

## The “Surplus” Effect in Developmental Disability: A Function of Setting or Training (or Both)?\*

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### Abstract

*Vianello and Lanfranchi (2009) have provided evidence that individuals with mental retardation are capable of performing in academic and social areas well above expectations taken from intellectual assessments. They suggest these important gains may be due, at least in part, from the enriched inclusive education students with mental retardation receive in Italian schools. In response, we discuss some existing evidence of individuals with developmental disabilities in comparative placements in the United States and other countries. We also discuss the implications of a survey of Italian and American teachers of attitudes toward teaching students with disabilities in inclusive classrooms, and we describe the implications of efforts to train appropriate life skills to individuals with disabilities, conducted largely in separate settings. We conclude that inclusive placements apparently have done much to improve the functioning of individuals with mental retardation, but additional structures and supports may be needed to maximize their potential.*

**Keywords:** Inclusion, Developmental disabilities, Surplus effect

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## 1. Social Adaptability and Developmental Disability: A Function of Setting or Training (or Both)?

Vianello and Lanfranchi (2009) provided evidence, from a number of investigations involving Italian students with developmental disabilities, that school performance and social adaptability are higher than expected from their mental ages. They suggested that this “surplus effect” might be explained, at least in part, by Italy’s impressive history in implementing large-scale educational inclusion in 1977 (and subsequent relevant legislation, see Vianello, 1996). It is difficult to draw firm conclusions from the data presented, however, due to the fact that there are few groups of Italian students who did not benefit from inclusive environments to which these scores might be compared. At a minimum, however, Vianello and Lanfranchi have demonstrated that individuals with developmental disabilities are capable of performing far beyond levels predicted from their mental age.

Appropriately, Vianello and Lanfranchi have called from evidence from other countries, asking of their own findings, “is this also valid, in an international context” (p. 49), of individuals with developmental disabilities? If, for example, the implementation of inclusive placements in Italy has resulted in higher levels of social and academic functioning, students with developmental disabilities in other countries may not have made similar gains.

In our response to this important paper, we discuss some existing evidence of individuals with developmental disabilities in inclusive and more restrictive placements in the United States and other countries, to determine whether this evidence supports the hypothesis of Vianello and Lanfranchi. We also discuss the implications of a survey of Italian and American teachers regarding their attitude toward teaching students with disabilities in inclusive classrooms, and describe the implications of efforts to train appropriate life skills to individuals with disabilities.

## 2. Inclusive vs. More Restrictive Placements

It is difficult to make a direct comparison with the data presented by Vianello and Lanfranchi, as students in the United States, for example, have been involved in a number of different placement alternatives, and have not necessarily been provided with either inclusive or special classrooms. Williamson, McLeskey, Hoppey, and Rentz (2006) analyzed data from the U.S. Department of Education, and reported that, although the proportion of students with mental retardation or developmental disabilities did not change over a ten-year period, placements for these students changed considerably. From 1989-1990 to 1999-2000, the proportions of students with mental retardation placed in general education classrooms for part or most of the school day increased from 27.3% to 44.7%. In addition, placement in

separate settings decreased from 72.7% to 55.3%. Finally, Williamson *et al.* (2006) reported that the overall proportion of students with mental retardation served in separate facilities decreased by 46%. Because of these placement changes, it is more difficult to make general conclusions about placement in the United States. However, because of the variability in placements, it is possible to test the hypotheses of Vianello and Lanfranchi to some extent by comparing students enrolled in more vs. less integrated settings. Unfortunately, in most cases the students in these investigations are not identified with respect to specific genetic conditions (e.g., Down Syndrome, de Lange Syndrome); nevertheless, there is enough information to evaluate functioning in different settings across subgroups of individuals with developmental disabilities.

One significant source of information is from individuals who were formerly served in large state-operated institutions, and who have subsequently moved to community settings. In the US, for example, in the period from 1977 to 1998, the number individuals served in institutions was reduced from 154,638 to 50,034 (Kim, Larsin, & Lakin, 2001). Kim *et al.* (2001) reviewed 33 studies of residential service outcomes, and concluded that in nearly every investigation, individuals moving from institutions to community settings demonstrate statistically significant increases in adaptive behavior, although this was not true without exception. However, it is also possible that these commonly-observed improvements are the consequence of, at least in part, the increased number of opportunities for individuals in community settings to exhibit skills they already possessed. The observation, in some longer-term studies, of a “plateau effect” (i.e., individuals gain initially, but do not continue to gain) supports this possibility (Felce & Perry, 2009). Even so, however, such findings point to a higher quality lifestyle for the individuals involved.

