The Early Development of Precocity

Nancy M. Robinson
University of Washington

Abstract

The time is ripe for extending our interest in gifted children downward to infancy and preschool. Existing research is reviewed, and a plea made for extending work in the following areas: (1) identification and description, (2) prediction from early behavior to (similar or dissimilar) later attainments, (3) studies of the origins of commitment and high achievement motivation, (4) naturalistic and experimental studies of the nurturance of exceptional abilities. Gifted babies and toddlers are compelling both in their own right and for what they can tell us about the emergence of individual differences.

Sound research with very young precocious children is virtually nonexistent. Yet, the sources and early history of markedly advanced intelligence have interested philosophers and biographers for centuries, and more empirical scientists for decades. Tantalizing inquiries into the lineage and early development of exceptionally talented individuals (Bloom, 1985; Cox, 1926; Fowler, 1981; Galton, 1869; Goertzel & Goertzel, 1962; McCurdy, 1960) as well as individual biographies and autobiographies, reveal a pattern of highly precocious emergence of language, reasoning, imagination, and reading skills, invariably in highly stimulating family contexts. All these sources are, however, severely limited. The material is retrospective and no doubt highly selective, and leaves a great many questions unanswered. We now need systematic, contemporary investigation, not bias-prone biographizing.

In this paper, we will ask compelling questions, but we will find few answers. Among our questions: How may we describe and locate precocious very young children? Does early precocity usually presage later advancement in development and, if not invariably, are there ways to sort out our predictions? What can we discover about the early nurturance of development so that we can support precocious infants and preschoolers in the most wholesome way? Can we, indeed, create precocity?

The lack of empirical information about precocious infants and preschool children is particularly surprising in view of the intense interest in the very young that has characterized developmental psychology since the 1960's. Perhaps it is because of our overwhelming concern with educational issues for older gifted children that we have ignored that fascinating earlier era when individual differences emerge. It is time to address that period.

Description

Can rapidly developing very young children be identified in sufficient numbers to be described? The evidence suggests that parents and other adults do indeed recognize precocity. A pool of 550 children in Seattle who were "volunteered" by their parents before age five included 259 (47%) who attained Stanford-Binet IQs of 132 + when first tested, and many others who showed precocity in areas other than IQ. Michael Lewis (personal communication, 1985) seeing young gifted children brought by their parents to the Rutgers University School of Medicine, finds as many as 40% with IQs over 150, and Karnes, Shwedel, and Kemp (1985) report that 41% of children assessed for a special preschool met their complicated criteria. Yet Bloom (1985) and his colleagues suggest that there may be significant differences from one area of talent to another in the age at which exceptional ability is recognized. They found, for example, that the (nonspecific) advanced development of future world-class mathematicians was apparent much earlier than that of other world-class achievers such as sculptors and tennis players.

Parents are quite capable of describing their children's behavior even though they may not be able to judge its precocity. One mother of a toddler reported that at age nine months, her daughter had pointed to a picture of a tiger on the wallpaper next to her crib and said her first word, "Tiger", and then, for emphasis, "Tiger, Mama!" A mother of a two-year-old reported that she and her husband had waited so eagerly for their child to say his first word that when he did, at age 20 months, and in fact said, "Look! squirrel eating birds' food," she had packed him in the car, taken him to his father's office, asked him to talk for daddy, and heard him say, "I just told Mama, 'Squirrel eating birds' food!'" Yet another father reported with pleasure that his son had put his first two words together at age 20 months (the expected age). All of these parents were accurately reporting behavior they had seen and dated.

Provided that bright young children can be brought to the attention of investigators (and it remains to be seen whether infants and toddlers can be so identified), we need empirical ways to describe not only their "psychometric precocity" but their special qualities in other talents and motivational patterns as well. Perhaps the best approach is to use what we know of normal development to judge in just what ways a child exceeds expectations. For example, suppose that we focus on the precocious emergence of language, a good place to start with infants and toddlers because initial language is so salient and because normative data do exist for the early
years. Do early talkers acquire the same vocabulary other children do, in the same order but more rapidly, or do they differ in the words, grammatical structures, and/or the linguistic styles they employ? Before they can talk, are they more effective at using gestures and intonations than other babies and do they attend to what is said to them? At what age does their difference become noticeable? And, given early language, what other abilities are, or are not, similarly advanced?

Can we identify infants and toddlers who show promise of other special talents? Should we be alert to offspring of parents who are themselves very bright and/or skilled musicians, artists, or athletes? Bloom's (1985) data suggest that family activities are potent in introducing the preschooler in a natural, playful context to areas that only later become serious pursuits. Like language, advancement in gross motor competence is easy to spot at an early age, though of unknown stability. Precocious readers are another group easily identified and assessed. Galton was said to have been taught his letters by his sister Adele so that he could point to them before he could speak; by age two, he could read a little book (Forrest, 1974). Jackson and Cleland (1984) report that early readers use a variety of styles, their strengths compensating for lesser skills, and Durkin (1966) has shown that early readers remain skillful readers, but how do they get there?

