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FEATURE ARTICLE

General Growth Outcomes for Young Children: Developing a Foundation for Continuous Progress Measurement

JEFF S. PRIEST, SCOTT R. MCCONNELL, DALE WALKER, JUDITH J. CARTA, RUTH A. KAMINSKI, MARY A. MCEVOY, ROLAND H. GOOD III, CHARLES R. GREENWOOD, & MARK R. SHINN

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Public expectations of accountability in our education system have increasingly focused on young children's development, in part because of Goal 1 of the National Education Goals (By the year 2000, all children in America will start school ready to learn). Few sensitive measurement systems have been developed, however, to monitor young children's growth over time. Building such a system requires a parsimonious but comprehensive set of developmental outcomes expected of children between birth and age 8. In the two studies presented here, investigators formulated a set of 15 general growth outcomes for young children, and conducted a survey of parents of children with and without disabilities and professionals in early childhood and early elementary education to validate the outcomes.

In recent years, teachers and other professionals in public schools have been the targets of a ground swell of societal indignation at the lack of educational accountability (Allen, 1999; Bandler, 1999; Bennett, 1999; Benning, 1999; May, 1999; Olson, 1999). Educators have been accused of focusing too exclusively on "inputs," such as the number of books in school libraries, the number of computers in classrooms, or, for example, the relative merits of phonetic versus whole-language approaches to reading instruction (Coles, 1998; Hempenstall, 1997; Olson, 1999), to assess effectiveness. Societal perceptions of high school graduates' ill-preparedness for attending college or working in the job market (Johnson & Aulicino, 1998; National Commission on Excellence in Education, 1983) have forced educators to place more emphasis on "outputs," specifically important academic outcomes, and standards required of students to achieve

these outcomes (Billings, 1996; Riley, 1996; Tirozzi & Uro, 1997).

A logical corollary of the current emphasis on outcomes required for high school graduation (e.g., Bruininks et al., 1996) has been a downward extension of skills and competencies we expect students in lower grades to demonstrate to remain "on path" toward attainment of expected standards. Presumably, outcomes expected of high school graduates can be analyzed, either empirically or logically, to identify prerequisites, levels of typical performance, or "benchmarks" that precede or predict performance at the end of formal secondary education. These prerequisites or benchmarks can then be used to set intermediate goals and standards, and thus extend the logic of terminal-objective accountability standards to younger ages and earlier grades. To date, however, few empirical or logical analyses have been extended to the prekin-

R. A. McWilliam
Editor

dergarten years (Kagan, Rosenkoetter, & Cohen, 1997).

The lack of sufficient downward extension of expectations can be traced to at least two sources. *First*, although our knowledge of child development has increased exponentially in recent years, there still exists a dearth of research linking early childhood skills to later academic performance. Children do not begin kindergarten as "blank slates." They bring a variety of accumulated knowledge and predispositions to learning based on genetic and environmental influences accumulated over the first 5 years of their lives (Adams, 1990; Hart & Risley, 1995; National Education Statistics Agenda Committee, 1994; Snow, 1983; Snow, Burns, & Griffin, 1998). Although researchers have identified aspects of early childhood development that might predict and serve as functional prerequisites for later academic achievement (see, e.g., Walker, Greenwood, Hart, & Carta, 1994), understanding of the intricate relationships between these variables over time remains far from complete.

Second, when we discuss prekindergartners, we generally speak in terms of developmental skills, that is, skills falling into one of the major developmental domains (communication, cognition, motor, adaptive, and social-emotional). Yet, predominant forms of accountability systems focus on measuring skills in academic domains (i.e., skills in reading, math, and social studies, among others) for students in grades K through 12. The preponderant focus on academic skills complicates educators' and policymakers' efforts to develop accountability systems for children who are not yet demonstrating such skills. Attention must be paid to identifying developmental outcomes of importance upon which to base accountability systems for young children.