More direct evidence can be found in the inclusive school literature. An early research synthesis of 50 studies by Carlberg and Kavale (1980) indicated that students with mental retardation fared better overall in inclusive placements than in special classes (although the same was not true for students with learning and behavioral disabilities). These findings must be tempered by the fact that special classes were different at that time, as were definitions of mental retardation. More recently, Cole, Waldron, and Majd (2004) compared the academic achievement of students with disabilities across inclusive and traditional settings. With a subsample of 101 students with mental retardation who had been assigned to either setting, Cole *et al.* concluded that students with MR in inclusive settings scored slightly (but not statistically) higher in reading, but scored the same in math. Interestingly, in this study, students without disabilities in inclusive classrooms performed better on academic measures than their counterparts in traditional settings.

McDonnell, Thorson, Disher, Mathot-Buckner, Mendel and Ray (2003) investigated the growth of 14 students with developmental disabili-

ties over a school year when placed in inclusive elementary grade classrooms. They reported that over the year, all students except one exhibited growth on a measure of overall adaptive behavior. However, this level of growth (although on a normative score) was trivial, amounting to only about .07 standard deviation units. Nevertheless, the mean adaptive behavior scores of this sample, similar to those of Vianello and Lanfranchi, was much higher than expected from the IQ scores. Achievement of nondisabled students in inclusive and traditional classrooms was the same, suggesting the presence of students with developmental disabilities did not impact the achievement of nondisabled students.

A similar investigation in Ireland (Hardiman, Guerin, & Fitzsimons, 2009) revealed that social competence ratings did not differ between students with moderate intellectual disability in inclusive and segregated settings. In this investigation also, both groups of students (in inclusive and segregated settings) exhibited levels of adaptive behavior above that predicted by their degree of disability.

Hatton, Wheeler, Skinner, Bailey, Sullivan, Roberts *et al.* (2003) investigated adaptive behavior scores of individuals with Fragile X Syndrome between the ages of 1 and 12 years, and a mean of 4.4 assessments over time. They reported that adaptive behavior skills increased steadily, but gradually, over time. These students were identified through genetics clinics, developmental evaluation centers, and early intervention programs, so there is reason to believe that many, if not most of them were not being served in inclusive placements. It was also reported that students displayed IQs superior to adaptive behavior below the age of 10, but that these scores appeared to converge in later years. Such data suggest that some individuals with developmental disabilities may make progress on adaptive behavior, regardless of academic setting.

Even when individuals with developmental disabilities in inclusive settings are compared across Italian and American samples, however, these comparisons may not be entirely equivalent. It is possible, for example, that students with mental retardation in inclusive Italian schools receive more teacher attention than those in American schools. Palladino, Cornoldi, Vianello, Scruggs and Mastropieri (1999), for example, provided evidence that Italian schools relied more on teachers, and less on paraprofessionals, to implement direct service delivery in inclusive classrooms than was the case in many American schools.

Overall, then, data from America and other countries suggest that students with developmental disabilities in inclusive placements often exhibit an academic and behavioral “surplus” relative to mental age. However, there is some evidence that individuals in other placements may also progress in these areas.

### 3. Teacher Attitudes

Of particular relevance to the issue of the benefits of inclusive instruction is the attitude of general education teachers toward students with disabilities. Cornoldi, Terreni, Scruggs and Mastropieri (1999) surveyed general education teachers in 10 schools in northern and central Italy, using items taken from the survey synthesis of Scruggs and Mastropieri (1996). Attitudes of Italian teachers were seen to be generally more favorable toward inclusion than their American counterparts, possibly because of the history of inclusion in Italy. However, Italian teachers, even slightly more than American teachers, identified a need for more support in order to provide high quality instruction for students with disabilities. This support included additional time, additional training, additional personnel and material resources. In both samples, levels of satisfaction with supports were low. For example, only 19% of Italian teachers felt they had sufficient time for teaching students with learning difficulties in their classrooms, and only 22% felt they had sufficient skills and training for this purpose. These findings suggest that optimal inclusive education for all students could be maximized with additional supports in the form of time, training, personnel, and material resources.

### 4. Self-Help Skills

A related issue to social and academic improvement is the matter of *how* these positive changes are brought about. For example, do individuals with developmental disabilities acquire important adaptive behaviors simply by proximity to normally-functioning individuals? This may not always be the case, for example Mastropieri and Scruggs (1985-1986) indicated that preschoolers with developmental disabilities were more likely to initiate social interactions when these were prompted and reinforced, rather than simply modeled by normally-achieving students. Alwell and Cobb (2006b) conducted a meta-analysis of interventions for functional life skill curricula on secondary-aged youth with developmental disabilities. None of these studies, as it happened, had been conducted in inclusive general education classes, but rather in settings that ranged from self-contained classrooms to vocational training centers. These interventions averaged 12-50 sessions over about four months for students with moderate to severe disabilities; fewer sessions were required for those with milder cognitive disabilities. Alwell and Cobb (2006a) offered cautious, yet positive support for transition-related curricular interventions, stating, "...with carefully planned and implemented instruction, *all* students with disabilities are able to acquire various functional life skills" (Alwell & Cobb, 2006a, p. 5).

