Gifted and Autism Educational Strategies: Individual Savant Skill Programs

Only evidence-based strategies employed in the education of gifted students and those used with students with ASD which were used in the *Savant Skill Curriculum* are overviewed below.

Gifted education strategies

Acceleration

Acceleration is simply deciding that competence rather than age should be the criteria for determining when an individual obtains access to particular curricula or academic experiences (Benbow, 1991). The American National Association for the Gifted Children (NAGC, 2004) added to this definition: "allowing a student to move through traditional educational organisations more rapidly, based on readiness and motivation" (p.1). The research support for acceleration that has accumulated over many decades is robust and consistent and allows us to confidently state that carefully planned acceleration, both grade-based and content-based acceleration are effective interventions in academic and social-emotional domains for high-ability students (Colangelo, Assouline, Marron, Castellano, Clinkeneard, Rogers, Calvert, Malek, & Smith, 2010). Acceleration strategies may include; grade acceleration, content acceleration, and telescoping which refers to the rapid progression through curriculum content in a far shorter time period. As autistic savants display skills in particular areas, which may be not only exceptional and more advanced than their autistic peers, but beyond their non-disabled age peers (Treffert, 1989), a program of acceleration is

therefore appropriate. The use of both telescoping and subject acceleration was selected as the most appropriate acceleration strategies for this study. Grade acceleration was not considered an appropriate strategy, again due to the severe social, behaviour and communication impairments, and, in some cases, low general intellectual functioning of the autistic savant.

Enrichment

The second gifted education strategy employed for the Curriculum was enrichment. Enrichment is a term that is frequently used to denote an approach to differentiating instruction for gifted youth; alternatively it may denote supplementary curriculum for students at any level of ability. Both enrichment and acceleration are considered to be major strategies in the development of curricular for the gifted, (Bloom and Soznick, 1981; Cox, Daniel and Boston, 1985; Neihart, 2007; Renzulli, 1994; Rogers, 2002;Schiever and Maker, 2003).

A definition of enrichment as it pertains to gifted education instruction should be based upon the characteristics and needs of gifted students, (Massé & Gagné, 1983). The term is generally used to refer to curriculum experiences that are supplements to, or replacements of the regular curriculum. Enrichment activities for the gifted should be designed to meet the needs of the gifted student and their capacity to learn more, and to learn more complex material. An enrichment matrix used to design curriculum for the gifted can also be applied to programming for the autistic savant (Tannenbaum, 1983). Tannenbaum's matrix calls for five types of 'content adjustment'; (1) expansion of basic skills, (2) teaching core content in

less time, (3) broadening the knowledge base, (4) teaching content related to the teacher's special expertise, and (5) out-of-school mentoring. All elements of the matrix were be used in the *Savant Skill Curriculum.*

The focus of enrichment programs is to teach the gifted student how to coordinate and focus their interests and energies into purposeful research, decision-making, and action, (Kirschenbaum, 1984). Activities are individualised according to the student's interests and abilities, with the teacher acting as a facilitator, guiding students to advanced materials. Technology is an effective tool or vehicle for enrichment in education programs as educators of the gifted strive to provide curricula with complexity and depth. Technology can be used effectively in this process an example being the Internet has become an excellent tool for use with gifted students to differentiate the curriculum (Johnson, 2008). The use of Web 2.0 tools in education including the use of blogs, wikis, podcasts, and other powerful web tools for classrooms are becoming common practice (Richardson, 2006; Seigle, 2007).

New models of enrichment, such as the Enrichment 2.0 program based upon the Enrichment Triad (Renzulli, 1994) have also been developed based on the use of technology in the education of the gifted student (Eckstein, 2009). Students in Enrichment 2.0 utilize a variety of web-based collaborative tools to investigate their topics of interest in personal learning clusters.

There is growing evidence that technology-aided instruction and intervention (TAII) can be powerful in supporting the education of students with ASD (Odom, Boyd, et al., 2010). TAII incorporates a broad range of devices, such as speech-generating devices, smart phones,

iPads, tables, computer-assisted instructional programs, and virtual networks. Such interventions include the technology itself and instructional procedures for learning to use the technology or supporting its use in appropriate contexts.

An important feature of the enrichment strategy in the Curriculum for the autistic savant was to teach 'research skills'. As the savant and splinter skills of autistic savants far exceed those areas covered by their general autism core curriculum, enrichment, including the teaching of research skills, is therefore a vital component of any differentiated program for these students. Although at the time of this study, the Web 2.0 had not been developed, I highly recommend that any differentiated program for autistic savants includes the use of the technology applications now being used in programs for the non-disabled gifted student as outlined above.