Immature bodies may impede the expression of potential abilities, but a perceptive observer (often a parent) may be able to spot special efforts. The future musical prodigy may reveal her presence through a “rondo for spoon on plate,” the future engineer by a talent for taking things apart despite inability to put them together again. And, since so many of the tasks of these earliest years are biological and motoric in nature, there may well be important clues lurking in seemingly unrelated maturational progressions such as the attainment of regular sleep patterns, eating preferences, attention spans, activity levels, mood swings, and social skills. At this point, we still need to keep our views broad and flexible if we are to identify reliable and significant indices of precocious development.

Prediction

Although early precocity is of interest in its own right, we have traditionally valued “giftedness” as a kind of promise, a precursor of things to come. How much stability is there in early indices of accelerated development or of special qualitative “gifts”? This question is bound up with a number of complex issues. There is, in the first place, the difficulty in assessing the abilities of young children, who are frequently distracted by a new situation, shy of a strange examiner, or more interested in playing their own games than in complying with requests.

Second, transition and metamorphosis in developmental progressions may mask underlying relationships. For example, is an early fascination with counting a predictor of later strength in abstract mathematics, or do the two abilities only look alike superficially? There is indication that strength in very early novelty preference (Fagan, 1984b), visual attention (Lewis & Brooks-Gunn, 1981), and visual recognition memory during infancy (Fagan & McGrath, 1981), are reasonably effective predictors of general intelligence in childhood. Indeed, Fagan (1984b) found early visual recognition memory to be a better predictor of later intelligence than of later visual recognition memory, underlying the difficulty in tracing threads of continuity through successive stages of development (McCall, Hogarty & Hurlbert, 1972). Fagan (1984a) suggests that basic cognitive processes provide continuity; Sternberg (1981) nominates novelty-seeking preference as another thread; still other authors (e.g. Scarr & Carter-Saltzman, 1982) point to more pervasive continuities such as genetic/familial models.

Finally, we deal with all the problems of the measures themselves. Our psychometrically most sophisticated tools, the intelligence tests, have limited reliability for individual children during the early years, especially in the upper ranges of ability (McCall, Appelbaum & Hogarty, 1973). Our own unpublished data from a group of gifted children show relatively modest correlations between short-form Stanford-Binet scores obtained at ages 2 and 6 (r = .75, N = 16), 3 and 6 (r = .59, N = 117), 4 and 6 (r = .61, N = 74), and 5 and 6 (r = .79, N = 25). With a high-average sample who as preschoolers had been standardization subjects for the 1937 Stanford-Binet, Bradway (Kangas & Bradway, 1971) found correlations of .59 with Stanford-Binet scores given 25 years later (N = 109) and .41, 38 years later (N = 48).

Well developed measures of many skills we would like to record during the earliest years simply do not exist. For children whose development exceeds the usual range exhibited by their age mates, we can try to use measures intended for older children, and sometimes this is possible—for example, in assessing reading or arithmetic competence (Shorr, Jackson, and Robinson, 1980). But many of the tests for older children assume a basic level of maturational skills, such as the ability to manage paper and pencil or to align blocks carefully, that is inappropriate for the very young. When norms for older children must be used, the opportunity to interpret a meaningful standard score (such as the deviation IQ) is lost. Predicting status over a number of years is tricky enough under the best of circumstances, but nearly impossible when one is using out-of-level norms.

Origins of Motivation and Commitment

The translation of early promise into high achievement during childhood and adulthood clearly requires energy, persistence, focus, and commitment (see, e.g., Bloom, 1982, 1985; Renzulli, 1978). What are the origins of the kind of dedication, goal orientation, self-control, willingness to postpone gratification, and wholehearted investment that characterize individuals whose high attainment matches their potential? On the other hand, what are the origins of low achieve-
ment, or a satisfaction with a life of "getting by," or a con-

The work of Thomas, Chess, and Birch (1968), who had

been struck by temperamental differences in very young chil-

dren that were more or less matched with individual paren-
tal styles, has encouraged a number of other investigators to

explore temperamental make-up. Some of them (but not all)
have identified a trait called "persistence," but they have not

put into their questionnaires items likely to tap other com-

ponents of the high-achievement picture. At this point, we do

not know, for average children or for gifted children, just what

the precursors of high achievement motivation might be, al-

though initial explorations (e.g. Bloom, 1985; Galejs & King,

1985) tend to confirm the influence of family variables and

the child's sense of control over outcomes.

Some investigators (e.g., Buss & Plomin, 1984) look for

familial/genetic factors, while Bloom (1982, 1985) and Fowl-
er (1981) are among those looking for environmental effects

on personality formation as well as intellectual ability. Bloom

(1985), investigating factors underlying the extraordinary

achievement of world-class swimmers, tennis players,

mathematicians, research neurologists, sculptors, and music-
cians, found that parents and mentors often recognized the

special talents in a playful context and only later focused and

nurtured the children's hard work, investing their own moti-
vations and commitment until such time as the children took

over themselves. McCurdy (1960), too, pointed not only to

the stimulating home atmospheres in which many highly out-

standing children grew up, but also the close mentoring rela-
tionship with an older sibling or parent who tutored the child.

