

A Report Card on the State of Research in the Field of Gifted Education

Nancy M. Robinson
University of Washington

The research community in the field of giftedness is earnest, caring, and clearly dedicated to the welfare of this woefully underserved population. Our efforts are, though, targeted toward a limited range of topics; research in the field is seriously underfunded, if funded at all; and we are missing some very good bets in terms of theories, topics, and resources that are likely to bear fruit.

What Are We Doing Well?

Although our field has thus far restricted itself predominantly to studies relating to the education of gifted students, we can take considerable pride, I believe, in some bodies of research that we have created and are continuing to refine. Leading the list are curriculum development models and effective approaches to differentiation of instruction, with spillover into general education, as well as research assessing several accelerative options, ability grouping, cluster grouping, and modified cooperative learning groups. Educational investigations clearly have been given highest priority in our community, even though about half the people identified as most influential in gifted education in a recent survey (Karnes & Nugent, 2002) are or were not primarily educators but psychologists.

Probably the most impressive body of work since that of Lewis Terman has been that following to adulthood the educational trajectory of students who have participated in the Study of Mathematically Precocious Youth (SMPY) established by the late Julian Stanley, demonstrating the virtues of acceleration, the predictive power of tests administered to young adolescents, and the value of investment in talent development (e.g., Webb, Lubinski, & Benbow, 2002). Per capita, we probably know more about exceedingly gifted children than any other subgroup (Gross, 2003), although there are significant questions about the shape of the distribution of talent at the highest levels (Are there more such profoundly gifted individuals than one would predict from

the normal curve?). There is also an increasing body of work on talent development in young people (e.g., Bloom, 1985; Csikszentmihalyi, Rathunde, & Whalen, 1993) and a substantial body of work on eminence and the factors that contribute to it (e.g., Simonton, 1994).

In addition, we are making inroads into the multiple social/emotional issues facing gifted students, although there is still much to be done. The beachhead we have established suggests that gifted students are no more vulnerable than any other group, but that when we fail to meet their needs for advanced and challenging work and for true mental peers, they are at risk for underachievement, depression, and loneliness. Furthermore, gifted students are immune to none of life's disabilities except mental retardation, and twice-exceptional students have their own issues that intersect with their high abilities (Neihart, Reis, Robinson, & Moon, 2002).

Nonetheless, I think we will all have to admit that our imaginations exceed our empiricism. We take a good deal on faith. We really have very few well-controlled investigations pitting one approach against another or even one approach against business as usual, very few substantial data bases, practically no studies with random assignment of children to one condition or another, often not even very detailed descriptions of the "gifted children" who are the subjects. We have very few theories to guide and organize our efforts. We can do better.

What Else Should We Be Investigating?

Compared with our research on educational alternatives, there are only scattered studies in the current literature of a number of very compelling topics. Here is a list of places I'd like to see us start to expand our knowledge base:

1. *Individual differences among gifted students.* Far too often we settle for convenience samples enrolled in programs that select gifted students on a variety of criteria, sometimes several years before the research takes place. We seldom describe in our reports

how advanced those students are, either in ability or achievement, how the most advanced may differ from the least, or from what socioeconomic backgrounds they come. It is ironic that in a field that is based on a dimension of difference and that uses for identification a set of classic measures of individual differences, we pay so little attention to differences within our target group. This criticism applies just as strongly, if not more, to our educational programs themselves, where, having argued that one size in the regular classroom does not fit all, we proceed in our special classrooms to teach as though it did.

2. *The origins of giftedness*, derived both from nature and from nurture. This includes, for example,
 - Differences within gifted groups, and between gifted and nongifted age peers, in the *structure and function of the central nervous system*, particularly the brain.
 - *Family studies of both molecular genetic and environmental factors*. We could profitably look at families with more than one gifted child, as well as families in which one or some of the children are of high ability and one or more, apparently unimpaired, are not. What distinguishes the experience of the children, both between and within families? What can we learn from parents of modest ability whose children are of high ability, and vice versa?
 - Detailed observational studies of *interactions between parents and their gifted children*, interactions that promote learning, curiosity, and healthy motivation.
3. *"Precocious" children, ages birth through kindergarten*. What do early talents look like? How much do these young, talented children profit from educational options appropriate to their maturity, programs we practically never provide?
4. *Ways to identify and nurture children of promise*, children from unpropitious backgrounds who may not meet the more stringent criteria for giftedness, but who may blossom with energetic intervention over a period of time. The first place to look is Project Head Start. We need to expand the number of programs we provide and to follow in detail the trajectories of children who participate. How much can we accomplish, and how best can we do it?
5. *Cognitive and personal maturity*. Does the advancement of gifted children simply reflect more rapid development, or is it qualitatively different from that of older children? For this purpose, we need comparisons not only with chronological-age peers, but also with older individuals who are mental-age peers (a CA-MA comparison).
6. *More information about our assessment tools*. How effective are ability and achievement tests at predicting how well students will do in advanced and/or special classes, and are some measures (e.g., abstract verbal reasoning) better predictors than others (e.g., quantitative or spatial reasoning) of such success (Lohman, 2005)? How can we use the tests to devise educational strategies to capture and enhance special abilities? What do teacher recommendations and portfolio assessments add to the picture?
7. *The long-term trajectory of code-breakers*, that is, children who enter school with advanced math and/or reading skills but with general mental ability only in the average or high-average range. Do code-breaking skills by themselves predict eventual high levels of academic competence?
8. *Antecedents of the "rage to master" new challenges* (Winner, 1996) and the willingness to undertake the major effort needed to achieve expertise (Ericsson & Charness, 1994). We know much more about underachievement than healthy achievement.
9. *The anomalous late underachiever*, that is, the great student who fails as an adult to fulfill the promise of childhood. What is missing? What can we do to prevent this loss?
10. *The late bloomer*, that is, the gifted childhood underachiever who "takes off" during adulthood. What triggers the shift?
11. *Counseling and parent-education approaches* that work with parents of gifted children who vary in ethnicity, education, and engagement.
12. *Career and personal counseling approaches* that work with gifted adolescents of various groups. Students of color are an important target. We need to find ways to help them feel comfortable in multiple cultural settings.
13. *Adult roles of former gifted children* as marital partners and parents and in the world of work. What, especially, about those who emerge from the educational system at young ages?