One large-scale effort to articulate important outcomes for young children is represented by the work of the National Education Goals Panel. Most relevant to the early childhood community is Goal 1: *By the year 2000, all children in America will start school ready to learn* (National Education Goals Panel, 1999). Current measures of national and state

progress toward Goal 1 include indicators of children's and pregnant mothers' health (i.e., percentage of infants born with health risks, percentage of fully immunized 2-year-olds, percentage of infants born at low birth weight, and percentage of mothers who began receiving prenatal care during their first trimester of pregnancy) and participation in activities that promote learning (i.e., percentage of preschoolers whose family members read to them, percentage of children who participate in preschool programs, and numbers of children with disabilities enrolled in preschool programs; Federal Interagency Forum on Child and Family Statistics, 1999; National Education Goals Panel, 1999).

These measures parallel the evaluation of "inputs" common in elementary and secondary education, but fail to assess adequately young children's actual development over time. The U.S. Commissioner of Education Statistics has called for a review of this focus, raising concerns about the insufficient evaluation of "outputs" or children's developmental skills (Forgione, 1998). These concerns include: (a) What are children's competencies and skills at different ages during the first 6 years of life?; (b) What are the levels and rates of growth over time for different groups of children?; (c) How do family, educational, and health resources enhance rates of growth and development for "vulnerable" young children?; and (d) What are the rates of growth in math, reading, and science achievement in the elementary years (i.e., grades K through five)? (Forgione, 1998).

Members of the Goal 1 Resource Group of the National Education Goals Panel addressed these concerns by recommending assessment of children's skills in five developmental areas: (a) physical well-being and motor development, (b) social and emotional development, (c) approaches to learning, (d) language usage, and (e) cognition and general knowledge (Kagan, Moore, & Bredenkamp, 1995; National Education Goals Panel, 1991). According to the U.S. Commissioner of Education Statistics, however, the Resource Group has yet to specify a system for assessing these

Goal 1 include indicators of pregnant mothers' health (i.e., infants born with health risks, fully immunized 2-year-olds, infants born at low birth weight, mothers who began receiving their first trimester of participation in activities that (i.e., percentage of pre-family members read to children who participate in games, and numbers of children enrolled in preschool). National Interagency Forum on Child Development Statistics, 1999; National Education Goals Panel, 1999).

parallel the evaluation of children in elementary and secondary schools. We fail to assess adequately children's actual development over time. Commissioner of Education, 1999. For a review of this focus, see the report on the insufficient evaluation of children's development (National Education Goals Panel, 1999). These concerns include: (a) Are children's competencies being assessed at different ages during the first 6 years? (b) What are the levels and rates of growth for different groups of children? (c) Do family, educational, and environmental enhance rates of growth and development of "vulnerable" young children? (d) What are the rates of growth in children's science achievement in the early years (i.e., grades K through five)?

The Goal 1 Resource Group of the National Education Goals Panel addressed the need for recommending assessment systems in five developmental areas: (a) physical health and motor development, (b) social and emotional development, (c) readiness to learning, (d) language development, and (e) general knowledge. (National Education Goals Panel, 1991). However, the Resource Group recommended a system for assessing these

five areas in valid and reliable ways (Forigione, 1998).

In addition, members of the Goal 1 Resource Group made strong recommendations to avoid any possibility of data being used to label, categorize, or stigmatize young children, which might result in retention, tracking, or refusal to admit children to kindergarten (National Education Goals Panel, 1991; National Education Statistics Agenda Committee, 1994; Shepard, Kagan, & Wurtz, 1998). The Resource Group asserted any child-focused system for assessing Goal 1 should be administered using a matrix sampling approach—a strategy in which no child receives the full complement of assessments, relying instead on fragmentary snapshots of each participating child to piece together a picture of young children as a whole (National Education Goals Panel, 1991; National Education Statistics Agenda Committee, 1994; Shepard et al., 1998). Although a matrix sampling approach might provide sufficient information for policymakers to evaluate the nation's progress toward Goal 1 (cf. Prince, 1992), the opportunity to identify and serve children in need of intervention services, or to improve services being received by any one child or family, might be lost (Bricker, 1996).

The legacy of "readiness" testing, in which educators prevented children from making the transition to kindergarten when they "failed" pre-academic skills tests (Shepard, 1994; Shepard, Taylor, & Kagan, 1996), has fostered a cautious approach toward allowing prospective accountability measures to influence instructional decisions for children (Shepard et al., 1998). We do not in any way advocate reversing years of progress toward a more enlightened view of early childhood assessment, emphasizing linkages between assessment and intervention rather than assessment as an exercise in categorization (Bricker, 1996; McConnell, 2000). If we can successfully craft a system for validly measuring a child's growth in one or more of the five areas identified by the Goal 1 Resource Group, we simply argue its use should not be limited to evaluation of nomothetic progress toward Goal 1—monitoring the progress of large *groups* of children.