The origins of achievement motivation in normal develop-

ment may at first be observed in very young children's de-

light in mastering tasks that present a match for their capabili-
ties but are not initially within their grasp (Dweck & Elliott,


thrust toward mastery not only energizes their attempts at solv-
ing problems but sets the stage for the rewards of succeeding

at the hard, rather than the merely easy. The challenge and

the joy of accomplishment evolve as time goes by into much

more complicated motivational systems.

Although we are not certain of the precursors of achieve-
mation motivation, a fair guess is that there is reasonable con-
tinuity in personality. We might, therefore, hope to encourage

in capable children an age-appropriate form of the zest for

challenge and the personal investment we would like to see

in adults. Frustration tolerance, focus and persistence with
difficult tasks, a long attention span when a task is absorb-
ing, moderately high energy and activity, and delight in mas-
terly hold keys to later realization of potential.

Preschool programs especially geared to the gifted young
child (e.g. Karnes et al., 1985; Roedell, Jackson & Robin-
son, 1980) are able to respond to both advanced skills and
average or even immature skills of the same child. Yet the evi-
dence is very sparse that such preschools do a better job
than ordinary, well run facilities for children from similarly

advantaged homes. Research like that of the early 1960's that
analyzed the efficacy of the pre-Head Start programs for dis-
advantaged preschoolers with random assignment to ex-
perimental and control groups is clearly needed. Without such
rigorous studies, we shall never know whether special

preschools are of value, and if so, in what ways. The find-
ings of the consortium of investigators who are now follow-
ing their former subjects into young adulthood (Lazar &
Darlington, 1982) have shown that their high-quality

preschools were able to modify attitudes, give a modest boost
to academic achievement, and reduce the number of chil-
dren falling or being placed in special education, but not to
maintain long-term IQ gains. Similarly, we need to evaluate
the preschool education of gifted children by a broad-
spectrum evaluation that looks far beyond the IQ.

Nurturance and Intervention

Finally, let us consider briefly questions relating to arranging

environments so that they best support competence and posi-
tive motivation in able children. Responsive, stimulating

parenting of the normal infant, toddler, and preschooler is

assumed in a general sense to underly good parenting of the
gifted youngster (Clark, 1983), but some authors who have
examined parental styles with gifted groups have found more
specific patterns. Bloom (1985) and his coworkers describe
patterns of familial interests and values that capture the child's
attention and involvement, encourage the development of
simple skills, and support that early development with spe-
cial opportunities and resources.

Fowler (1981) described two patterns of parental sociali-
zation styles in very highly precocious children. The first strate-
gy was a deliberate, systematic, instructional approach, com-
monly playful but planful and rather demanding; the second
strategy was more responsive and incidental but not less stim-
ulating or invested. Both approaches were characterized by
flexibility, abundant interaction, and child-centeredness.
These patterns were studied in available case reports of highly
gifted children and, as Fowler points out, "We have no way of
knowing how many cases of similar biological potential
'failed' developmentally because of lack of equivalent nur-
ture, or how many once provided with family nurture remain
323).

It is difficult to tease out the degree to which families set
out to produce highly capable children from the degree to
which the children's own rapid development and attention
and environment, but it must be recognized that both sets of
factors play essential roles. Parenting is a two-way street, and
exceptional parental investment is likely to result in a gifted
child only if that child is potentially capable of so respond-
ing. Moreover, we are only now beginning to realize the powerful manner in which children "create" their own environments by their responses (Scarr & Carter-Salzman, 1982).

There are those who tell us that they already know how to intervene in the lives of babies to produce superior minds (see, e.g., Doman, 1964; Engelmann & Engelmann, 1966). Yet none of this group of investigators has produced empirical scientific evidence, other than anecdotal demonstrations and accounts. Attempts to teach infants and toddlers to read or cipher or think by means of flash cards and school-like tasks appear poorly attuned to the developmental and conceptual tasks of these eras and may well lead to distorted parent-child relationships, particularly if the parent is disappointed with the product. Fowler's (1981) case studies suggest that successful parents are flexible, in tune with their children's progress, and ready to introduce a new idea when the child is ready, but that even those who are most planful also work with the children's own skills. Telling stories and reading to the child were reported much more frequently by parents of two to six year olds in Terman's (1925) sample, for example, than attempting to teach the child to read; early readers, many but not all of whom are indeed very bright, more often start the process themselves and enlist adult help along the way.

Summary

In this paper we have suggested an array of unanswered questions about infant, toddler, and preschool gifted children for which there are very few reliable answers. There is surprisingly little systematic knowledge about young gifted children. We have looked at problems of description (What are these children like and how are their developmental skills organized?), of prediction (How stable is the precocity of early childhood?), of the origins of achievement, motivation, and commitment (What temperament traits lend themselves to long-range personal investment of this kind?), and finally, of nurturance of talent at home and/or in the preschool. We know much more about the school-age gifted child than the very young one, but the keys to maximizing growth and adjustment may lie in large part within the earliest years. It is worth our attention to find out.

References