How Does Research in This Field Compare With That in Other Fields in Education and the Social Sciences?

We have for the most part opted for modest and not terribly sophisticated research designs. Compared with

studies in sister fields such as psychology and education, we usually look like country cousins. For example:

1. We have very few major theories to guide our efforts. Of course, there are exceptions to this rule, such as Dabrowski's theory of positive disintegration (O'Connor, 2002), Moon's (2003) personal talent theory, Sternberg's (1999) theory of successful intelligence, Dweck's (2000) theory of entity vs. incremental views of ability, and so on, but we are much more driven to address classroom problems than to develop more overarching views that can help us build both bedrock understanding and compelling new questions.
2. We can't agree on a definition of our target population and we lack agreement on a set of terms, the fields of talent we are including in a given subject population, or the degree of advancement we consider gifted. After a 30-year career in the field of mental retardation, I know what a difference such consensus can make.
3. We are beset by debilitating political issues mostly having to do with disproportionality of ethnic groups in our special classes. In this respect, we are exceeded only by investigators in stem-cell research and cloning in the degree to which we are crippled by such issues.
4. We haven't much money, and most of the research money we have is by law limited to addressing issues of underserved minorities. We make do on peanuts—and a great many of the studies we publish have no funding at all. For this reason, we are limited to nonreplicable convenience samples rife with all kinds of selective factors over which we have no control (even the vaunted follow-ups of talent search participants are hampered by such issues) and the numbers of subjects in most studies are too small to yield definitive findings.
5. Basic science is seldom a priority for what little research funding we do have. We are too quick to get into the classroom. This is a major reason we don't know more about maturity issues, cognitive processes, executive control, brain function, and so on.
6. We publish for each other. Although occasional studies of gifted individuals are to be found in journals such as the *American Psychologist*, *Child Development*, *Intelligence*, *Journal of Educational Psychology*, and *Psychological Science*, mostly we publish in our very own journals, so that we end up preaching to the

choir. (Lubinski, Benbow, and colleagues are exceptions to this generalization.)

7. We seldom collaborate across disciplines. Part of our insularity has to do with our limited funding (colleagues from other disciplines are actually funded to do research!), and part with campus habits of collaboration in scholarship. As someone with an academic appointment for the past 30 years in a school of medicine where collaboration is rampant, I know how stimulating such work can be.

What Current Research in Other Fields Are We Neglecting?

There are, in fact, many investigators in other fields whose work bears on ours—and to whom we can bring a special population that will reciprocally enrich their perspectives. Some of these areas are:

- *Positive psychology*, a quickly growing alliance of investigators who look at the effects of mental and physical health, optimistic and committed outlooks, resilience, and the like. High ability is clearly an asset and therefore a part of positive psychology. Note that Sternberg (2003) has already tapped into the concept of wisdom, and Neihart (2002) into the work on resilience.
- *Studies of executive functioning*, the management of problem solving, attention, and emotions. What strategies do competent problem solvers (i.e., gifted persons) use and when do they use them?
- *Functional brain studies*. How do gifted children and adults differ from typical peers when we watch them *in vivo*, solving problems, employing abstract versus concrete strategies, learning new material?
- *Both behavioral genetics and molecular genetics*, which are making great strides in understanding human behavior (Plomin & Spinath, 2004). In studying traits involving multiple genes, as well as environmental factors, there are definite advantages to studying optimal specific outcomes rather than the errors and disabilities that usually capture attention (Wijsman et al., 2003).
- *Social psychology*, which encompasses numerous theoretical clusters to which we can contribute and from which we can learn. Just to cite a few examples, the bodies of work of Carol Dweck (2000), Albert Bandura (1997) and Claude Steele (Perry, Steele, &

Hilliard, 2003) have direct applications to the field of giftedness.