The studies presented in this meta-analysis demonstrated the wide variety of important life skills that can be taught to individuals with developmental disabilities. For example, Cuvo, Davis and Gluck (1991) taught students *budgeting skills* utilizing computer assisted instruction and workbooks. *Purchasing skills* that could be generalized for shopping activities were taught using videotape modeling followed by probes and practice in real stores (Mechling, Gast, & Langone, 2002). Denny and Test's 1995 study utilized modeling, practice and praise with a specific strategy to help students to acquire *money skills* they could use for making purchases with cash. Hoge, Dattilo and Williams (1999) utilized an 18 week course that involved community instruction, as well as family, and leisure coach support to facilitate the general awareness of *leisure education* activity options.

Several studies utilized task analysis in combination with minimal prompting to improve life skills. Vandercook (1991) helped students acquire the *leisure skill* of learning how to properly socially interact, make choices and learn how to play pin ball and to bowl. *Homemaking skills* that emphasized various cleaning and safety activities were taught using similar strategies (Domaracki & Lyon, 1992). Arnold-Reid, Schloss and Alper (1997) taught *cooking and meal preparation skills*, as well as how to recognize and follow nutritional guidelines. Similarly, Frea (1997) taught students how to increase their awareness of environmental stimuli and to *reduce stereotypic/aberrant behavior*.

Alwell and Cobb (2006a) referred to the tension that exists in the United States regarding secondary schooling, both philosophical and practical, in "teaching youth with disabilities the skills needed to function in and succeed beyond school, versus including these same youth in general education classrooms where curriculum is largely focused on academics" (p. 4). Consequent to the No Child Left Behind Act in the United States, national secondary education curricular focus has become focused, almost exclusively, on college preparatory academic achievement. Hehir (2009) explained the need to balance education both within and without the general education classroom for individuals with intellectual disabilities. Though the settings for teaching functional skills to this population may at times be best located outside of the general education classroom with opportunities to learn and practice them within the community itself, there are learning opportunities that can take place only within the traditional secondary curricula, and within the typical classroom setting.

Research in the life skills area has identified a number of important skills that individuals with developmental disabilities may need to acquire, especially as they begin to move out of schools and into community settings. In the research reviewed by Alwell and Cobb (2006b), these self-help skills (e.g., money skills, leisure skills, cooking) were taught largely outside general education classrooms, which did not usually include such training. And although such skills potentially could be taught to individuals with de-

velopmental disabilities in general education classes, additional time, training, and resources may be necessary to accomplish this, at least in the United States.

## 5. Summary

Vianello and Lanfranchi (2009) have provided important evidence suggesting the presence of a "surplus effect," in which students with developmental disabilities learn social and academic skills beyond expectations based upon mental age. This may be due, at least in part, to the inclusive environment provided by Italian schools. Although this observation is supported to some extent by comparisons in American and other schools, it also may be important to consider the needs expressed by Italian and American teachers for additional supports, and the special needs of individuals with developmental disabilities to acquire significant academic and behavioral skills that may not be taught in age-appropriate general education classrooms. The tasks for research and practice in the future, then, may be to insure that the twin goals of appropriate instruction, and inclusive education, can be met to maximize learning and behavioral outcomes for individuals with developmental disabilities.

## References

- Alwell, M., & Cobb, B. (2006a). *Teaching functional life skills to youth with disabilities: Executive summary*. National Secondary Technical Assistance Center. Retrieved October 25, 2009, from [http://www.nsttac.org/pdf/life\\_skills\\_executive\\_summary.pdf](http://www.nsttac.org/pdf/life_skills_executive_summary.pdf)
- Alwell, M., & Cobb, B. (2006b). *A systematic review of the effects of curricular interventions on acquisition of functional life skills by youth with disabilities. What Works in Transition: Systematic Review Project*. Colorado: Colorado State University and National Secondary Transition Technical Assistance Center. Retrieved October 25, 2009, from [http://www.nsttac.org/pdf/life\\_skills.pdf](http://www.nsttac.org/pdf/life_skills.pdf)
- Arnold-Reid, G. S., Schloss, P. J., & Alper, S. (1997). Teaching meal planning to youth with mental retardation in natural settings. *Remedial & Special Education, 18*, 166-173.
- Carlberg, C., & Kavale, K. (1980). The efficacy of special versus regular class placement for exceptional children: A meta-analysis. *Journal of Special Education, 14*, 295-309.
- Cole, C. M., Waldron, N., & Majd, M. (2004). Academic progress of students across inclusive and traditional settings. *Mental Retardation, 42*, 136-144.