We should also use it on an idiographic basis, that is, identifying *individual* children's strengths and needs, linking results to a system for intervening on behalf of children who would benefit from early intervention.

Need for Idiographic Outcomes and Assessment Tools

At least two arguments support the use of a valid, early childhood assessment system on an idiographic basis. First, as educators, we have an affirmative obligation to find children who are in need of intervention, and to offer opportunities for service to their families, as early as possible (Carta, Schwartz, Atwater, & McConnell, 1991). Provisions of the Individuals with Disabilities Education Act require states to identify, locate, and evaluate children with disabilities in need of special education and related services (20 U.S.C. § 1412). Thus, any system we employ to gain a valid, nomothetic understanding of young children's progress toward Goal 1 should also assist us in meeting the requirements of IDEA by locating individual children who require additional services to avoid or reduce the effects of a disabling condition.

Second, assessment of a child's skills and needs as part of a broader evaluation does not necessarily mean the child will be stigmatized. Laws such as IDEA exist to protect families and children's interests from inappropriate assessment or labeling practices through due process procedures (20 U.S.C. § 1415). Families play a pivotal role in deciding if and when an evaluation of their children's developmental skills will occur and how results will be used to drive instructional changes, if any, for their children. If safeguards remain in place to prevent misuse of assessment data, there should be no conflict between collecting developmental skill data for purposes of evaluating group-wide trends toward Goal 1 and using the same data to understand the strengths and needs of individual participants.

To begin crafting an idiographic assessment system of young children's development, however, we need to be clear about the types of outcomes we expect young children to attain as they negotiate the first 8 years of their

lives (Carta & Greenwood, 1997). We conducted two studies to identify a parsimonious set of outcomes describing the growth of children between birth and age 8 that could serve as the foundation for a comprehensive, continuous measurement system of young children's development, especially those with disabilities. In Study I, examination of published resources and expert opinion led to the selection of a set of outcomes we believed applied to all children between birth and age 8. In Study II, we conducted a mail survey of a sample of parents of young children with and without disabilities, and professionals in early childhood and early elementary education to study the social validity of the selected set of outcomes.

STUDY I: SELECTION OF GENERAL GROWTH OUTCOMES

Purpose

The purpose of Study I was to identify a set of general growth outcomes to describe the development of children between birth and age 8. Specific research questions were: What does the existing knowledge base (including empirical research, assessment tools, intervention curricula, and theoretical analyses) suggest should be primary outcomes for toddlers, preschoolers, and early elementary students, and can a single, parsimonious set of outcomes be formulated to describe the growth of children between birth and age 8?

Method

Selection criteria. We chose four criteria to guide selection (and ultimate validation) of outcomes. First, we endeavored to maintain the functional continuity of outcomes across the age continuum of birth to 8 to the greatest extent possible, realizing the topography of outcomes would differ across this age span. For instance, an infant might point to an object in an adult's presence to communicate her intent to obtain the object, whereas a preschooler might simply ask the adult to give him the object. Although the form of behavior demonstrated by the infant and preschooler differ, both of them communicate their desire

to obtain an object from an adult. By maintaining a functional focus, we assumed these outcomes would also contribute to development of assessment tools with social and treatment validity for young children with disabilities (Neisworth & Bagnato, 1996).

Second, we wanted to strike a balance between comprehensiveness and parsimony. We recognized any set of outcomes must describe the full range of developmental skills children between birth and age 8 demonstrate. Yet, to establish a manageable number of outcomes upon which to base an assessment system, we attempted to limit, in a general way, the total number of outcome statements. Such a limitation tips the balance away from specific to more broadly stated outcomes. In turn, however, more broadly stated outcomes describe young children's growth *across* the early childhood age continuum, and help educators know the endpoints to which young children's development should aspire (Fuchs & Deno, 1991).

