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# Using Outcome Measures To Enhance Occupational Therapy in School-Based Practice

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Occupational therapists know the importance of determining the value of the interventions they use on a daily basis. Collecting outcome data affords the opportunity to substantiate an assumption, document and measure the appropriateness of a particular intervention or strategy, and record the functional significance of a particular piece of adaptive equipment (Greenwood, Luze, Cline, Kuntz, & Leitschuh, 2002; Klein, 2001; Stevens et al., 2002). This article highlights outcome measure studies of interest to school-based therapists, identifies specific occupational therapy–related outcome measure practices and studies, and presents current outcome measure practices of school-based therapists. Finally, challenges to collecting outcome data are discussed.

## Literature Review Highlights

Current literature is resplendent with documentation of the need for and importance of collecting outcome data. Examples of occupational therapy–related subject areas include supported education programs (Unger & Pardee, 2002), autism (Wolery & Garfinkle, 2002), and pediatric traumatic brain injury (Miller & Donders, 2003). Two content areas specifically related to the practice of occupational therapy within the educational environment include handwriting issues and the use of assistive technology (AT). A more extensive overview of outcome measures related to these two areas follows.

### *Handwriting*

School-based therapists frequently address issues related to poor handwriting. Handwriting has been studied from visual-perceptual (Tseng & Cermak, 1993), visual-motor (Weil & Cunningham-Amundson, 1994; Weintraub & Graham, 2000), and kinesthetic and proprioceptive viewpoints (Benbow, 1995; Cunningham-Amundson, 1992). Researchers also have explored the effect of in-hand manipulation skills on handwriting abilities (Cornhill & Case-Smith, 1996; Exner, 1995; Humphry, Jewell, & Rosenberger, 1995).

Intervention strategies used to improve handwriting abilities include the work of Oliver (1990), who studied the effect of a sensorimotor-based intervention program on improving writing readiness skills in 6-year-old children. Children with and without cognitive delays ($n$ = 24) participated in a 5- to 8-month intervention program. Oliver determined that sensorimotor input could improve writing readiness.

Lockhart and Law (1994) investigated the effects of a multisensory approach on letter formation. Outcomes of their study suggest enhanced speed and quality of handwriting after 5 hours of intervention. However, only 4 children were studied, and only 1 child demonstrated a significant change in handwriting ability.

Case-Smith (2002) studied children 7 to 10 years of age ($N$ = 29) with poor handwriting and identified educational needs. Over a 7-month period, the children received an average of 9 hours of occupational therapy treatment. Outcomes documented a gain in handwriting eligibility in those children who received occupational therapy. Peterson and Nelson (2003) demonstrated that occupational therapy intervention can make a significant difference in handwriting scores. Using the Minnesota Handwriting Test (Reisman, 1991), 62 children without special needs were pre- and posttested. After 10 hours of occupational therapy intervention (sensorimotor, biomechanical, or teaching–learning approaches), significant improvement in handwriting ability was found in the intervention group versus the control group.

Exploring the benefits of motor learning principles, Ste-Marie, Clark, Findlay, and Latimer (2004) engaged first graders in practice experiences. Using either a blocked or random practice approach, the children engaged in a variety of handwriting trials. The authors found that a random practice approach proved more effective in the construction of most letters.

While handwriting issues remain a significant referral source for occupational therapists, outcome studies substantiating appropriate intervention strategies remain sparse. Even more significant is that occupational therapists continue to support handwriting intervention programs, with minimal research documentation to support their involvement in such activities.

### *Assistive Technology*

As with handwriting, measuring the effect of AT has become a prominent topic in the literature in recent years, with numerous approaches to ascertaining its benefit now being explored. While several definitions exist, Cook and Hussey (2002) have simply defined AT outcome measures as a means to "evaluate the end result of the assistive technology intervention" (p. 118). DeRuyter (1995) identified five dimensions of outcome measurement: clinical results, functional status, quality of life, satisfaction, and cost. In addition, documentation of the need (Smith & Scherer, 1998), accountability (Smith,

## SSSIS Mission Statement

The mission of the School System Special Interest Section is to foster the expertise of occupational therapy personnel practicing under the Individuals With Disabilities Education Act, to provide services to infants, children, and youth so that they may fulfill their occupational roles.

1996), guidelines on how to secure outcome data (Minkel, 1996), and reviews of current assessments (Silverman, Smith, Edyburn, & Taylor, 1999) are but a few of the myriad approaches currently being explored in an attempt to establish guidelines for measuring the outcomes of AT use.

Although initially the challenge of measuring AT outcomes may appear to be an elementary task, it has become evident that a multitude of issues confound the process of determining the benefits of AT. Given the plethora of AT options available to the consumer, the job of assessing the entire spectrum of AT is quite challenging. A wide range of stakeholders representing medical, educational, private, vocational, and community practices exists. Realistically, as more entities enter into the mix of AT providers, the way in which to assess AT's purposefulness, effectiveness, and impact becomes more complicated.