- Cornoldi, C., Terreni, A., Scruggs, T. E., & Mastropieri, M. A. (1998). Teacher attitudes in Italy after twenty years of inclusion. *Remedial and Special Education, 19*, 350-356.
- Cuvo, A. J., Davis, P. K., & Gluck, M. S. (1991). Cumulative and interspersal task sequencing in self-paced training for persons with mild handicaps. *Mental Retardation, 29*, 335-342.
- Denny, P., & Test, D. (1995). Using the one-more-than technique to teach money counting to individuals with moderate mental retardation: A systematic replication. *Education & Treatment of Children, 18*, 422-32.
- Domaracki, J. W., & Lyon, S. R. (1992). A comparative analysis of general case simulation instruction and naturalistic instruction. *Research in Developmental Disabilities, 13*, 363-379.
- Felce, D., & Perry, J. (2009). Living with support in the community: Factors associated with quality of life outcome. In S. L. Odom, R. H. Horner, & M. E. Snell (Eds.) *Handbook of developmental disabilities* (pp. 410-428). New York: Guilford.
- Frea, W. D. (1997). Reducing stereotypic behavior by teaching orienting responses to environmental stimuli. *Journal of the Association for Persons with Severe Handicaps, 22*, 28-35.
- Hardiman, S., Guerin, S., & Fitzsimons, E. (2009). A comparison of the social competence of children with moderate intellectual disability in inclusive versus segregated school settings. *Research in Developmental Disabilities, 30*, 397-407.
- Hatton, D. D., Wheeler, A. C., Skinner, M. L., Bailey, D. B., Sullivan, K. M., Roberts, J. E., Mirrett, P., & Clark, R. D. (2003). Adaptive behavior in children with Fragile X syndrome. *American Journal on Mental Retardation, 108*, 373-390.
- Hehir, T. (2009). *New directions in special education: Eliminating ableism in policy and practice*. Cambridge, MA: Harvard Education Press.
- Hoge, G., Dattilo, J., & Williams, R. (1999). Effects of leisure education on perceived freedom in leisure of adolescents with mental retardation. *Therapeutic Recreation Journal, 33*, 320-332.
- Kim, S., Larson, S. A., & Lakin, K. C. (2001). Behavioral outcomes of deinstitutionalization for people with intellectual disability: A review of US studies conducted between 1980 and 1999. *Journal of Intellectual and Developmental Disability, 26*, 35-50.
- Mastropieri, M. A., & Scruggs, T. E. (1985-1986). Early intervention for socially withdrawn children. *Journal of Special Education, 19*, 429-441.
- McDonnell, J., Thorson, N., Disher, S., Mathot-Buckner, C., Mendel, J., & Ray, L. (2003). The achievement of students with developmental disabilities and their

peers without disabilities in inclusive settings: An exploratory study. *Education and Treatment of Children*, 26, 224-236.

Mechling, L. C., Gast, D. L., & Langone, J. (2002). Computer-based video instruction to teach persons with moderate intellectual disabilities to read grocery aisle signs and locate items. *Journal of Special Education*, 35, 224-240.

Palladino, P., Cornoldi, C., Vianello, R., Scruggs, T.E., & Mastropieri, M.A. (1999). Paraprofessionals in Italy: Perspectives from an inclusive country. *The Journal of the Association for Persons with Severe Handicaps*, 24 (4), 254-258.

Scruggs, T. E., & Mastropieri, M. A. (1996). Teacher perceptions of mainstreaming/inclusion. *Exceptional Children*, 63, 59-72.

Vandercook, T. L. (1991). Leisure instruction outcomes: Criterion performance, positive interactions, and acceptance by typical high school peers. *The Journal of Special Education*, 25, 320-339.

Vianello, R. (1996). Inclusive schools for pupils with handicap and learning difficulties in Italy. In R. Vianello (Ed.), *Learning difficulties in Europe: Assessment and treatment* (pp. 49-56). Bergamo, Italy: Edizioni Junior.

Vianello, R., & Lanfranchi, S. (2009). Genetic syndromes causing mental retardation: Deficit and surplus in school performance and social adaptability compared to cognitive functioning. *Life Span and Disability*, 12 (1), 41-52.

Williamson, P., McLeskey, J., Hoppey, D., & Rentz, T. (2006). Educating students with mental retardation in general education classrooms. *Exceptional Children*, 72, 347-361.