Third, we emphasized a partial attainment model in the acquisition and demonstration of skills, rather than a mastery, or terminal skill, model. That is, we wanted to select skill areas in which children between birth and age 8 could demonstrate proficiency, albeit in increasingly fluent levels with maturity. We were less interested in skills only a 5-year-old or an 8-year-old could demonstrate. By maintaining a partial attainment focus, we attempted to maximize measurement of a progression or trajectory of skills within a particular domain over time for children with and without disabilities, thus increasing the chances of ultimately crafting assessment tools sensitive to young children's developmental growth.

Fourth, we wanted outcomes that could be measured repeatedly, directly, and efficiently. Relying on curriculum-based measurement (CBM; Deno, 1985; Fuchs & Deno, 1991; Shinn, 1989) as a model, we crafted general outcomes that permitted direct measurement of a child's skills across time, encouraging assessment on a frequent enough basis to track the ongoing progress of an individual child's growth.

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edge base of outcomes for young children was
divided across three collaborating sites by age
group. One group researched outcomes for
children between birth and age 3, another
group conducted a comparable search for chil-
dren between 3 and 5, and a final group in-
vestigated outcomes for children between 5
and 8.

Each team examined assessment instru-
ments, early childhood curricula, developmen-
tal milestones, and textbooks on child devel-
opment to generate lists of developmental
skills appropriate for children in their respec-
tive age groups. Examples included: the *Bat-
telle Developmental Inventory* (Newborg,
Stock, Wnek, Guidubaldi, & Svinicki, 1984),
AEPS Measurement for Three to Six Years
(Bricker & Pretti-Frontczak, 1996), *The Mac-
Arthur Communicative Development Invento-
ries* (Fenson et al., 1993), *Hawaii Early
Learning Profile* (Furuno, O'Reilly, Inatsuka,
Hosaka, & Falbey, 1993), *Learning Accom-
plishment Profile* (Sanford & Zelman, 1981),
*Brigance Diagnostic Inventory of Early De-
velopment* (Brigance, 1991), *On Track* (Neil-
sen, van den Pol, Guidry, Keeley, & Honzel,
1994), and *Child Development: Its Nature and
Course* (Sroufe, Cooper, & DeHart, 1992).

In addition, staff conducted searches of lit-
erature cited in the ERIC, PsycInfo, and OR-
BIT databases, the last of which is maintained
by the National Center on Educational Out-
comes (NCEO) at the University of Minne-
sota. Key words used to conduct literature
searches consisted of combinations of *out-
come, norm, goal, stage, development, young
children, preschool, and early childhood*. Re-
sources had to be published no earlier than
1977 and had to be in English. These searches
generated reports, books, and state govern-
ment documents that provided lists of devel-
opmental skills appropriate for children be-
tween birth and age 8. Examples of such re-
sources included: texts on developmentally
appropriate practice (Bredenkamp, 1987; Bre-
denkamp & Copple, 1997), recommendations
for early childhood programs published by the
Maryland State Department of Education
(Maryland Commission on the Early Learning
Years, 1992), early childhood outcomes from

the National Center on Educational Outcomes
(Seppanen, Schaeffer, & Julian, 1995; Yssel-
dyke, Thurlow, & Gilman, 1993a; Ysseldyke,
Thurlow, & Gilman, 1993b), and an overview
of child development by the Kentucky De-
partment of Education (Kentucky State De-
partment of Education, 1991).

Each site-based team used an inductive pro-
cess to organize lists of developmental skills
into a relatively small number of outcomes,
relying on a consensus-based process known
as the constant comparative method (Glaser &
Strauss, 1967; Lincoln & Guba, 1985). This
method called for staff to record discrete skills
onto strips of paper and create paper piles of
skills, labeling each pile with the name of one
of five developmental domains (i.e., social,
communication, cognitive, adaptive, and mo-
tor) and 18 categories (e.g., peer/adult inter-
action, expressive communication, reasoning
skills). Staff set the domain and category la-
bels *a priori*, but they allowed the constant
comparative process to drive creation of ad-
ditional, categorical labels if any skills were
not "accounted for" by a pre-existing cate-
gory. Staff worked individually at first to cre-
ate paper piles of skills, and then they met as
a group to compare attributions of develop-
mental skills to categories. At these meetings,
staff aggregated similar skills across catego-
ries, within each domain, to derive a parsim-
onious set of categories per domain. Staff
discussed functional descriptions of newly
generated categories, relying on group con-
sensus to formulate a set of site-specific out-
come statements. Once staff at each site had
crafted outcome statements, they conducted a
"member check," (Lincoln & Guba, 1985)
asking each participant to repeat the process
of assigning skills to outcome statements gen-
erated by group consensus, ensuring all of the
original skills could be assigned to at least one
outcome.