Numerous researchers have provided an assortment of methodologies to assist in measuring outcomes. Benedict, Lee, Marrujo, and Farel (1999) probed the impact of AT device use on child and family function and whether use by young children was related to caregiver satisfaction with a device. Twenty-one families were identified for this review. Findings suggested that two reasons for underutilization of AT were insufficient training on the use of the device and hesitancy to send AT to school for fear it would be damaged or misused.

Kohn, LeBlanc, and Mortola (1994) studied device performance and satisfaction from the perspective of the person with a disability. Through a two-step process, 163 participants with a variety of disabilities provided feedback on the utility of various devices through standardized data collection forms. A variety of AT equipment was used in the study, including seating devices, communication tools, power chairs, and bath benches. At the 7-month follow-up, 93% to 95% of the devices were still in use, leading the reader to hypothesize that clients valued their increases in ability made possible by the AT equipment.

Demers, Weiss-Lambrou, and Ska (1996) developed a clinical instrument to evaluate user satisfaction with AT devices. The Quebec User Evaluation of Satisfaction with Assistive Technology (or QUEST) comprises 27 variables that include user satisfaction. The user is asked to indicate the degree of importance he or she attributes to each of the satisfaction variables and then to rate his or her degree of satisfaction with each variable considered.

Taking a different approach to AT outcome measurement, Andrich, Ferrario, and Moi (1998) investigated a model of cost–outcome analysis. Although their sample size was small ($N$ = 7), their study demonstrated that a technique for carrying out cost and outcome analyses for individual AT programs was possible. Their findings have the potential of making a new and important addition to the concept of evaluating outcome measures.

Riemer-Reiss and Wacker (2000) explored reasons for discontinuance of AT. Funded under the Technology-Related Assistance for Individuals With Disabilities Act, as amended in 1994 (Public Law 103-218) 115 persons were selected through Colorado rehabilitation agencies to participate in their study. Provided with funding, 136 AT devices were made available to participants. The study evaluated the independent variables of relative advantage, support, consumer involvement in selection of the device, and compatibility to determine whether they were associated with AT use or abandonment. The findings indicate that consumer involvement in the selection of AT devices and the client's perceived advantage to AT use are significant in predicting abandonment of AT.

Through a participatory action research approach, Hammel, Finlayson, and Lastowski (2003) offered a dynamic means to facilitate collaboration among a variety of stakeholders in order to capture outcome data on the methods of financing AT. Four separate focus groups were initiated ($N$ = 78), bringing together persons with disabilities, staff members from state and national organizations, and representatives from financial lending institutions. After the completion of focus groups, involvement of stakeholders was sustained through e-mail; listserv, and phone communications. Relevant information related to the methods of financing AT was successfully captured. Most importantly, the authors established a viable model that could be replicated for further research in this area.

Although earlier studies predominantly queried adults, Smith (2000) and Silverman, Stratman, and Smith (2000) have begun to lay the foundation for evaluating the outcomes of AT use with children in the educational arena.

## School-Based Therapists in Action

To gain insight into how outcome measures are being used in school-based practice, I queried occupational therapists on the School System Special Interest Section listserv. G. Grimsley, OTR/L, shared the outcomes of her master's thesis that investigated the effects of a weekly social skills training program for children with autism ($N$ = 8). After 10 weeks of intervention, outcome measures defined a decrease in behavioral problems as well as a positive change in social skills. Although the sample size was small and the data analysis was only descriptive in nature, this example shows how occupational therapists can positively affect the lives of school-age children.

Gloria Frolek Clark, MS, OTR, and co-consultants at the Iowa Department of Education have used individualized education program data to document outcome measures. Occupational therapists submit data electronically, which subsequently are analyzed. Output then can be evaluated to determine what goals are being met.

## Challenges Associated With Collecting Outcome Measures

While collecting outcome data should be a priority to determine the effectiveness of a treatment or intervention, perceived challenges often prevent therapists from collecting needed data. Some of these challenges are as follows:

- *Ethical issues*. Is it ethical to withhold a therapeutic intervention from a population (control group) in order to substantiate a significant difference between those individuals who receive an intervention and those who do not?
- *Time constraints*. Many therapists report lack of time to collect and interpret data.
- *Limited knowledge about the "how to" of collecting outcome measures*. Although therapists will acknowledge the importance of substantiating a therapeutic intervention, they may lack the education, training, and confidence to complete an outcome study.
- *Perceived lack of support from employers*. Therapists often report large caseloads and productivity demands as expectations of their employers. Therapists are not experiencing needed guidance from their employers on how to successfully collect and interpret outcome data.

## Summary

This article highlights the importance of collecting outcome data. Under No Child Left Behind and the Individuals With Disabilities Education Act we must be vigilant in establishing the need and effectiveness of the therapeutic interventions we provide daily in order to maintain and secure our professional credibility. Local, state, and national taxpayers, third-party payers, and school leaders will hold us accountable. ■

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