Mentorships

Mentoring is a time-honoured means of educating the gifted and talented. Much of the research on eminent persons clearly points to the profound influence of a single 'tutor-friend-family member' or 'mentor' (Bloom, 1985a; Bloom and Sosnick, 1981; Roche, 1979; Sosniak, 2006). As an aid to cognitive learning as well as emotional support, the 'one-to-one' relationship of the mentorship program has provided for the development of exceptional potential in the 'mainstream' gifted population (Cox, Daniel, & Boston; 1985; Grassinger, Porath, & Ziegler, 2010). Mentorships are especially suited for the extremely precocious student (Lupkowski, Assouline and Stanley 1990), for gifted students who have exhausted the resources of the school (Reilly, 1992), and for children of disadvantaged circumstances

whose potential may never be realized without special circumstances (Wright & Borland, 1992). The term mentor comes from classical Greek, where Homer tells us that Mentor (believed to be Athena in disguise) became teacher and counselor to Odysseus' son Telemachus in becoming a man. The classical mentorship was a one-to-one relationship; a wise, experienced person guided a younger, inexperienced person; a long-term commitment was made by both individuals, and both found satisfaction in the mentorship.

As growing demands are placed on limited educational resources for the gifted, mentoring has become an increasingly popular strategy in gifted education**.** For the gifted and talented student whose skills and ability levels are beyond the scope of the usual school resources, a mentorship is often a successful means of meeting their specific needs. The spectrum of mentoring ranges from a highly personal relationship between a professional mentor and the mentee all the way to group e-mentoring (Stoeger, 2009). More recently, e-mentoring or telementoring has introduced as a contemporary mentoring strategy in gifted education (Kahraman, 2010). This approach removes the limitation of time and space, facilitating access to global resources and monitoring of student progress (Akin & Hilbun, 2007).

Although the mentorship strategy has yet to be researched as an educational strategy to meet the specific needs of the autistic savant, aspects of mentorships may be equally successful in the functional application of savant and splinter skills. In their comprehensive overview of Savant Syndrome, Nettlebeck and Young (1999) concede that the use of mentorships may in fact be a creative educational suggestion for the savant. They conclude the best interests of the savant are served by a balanced educational approach that also encourages savant skills. Grandin (1992) also emphasizes the importance of mentors for the high-functioning autistic.

She attributes much of her academic and vocational success to the guidance of several mentors throughout her life. She states, "wrapped in the fabulous embrace of some wondrous teachers who did indeed see my strengths as uniquely cherishable" (Treffert, 2012 cited in Scholars with Autism Eds. P6). She also attributes the failure of another two high-functioning adults with autism (both with university degrees) to find successful employment, to the fact neither had a mentor to offer them support beyond their education.

The 'one-to-one' relationship of mentorships is suited to the individual education program, the basis of most educational service provision to the student with autism. Treffert (in Scholars with Autism, 2012 p.7) makes the point that the mentor relationship within an area of special interest can be a potent force in igniting and then later 'training the talent'. The inclusion of mentorship in the Curriculum, the third gifted educational strategy, was therefore considered an important and effective form of both program acceleration and enrichment for the autistic savant.

Autism educational interventions

Since the discovery of autism as a human condition by Kanner (1943) and Asperger (1944), individuals responsible for the care of children and youth with autism spectrum disorders (ASD) have striven to provide effective practices and programs. Such efforts continue today. Along with the increased prevalence of ASD has intensified the demand for effective educational and therapeutic services. Although there is no reliable evidence that 'recovery' or 'cure' occurs as a result of treatment or interventions, it is clear and well supported by the evidence-base, that with appropriate intervention, children with ASD continue to develop and

learn behaviors that will better equip them for life (Prior, Roberts, Rodger, Williams & Sutherland, 2011).

For the past five decades research has shown that education is one of the most powerful sources to enhance the developmental opportunities for children with autism spectrum disorders. Specifically, a vast majority of children with ASD who are provided with an appropriate education show improvements not only in academic learning but and functional language but also in socialization, adaptive skills and communication, while some of them can take better advantage of their abilities and skills (National Research Council, 2001; Manti, Scholte & Van Berkelaer-Onnes, 2011).

As mentioned previously, to assist in the design of teaching strategies based upon each subject's savant interests and skills, several important autism-specific evidence-based learning techniques were incorporated into the *Savant Skill Curriculum*. They include; the use of social stories, visual supports for communication and behaviour, and the use of obsessions as positive reinforcement and motivators to learning.

Social Stories

One of the defining characteristics for autism is severe and pervasive deficits in social behavior. Children with ASD may actively avoid social contact with others, adhere to rigid schedules, and inappropriately perseverate on objects. While a variety of techniques, such as social skills groups and teaching individual skills (eye contact, turn-taking, sharing, and

asking for help) have traditionally been used to improve the social skills of those with autism the use of social stories has also gained acceptance. There is a growing body of research evidence that social stories, also referred to as social narratives can be used effectively to address social, communication, behavior, joint attention, play, school-readiness, academic, and adaptive skills (Schneider, N., & Goldstein, H., 2010; Wong, Odom, et al., 2013). They have been shown to be effective for children and young people with ASD from 3 years to 18 years.