After each team generated outcome state-
ments for the three age groups, investigators
from all three sites met to compare these state-
ments and craft a single set to describe the
growth of children from birth through age 8.
Common elements of outcome statements
across each of the age groups became the ba-

Table 1.
Examples of General Growth Outcomes By Age Group

Birth to 3-year-olds	3- to 5-year-olds	5- to 8-year-olds
<i>Communication</i>		
<ul style="list-style-type: none"> ● Child uses gestures, sounds, words, and word combinations to express meaning to others. 	<ul style="list-style-type: none"> ● Child will engage in communicative/conversational interactions with others, usually involving reciprocal exchange of words and language; social, dyadic interchange; use of social conventions; and employment of language to manipulate or obtain resources from others in the environment. 	<ul style="list-style-type: none"> ● Child can use complex sentences to serve a variety of communicative purposes.
<i>Social</i>		
<ul style="list-style-type: none"> ● Child is able to initiate, respond to initiations from, and maintain positive social interactions with peers 	<ul style="list-style-type: none"> ● Child will interact with peers and adults, maintaining social relationships and demonstrating social participation in play. 	<ul style="list-style-type: none"> ● Child demonstrates social skills necessary to develop and maintain stable friendships.
<i>Cognitive</i>		
<ul style="list-style-type: none"> ● Child understands relational concepts including those that are quantitative, directional, and positional and can discriminate items that are functionally related. 	<ul style="list-style-type: none"> ● Child will demonstrate a conceptual and practical understanding of early literacy and math skills. 	<ul style="list-style-type: none"> ● Child can read and comprehend a variety of printed material.
<i>Adaptive</i>		
<ul style="list-style-type: none"> ● Child can complete typical toileting routine with minimal assistance. 	<ul style="list-style-type: none"> ● Child will demonstrate a range of basic, self-help/care, survival skills, including (but not limited to) skills in dressing, eating, toileting/hygiene, and safety/identification. 	<ul style="list-style-type: none"> ● Child can take care of personal hygiene and eating independently.
<i>Motor</i>		
<ul style="list-style-type: none"> ● Child is able to walk and run with balance and coordination. 	<ul style="list-style-type: none"> ● Child will use his/her large muscle system in a coordinated manner to negotiate the environment. 	<ul style="list-style-type: none"> ● Child demonstrates gross motor control to accomplish greater coordination in space.

sis for formulating a single set of outcomes. Outcomes or skills specific to one group but not descriptive of others were eliminated from the final set. For example, the team responsible for generating outcomes describing the growth of children between 5 and 8 years of age formulated a statement that referred to the formation and maintenance of stable friendships. Because this characteristic of social development cannot yet describe the skills of in-

fants and toddlers, it was not included in the final set of outcomes describing all young children's growth.

Results

Table 1 shows examples of outcomes developed for each of the three age groups (birth-3, 3-5, and 5-8). Each site-based team generated outcomes within all of the five traditional developmental domains, though the to-

Table 2.
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Table 2.
General Growth Outcomes for Children Between Birth and Age 8

