced art therapists. Interrater reliabilities ranged from .68 to .91 for the nine subscales used. In all cases, the art therapists found positive progress between the initial FEATS drawing and that done at the conclusion of the test period. The average increase in the ratings was approximately 1 point for each of the 5-point subscales. The mean ratings are presented in Figure 8.

Higher scores on most scales are viewed as more positive (Gantt & Tabone, 1998). Very high scores on the "implied energy" and "detail" scales may be indicative of mania. Michael's scores did not fall into the areas of concern but did show movement to align more closely with age-appropriate work. While the drawings do not differ greatly, the incremental change seems encouraging in light of the relatively short term of the study.

### Discussion and Conclusion

Michael's behavior was more appropriate overall with fewer incidences of negative behavior when his morning check-in sessions included art activities. On average, his first incidence of negative behavior was postponed. Although an individual case study such as this cannot show causality or determine statistical significance, several interesting findings suggest areas where further research may prove valuable. Including art activities in a morning check-in for children with the SI difficulties often associated with ADHD may be more effective in assisting them to modulate their inappropriate behavior than check-ins that do not include art activities. Further, activities such as fingerpainting have traditionally been thought of as overstimulating for many children. Results of this study suggest that for some children such stimulating art experiences could prove more beneficial than less stimulating activities. Finally, future research with larger numbers of children affected by

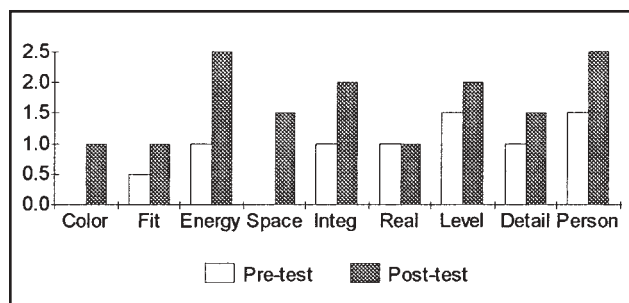


Figure 8  
Pre- and posttest FEATS scores

SI difficulties may shed light on how involvement in art activities can help them to better modulate their behavior. The ability to do so would result in increased success in the classroom and with their peers.

This pilot study offers initial evidence that inclusion of art-based activities in a daily check-in has a beneficial effect on classroom behavior for students with SI difficulties such as Michael. He was better able to delay the occurrence of negative behaviors as well as to experience fewer incidences of negative behavior on days that began with an art experience. These results were seen throughout the 10-week treatment period. The findings of this study support the development of additional studies to add evidence of the beneficial effects of art interventions for children with special needs.

### References

- Anzalone, M., & Murray, E. (2002). Integrating sensory integration with other approaches to intervention. In A. Bundy, S. Lane, & E. Murray (Eds.), *Sensory integration: Theory and practice* (2nd ed.) (pp. 371-394). Philadelphia: F. A. Davis.
- Ayres Clinic. (n.d.). Sensory diet. Retrieved October 15, 2002, from <http://www.mindspring.com>.
- Chu, S. (1996). Evaluating the sensory integrative functions. *British Journal of Occupational Therapy*, 59(10), 465-474.
- Davidson, T., & Williams, B. (2000). Occupational therapy for children with developmental coordination disorder: A study of the effectiveness of a combined sensory integration and perceptual-motor intervention. *British Journal of Occupational Therapy*, 63(10), 495-499.
- Diamond, P. (1992). The single-case study. In H. Wadeson & N. Knapp (Eds.), *A guide to conducting art therapy research* (pp. 107-119). Mundelein, IL: American Art Therapy Association.
- Fisher, A., Murray, E., & Bundy, A. (1991). *Sensory integration: Theory and practice*. Philadelphia: F. A. Davis.
- Foodman, A., & McPhillips, K. (1996). ADD and soft signs. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(7), 841-842.
- Gantt, L., & Tabone, C. (1998). *Formal Elements Art Therapy Scale: The rating manual*. Morgantown, WV: Gargoyle Press.

- Henley, D. (1997). Expressive arts therapy as alternative education: Devising a therapeutic curriculum. *Art Therapy: Journal of the American Art Therapy Association*, 14(1), 15-22.
- Henley, D. (1998). Art therapy in a socialization program for children with ADHD. *American Journal of Art Therapy*, 37, 2-12.
- Kranowitz, C. S. (1998). *The out-of-sync child*. New York: Penguin-Putnam.
- Linderman, T., & Stewart, K. (1999). Sensory integrative-based occupational therapy and functional outcomes in young children with pervasive developmental disorders: A single case study. *American Journal of Occupational Therapy*, 53(2), 207-213.
- Mauer, D. (1996). Issues and applications of sensory integration theory and treatment with children with language disorders. *Language, Speech, and Hearing Service in Schools*, 30, 383-392.
- Mulligan, S. (1995). An analysis of score patterns of children with attention disorders on the sensory integration and Praxis test. *American Journal of Occupational Therapy*, 50(8), 647-654.
- Royeen, C. (2002). Touch Inventory for Elementary Aged Children (TIE). In A. Bundy, S. Lane, & E. Murray (Eds.), *Sensory integration: Theory and practice* (2nd ed.) (pp. 96-97). Philadelphia: F. A. Davis.
- Smitheman-Brown, V., & Church, R. (1996). Mandala drawings: Facilitating creative growth in children with ADD or ADHD. *Art Therapy: Journal of the American Art Therapy Association*, 13(4), 252-262.
- Waters, F., & Silberg, J. (2002). Promoting integration in dissociative children. In J. Silberg (Ed.), *The dissociative child: Diagnosis, treatment, and management* (2nd ed.) (pp. 167-189). Lutherville, MD: Sidran Press.

Limited quantities of the following books authored by American Art Therapy Association, Inc. members are available for purchase.

*Make checks or money orders payable to AATA in U.S. funds and return with this order form to:*

American Art Therapy Association, Inc., 1202 Allanson Road, Mundelein, IL 60060-3808.

<b>PUBLICATIONS</b>	<b>MEMBERS</b>	<b>NONMEMBERS</b>
<i>A History of Art Therapy in the United States</i> Junge with Asawa (1994) ISBN 1-882147-23-5	\$40.00	\$65.00
<i>Continuous Quality Improvement Manual</i> (used by hospital art therapists to meet JCAHO accreditation standards) Howie & Gutierrez (1994) ISBN 1-882147-16-2	\$23.00	\$38.00
<i>A Guide to Conducting Art Therapy Research</i> ISBN 1-882147-03-0	\$35.00	\$60.00
<i>National Registry of Master's Theses &amp; Practicum Papers</i>	\$15.00	\$25.00
<i>Addendum to National Registry of Master's Theses &amp; Practicum Papers</i>	\$15.50	\$25.50
<i>Applying for Funds from Your Area Agency on Aging</i>	\$10.00	\$17.00
<i>The Twelve Steps and Art Therapy</i> Monograph Julliard (1999)	\$10.00	\$20.00

NOTE: Ten (10) or more copies—10% discount. **All prices include postage/handling on United States deliveries—call for postage/handling charges for outside of the United States.**

Please enter my order. Enclosed is a check/money order for the appropriate amount: \$ \_\_\_\_\_

Name \_\_\_\_\_ AATA Member ID # \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip+4 \_\_\_\_\_