Social stories or social narratives) are interventions that describe social situations in some detail by high-lighting relevant cues and offering examples of appropriate responding. They are aimed at helping learners adjust to changes in routine and adapt their behaviours based on social and physical cues of a situation, or to teach specific social skills or behaviours. Social stories/narratives are individualised according to learner needs and typically are quite short and may include pictures or other visual supports or aides. Usually written in first person from the perspective of the learner, they include sentences that detail the situation, provide suggestions for appropriate learner responses, and describe the thoughts and feelings of other people involved in the situation.

Social stories or narratives have been used to facilitate the social skills teaching objectives, as they were included in each subject's Individual Education Plan outlined previously in this chapter. Each story or narrative was designed to incorporate savant skill interest topics.

The communication behaviour of many students with autism may be characterized by: a) abnormal nonverbal communication such as in the use of eye contact, facial expression, body posture or gestures to initiate or modulate social interaction; b) some absence of imaginative activity such as playacting adult roles, fantasy characters; c) abnormalities in the production of speech including pitch, stress, rate, rhythm and intonation; d) abnormalities in the form of content of speech including stereotyped and repetitive use of speech, idiosyncratic use of words or phrases, or frequent irrelevant remarks; e) impairment in the ability to initiate or sustain a conversation with others despite adequate speech; f) restricted range of interests and preoccupation with one narrow interest; and, g) difficulties with comprehension (Cantwell, Howlin, & Rutter, 1977). It is estimated that over half of all children with autism fail to develop functional speech, and even amongst those with a good expressive vocabulary there are persisting and pervasive impairments in the communicative use of language, and in understanding complex or abstract concepts (Lord & Rutter, 1994).

To assist children with autism to develop communication skills, a variety of augmentative communication systems are employed including: sign systems (the Makaton system), although studies have shown variability in the ability of students to master the signs and problems with generalization (Kiernan, 1983); pictorially based systems or visual supports which make the least demands on cognitive, linguistic, or memory skills such as photographs or line drawings (Picture Exchange Communication System - Bondy & Frost, 1996;

Communication Pictures, 1991); and computerized communicative advices to encourage turn taking and reciprocal interactions.

In this study, pictorially based or visual supports systems were incorporated into strategies for using savant interests to facilitate communication skills. Visual supports are concrete cues that provide information about an activity, routine, or expectation and/or support skill demonstration. They can provide assistance across activity and setting, and can take on a number of forms and functions. These include but are not limited to: photographs, icons, drawings, written words, objects, environmental arrangement, schedules, graphic organisers, organizational systems, and scripts. Visual supports are commonly used to: 1) organize learning environments, 2) establish expectations around activities, routines, or behaviours, 3) provide cues or reminders, and 4) provide preparation or instruction. There is a growing evidence-base for the efficacy of visual supports for children and young adults with ASD (0 to 22 years) to address social, communication, behaviour, play, cognitive, school-readiness, academic, motor, and adaptive skills (Wong, Odom, et al, 2013). Visual supports were also used in this study to assist with the management of challenging behaviours.

Obsessions for motivation and behaviour support

The use of obsessions as powerful reinforcement for behaviour change or support for children with autism, has been documented in the literature (Wolery, Kirk and Gost, 1985; Charlop - Christy and Haymes, 1996). Charlop-Christy and Haymes assessed the effectiveness of using

obsessions with children with autism to reduce their inappropriate behaviours. The results showed the use of obsessions to be highly effective in the reduction of inappropriate behaviours. Although the subjects of these studies were not classified as savants, all were autistic students displaying high-levels of obsessive behaviour. Again the commonality of the savant's obsessive interests in their savant activities or domains, and the obsessive behaviour of the person with autism, is indicated.

Grandin, (sited in Schopler and Mesibov, 1992 p.115) refers to autistic obsessions or interests as "fixations", which she believes, if included in programs for the autistic, in particular the high-functioning autistic, can be turned into successful careers; *"these fixations or obsessions can be tremendous motivators".* She describes her own childhood obsession for cattle that resulted in her achieving a PhD in animal husbandry, and becoming a world-leader in her field. Kanner (1973), in his follow-up study of his original eleven cases, discovered two examples of vocational success related to infantile obsessions or fixations. One subject who had been fixated with numbers had become a bank teller; the other, fixated with numbers and music, belongs to a local choir and holds a job operating duplicating machines.

It is my view that the savant is offering the caregiver and educator a 'key' to be used to help unlock the debilitating aspects of their disabilities, a way or a means to reduce the impact of their disability. It is this intense interest and intrinsic motivation that was applied or borrowed, to facilitate the autistic savants in this study to improve their communication, social skills and to reinforce appropriate behaviours, the fourth component of the *Savant Skill Curriculum.*

A comprehensive overview of the most recent autism treatment models, is outlined in the report by Odom et al (2010), *Evaluation of comprehensive treatment models for individuals with autism spectrum disorder.*

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