5- to 8-year-olds	Domain	Outcome
Child can use complex sentences to serve a variety of communicative purposes.	The child uses language to convey and comprehend communicative and social intent.	<ul style="list-style-type: none"> ● Uses gestures, sounds, words, or sentences (including sign language and augmentative and alternative communication) to convey wants and needs or to express meaning to others. ● Responds to others' communication with appropriate gestures, sounds, words, or word combinations (including sign language and augmentative and alternative communication). ● Uses gestures, sounds, words, or sentences (including sign language and augmentative and alternative communication) to initiate, respond to, or maintain reciprocal interactions with others.
Child demonstrates social skills necessary to develop and maintain stable friendships.	The child takes responsibility for his/her behavior, health, and well-being, even in the face of challenge or adversity.	<ul style="list-style-type: none"> ● Engages in a range of basic self-help skills, including but not limited to skills in dressing, eating, toileting/hygiene and safety/identification. ● Meets behavioral expectations (such as following directions, rules, and routines) in home, school, and community settings. ● Appropriately varies or continues behavior to achieve desired goals.
Child can read and comprehend a variety of printed material.	The child negotiates and manipulates the environment.	<ul style="list-style-type: none"> ● Moves in a fluent and coordinated manner to play and participate in home, school, and community settings. ● Manipulates toys, materials, and objects in a fluent and coordinated manner to play and participate in home, school, and community settings.
Child can take care of personal hygiene and eating independently.	The child initiates, responds to, and maintains positive social relationships.	<ul style="list-style-type: none"> ● Interacts with peers and adults, maintaining social interactions and participating socially in home, school, and community settings. ● Appropriately solves problems in his/her interactions with others. ● Shows affect appropriate to the social context.
Child demonstrates gross motor control to accomplish greater coordination in space.	The child uses cognitive skills to explore the environment, reason, and solve problems.	<ul style="list-style-type: none"> ● Demonstrates an understanding of age-appropriate information. ● Demonstrates recall of verbal and nonverbal events. ● Understands and uses concepts related to early literacy and math skills. ● Solves problems that require reasoning about objects, concepts, situations, and people.

tal number of outcomes varied by group. Twenty-two outcomes were generated for children between birth and 3-years-old, 13 outcomes for the 3- to 5-year-olds, and 17 outcomes for the 5- to 8-year-old group.¹ Table 2

¹ A complete list of site-specific outcome statements may be obtained from the first author.

shows the single set of 15 general growth outcomes (organized by the five traditional domains) investigators created to describe children's development between birth and age 8.

Discussion

A set of 15 general growth outcomes was identified to describe the development of chil-

dren within the early childhood years (i.e., birth to age 8). Although teams initially selected outcomes for children in each of three age groups (birth-3, 3-5, and 5-8), these separate outcomes shared numerous elements across domain areas, making the task of distilling a single set of outcomes for children across the entire age continuum relatively straightforward.

Before beginning to use the final set of general growth outcomes as the foundation for an idiographic, progress-monitoring assessment system, we sought feedback from early childhood stakeholders on the importance and applicability of these outcomes to a wide range of young children, especially those with disabilities. To elicit this feedback, we conducted a survey of parents of young children and professionals in early childhood and early elementary education.

STUDY II: VALIDATION OF GENERAL GROWTH OUTCOMES

Purpose

We posed the following research questions in Study II: (a) To what degree will parents of young children with and without disabilities, as well as professionals in early childhood and early elementary education, support the outcomes selected to describe the developmental status and growth of children between birth and age 8?; (b) Are there differences between parents and professionals in their evaluation of the general growth outcomes?; (c) Do parents and professionals have recommendations for revising these outcomes to ensure application to *all* children, regardless of disability status, socioeconomic status, or cultural group?; (d) How do parents and professionals view the importance and adequacy of developmental information available to them about young children, both before and after the children enroll in school?

Method

Prospective participants. We contacted national organizations devoted to early childhood issues to begin to identify prospective respondents for a mail survey. Staff at the fol-

lowing organizations randomly selected individuals from their membership lists: the Council for Exceptional Children (CEC), the National Association for the Education of Young Children (NAEYC), the National Association of School Psychologists (NASP), and ZERO-TO-THREE National Center for Infants, Toddlers and Families. To identify parents of young children without disabilities and professionals in early elementary regular education, we contacted two national marketing firms and purchased mailing lists of randomly selected individuals within these two targeted groups across the 50 states. Table 3 shows the number of surveys sent to each target group. We sent surveys to a total of 1,099 parents and 1,275 professionals in early childhood and early elementary education.

Measures². Working in collaboration with staff from the Minnesota Center for Survey Research (MCSR)³, we constructed two survey instruments, one for parents and the other for professionals. We presented the general growth outcomes to professionals in their original language, but we adapted the language of outcomes for families, simplifying the words without changing the basic meaning of each statement. For example, in its original form, one outcome states a child between birth and age 8 "appropriately varies or continues behavior to achieve desired goals, and maintains effort or tries different strategies if first efforts don't work." For parent respondents, we changed it to "behaves appropriately to get what he or she wants or needs, and keeps up effort or tries different strategies if first efforts don't work."