- *The economics of cost-benefit ratios* or investment-pay-off, areas in which we can provide shining examples. Services to gifted students can be remarkably inexpensive; they can show handsome results for small investments. We seldom look at the money-saving aspects of accelerative options, which shorten educational trajectories, reduce expenditures, lengthen the period of adult productivity, and produce competent professionals who pay higher income taxes.
- Finally, *the huge databases* of our potential colleagues in other fields. Their data can yield fascinating research findings for us that those investigators would not otherwise examine. For example, colleagues and I have looked at the highest achieving children in a population of more than 5,000 children followed for 4 years after Head Start (Robinson, Lanzi, Weinberg, Ramey, & Ramey, 2002). Similarly, with colleagues who have access to a database of more than 1,000 children whose daycare and educational experience has been carefully documented, I have been involved with a similar study (Oxford, Spieker, & Robinson, 2006). Look around! With the advent of computers and multisite studies, our colleagues are often overwhelmed by much more information and many more questions than they have the time to glean from their databases and would be grateful for our help.

To summarize, in a grade report of our field, I'd have to settle for about a C. We have done quite a bit with distinctly limited resources, but there is much more we can do. And, we don't have to do it alone.

References

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Bloom, B. (Ed.). (1985). *Developing talent in young people*. New York: Ballantine.
- Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). *Talented teenagers: The roots of success and failure*. Cambridge, England: Cambridge University Press.
- Dweck, C. (2000). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Taylor and Francis.
- Ericsson, K. A., & Charness, N. (1994). Expert performance: Its structure and acquisition. *American Psychologist*, 49, 725-747.
- Gross, M. U. M. (2003). *Exceptionally gifted children* (2nd ed.). London: Routledge Falmer.
- Karnes, F. A., & Nugent, S. A. (2002). Influential people in gifted education. *Gifted Child Today*, 25(4), 60-63.
- Lohman, D. F. (2005). The role of nonverbal ability tests in identifying academically gifted students: An aptitude perspective. *Gifted Child Quarterly*, 49, 111-138.
- Moon, S. M. (2003). Personal talent. *High Ability Studies*, 14(1), 5-21.
- Neihart, M. (2002). Risk and resilience in gifted children: A conceptual framework. In M. Neihart, S. M. Reis, N. M. Robinson, & S. M. Moon (Eds.), *The social and emotional development of gifted children: What do we know?* (pp. 113-122). Waco, TX: Prufrock Press.
- Neihart, M., Reis, S. M., Robinson, N. M., & Moon, S. M. (Eds.). (2002). *The social and emotional development of gifted children: What do we know?* Waco, TX: Prufrock Press.
- O'Connor, K. J. (2002). The application of Dabrowski's theory to the gifted. In M. Neihart, S. M. Reis, N. M. Robinson, & S. M. Moon (Eds.), *The social and emotional development of gifted children: What do we know?* (pp. 51-60). Waco, TX: Prufrock Press.
- Oxford, M., Spieker, S., & Robinson, N. M. (2006). *Preschool antecedents of high ability and academic achievement: Findings from the NICHD Study of Early Child Care and Youth Development*. Unpublished manuscript.
- Perry, T., Steele, C., & Hilliard, A., III. (2003). *Young, gifted, and Black: Promoting high achievement among African-American students*. Boston: Beacon Press.
- Plomin, R., & Spinath, F. M. (2004). Intelligence: Genetics, genes, and genomics. *Journal of Personality and Social Psychology*, 86, 112-129.
- Robinson, N. M., Lanzi, R. G., Weinberg, R. A., Ramey, S. L., & Ramey, C. T. (2002). Factors associated with high academic competence in former Head Start children at third grade. *Gifted Child Quarterly*, 46, 281-294.
- Simonton, D. K. (1994). *Greatness: Who makes history and why*. New York: Guilford.
- Sternberg, R. J. (1999). The theory of successful intelligence. *Review of General Psychology*, 3, 292-316.
- Sternberg, R. J. (2003). *Wisdom, intelligence, and creativity synthesized*. New York: Cambridge University Press.
- Webb, R. M., Lubinski, D., & Benbow, C. P. (2002). Mathematically facile adolescents with math-science aspirations: New perspectives on their educational and vocational development. *Journal of Educational Psychology*, 94, 785-794.
- Wijsman, E. M., Robinson, N. M., Ainsworth, K. H., Rosenthal, E. A., Holzman, T., & Raskind, W. H. (2003). Familial aggregation patterns in mathematical ability. *Behavioral Genetics*, 34, 51-62.
- Winner, E. (1996). *Gifted Children: Myths and realities*. New York: Basic Books.