To maximize responses from parents of young children, we asked the following question at the beginning of the parent survey instrument: Are there any children who are 12 years of age or younger currently living in your household? If a respondent answered "yes," he or she was asked to continue com-

² Copies of the survey instruments used in this study may be obtained from the first author.

³ The Minnesota Center for Survey Research (MCSR) is a University of Minnesota-affiliated yet independent organization devoted to assisting groups and individuals conduct mail and telephone surveys.

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urchased mailing lists of ran-
individuals within these two
across the 50 states. Table 3
er of surveys sent to each tar-
ent surveys to a total of 1,099
75 professionals in early child-
elementary education.

Working in collaboration with
Minnesota Center for Survey
SR)³, we constructed two sur-
s, one for parents and the other
ls. We presented the general
es to professionals in their
ge, but we adapted the lan-
mes for families, simplifying
out changing the basic meaning
nt. For example, in its original
ome states a child between
"appropriately varies or con-
to achieve desired goals, and
t or tries different strategies if
t work." For parent respon-
ged it to "behaves appropriate-
he or she wants or needs, and
or tries different strategies if
t work."

re responses from parents of
we asked the following ques-
nning of the parent survey in-
here any children who are 12
r younger currently living in
d? If a respondent answered
ne was asked to continue com-

struments used in this study may be ob-
uthor.

er for Survey Research (MCSR) is a Uni-
affiliated yet independent organization de-
ups and individuals conduct mail and tele-

Table 3.

Initial Sample of Respondents for a National Survey to Validate General Growth Outcomes for Children Between Birth and Age 8

Target Group	Organization	Number of Surveys Sent
Parents of children with disabilities	Council for Exceptional Children (CEC)	600
Parents of children without disabilities	Survey Sampling, Inc.	499
Professionals in early childhood education	ZERO-TO-THREE	100
Professionals in early childhood education	National Association for the Education of Young Children (NAEYC)	200
Professionals in early childhood special education	Council for Exceptional Children (CEC)	300
Professionals in early elementary special education	Council for Exceptional Children (CEC)	200
Professionals in early elementary education	Market Data Retrieval	225
School Psychologists with an interest in early childhood education	National Association of School Psychologists (NASP)	250

pleting the survey. If the respondent answered "no," he or she was told the survey was complete.

Both parents and professionals rated each of the 15 outcomes as *critically important*, *very important*, or *somewhat important*. Choosing these rating categories fostered finer discriminations between respondents in their evaluation of outcomes, while assuming few respondents would perceive the statements as unimportant. Respondents had space to recommend revisions of outcome statements if they wished to offer any suggestions. They also rank-ordered their five most important outcomes. Parents were asked to rate the *adequacy* and *importance* of information on their children's development *before* and *after* their children enrolled in school. Professionals were asked to rate the *adequacy* and *importance* of information they share with parents about a young child's rate of development, their ability to evaluate the effects of intervention on an individual child's development, and their perceptions about the usefulness of an alternative system for monitoring individual children's development between birth and age 8.

Pretesting. To pretest survey instruments, we mailed surveys to 25 parents of typically developing children and 25 professionals in

early elementary education. Because the initial response rate of the pretest seemed low, staff from the MCSR conducted a telephone follow-up, asking parents and professionals if they had received the survey, did not understand any of the questions, and were willing to complete and return the survey. Response rates improved after these telephone contacts, and initial results indicated parents and professionals understood the outcomes and questions posed on their respective surveys. Based on this feedback, slight changes were made to clarify the wording of four outcome statements on the parents' survey instrument and no changes were made to the professionals' survey. For example, the original statement "Understands information at a level that is appropriate for his/her age" was changed to "Understands what she or he is told or learns in a way that is appropriate for his/her age." Given the minimal changes made, results from pretesting were added to the final pool of survey data.

Procedures. Staff at the MCSR mailed surveys to the full list of parents and professionals. One week later, they mailed reminder postcards to all prospective respondents. Approximately 3 weeks later, they mailed a second copy of the appropriate survey to parents and professionals who had not returned the

Table 4.
Final Response Status of Respondents to a National Survey to Validate General Growth Outcomes

Status	Parent Survey		Professional Survey	
	<i>n</i>	%	<i>n</i>	%
Returned surveys:				
Completed	351	32	672	53
No children under 12	267	24	—	—
Refusals	1	0	16	1
Surveys not returned	467	43	570	45
Undeliverable mail	13	1	17	1
Total	1,099	100	1,275	100

initial survey. Data collection ended slightly more than 2 months after mailing the first set of surveys.

Staff at the MCSR edited and coded returned surveys, following standard quality control procedures to eliminate dual responses when single-answer responses were appropriate, or to create new categories from dual responses. They created computer data files and cleaned data entry errors. Data files were transferred to the first author for analysis.

Results

Respondents. Table 4 shows the final response status of parents and professionals who received surveys. Thirty-two percent ($n = 351$) of parents who received the survey indicated they had a child 12-year-old or younger living in the household, completed the survey, and returned it. Fifteen percent ($n = 54$) of these parents indicated they had a child with a disability or special need under the age of 9 years old. Fifty-three percent ($n = 672$) of the professionals who received the survey completed and returned it.

Demographic characteristics of survey respondents are shown in Table 5. The median number of people living in parents' households was 4, ranging from 2 to 8 people. Seventy-four percent of parent respondents indicated they had 2 children at home, 25% had 3 children, 7% had 4 children, and 1% had 5 children. The median age of all children in parents' households was 8 years old.

Twenty-nine percent of professionals identified themselves as early childhood education

professionals, 22% were elementary education professionals, 18% were school psychologists, and 31% identified themselves as *Other*, indicating their job responsibilities differed from the survey's preselected categories or consisted of a combination of categories. As a group, professionals had worked a median of 13 years in their profession, with a range of less than 1 year to 40 years. Professionals had worked a median of 6 years in their current positions, with a range of less than 1 year to 40 years.

Ratings of outcomes. Table 6 shows parents' and professionals' ratings of general growth outcomes. With two exceptions (i.e., "Manipulates toys, materials, and objects in a fluent and coordinated manner to play and participate in home, school, and community settings" and "Demonstrates recall of verbal stories and experiences, as well as past events"), more than 50% of parent respondents rated outcomes as critically important, especially those pertaining to children's development of communication and adaptive skills.

At least 50% of professional respondents rated 7 of the 15 outcomes as critically important, whereas the remaining outcomes were rated as very important. Professionals rated communication, adaptive, and social outcomes as more important than cognitive or motor outcomes.

Both parents and professionals rated the first statement (i.e., "Uses gestures, sounds, words, or sentences to let others know what they want or need, or to express meaning to

Professional Survey	
<i>n</i>	%
672	53
16	1
570	45
17	1
1,275	100

2% were elementary education
8% were school psychologists,
ified themselves as *Other*, in-
job responsibilities differed
y's preselected categories or
combination of categories. As
sionals had worked a median
their profession, with a range
ear to 40 years. Professionals
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(i.e., "Uses gestures, sounds,
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Table 5.

Number (Percentage) of Survey Respondents by Demographic Characteristics

	Parents ^a	Professionals ^b
Gender		
Female	276 (79)	605 (90)
Education		
Graduate degree	125 (36)	491 (73)
Some graduate work	50 (14)	92 (14)
Four-year college graduate	80 (23)	40 (6)
Some four-year college work	24 (7)	9 (1)
Two-year college graduate	24 (7)	10 (2)
Some two-year college work	26 (7)	
High school graduate	20 (6)	
Some high school	2 (<1)	
Other		29 (4)
Race/Ethnicity		
African-American	9 (3)	25 (4)
Asian/Pacific Islander	5 (1)	5 (1)
Latino/Hispanic	9 (3)	11 (2)
Native American	2 (<1)	3 (<1)
White/Caucasian	324 (92)	620 (93)
Other	2 (<1)	4 (1)
Gross Income (1996)		
\$100,000 or more	53 (16)	
\$75,000-\$99,999	45 (13)	
\$50,000-\$74,999	114 (34)	
\$25,000-\$49,999	99 (30)	
\$15,000-\$24,999	19 (6)	
Less than \$15,000	5 (2)	

^a*n* = 351.

^b*n* = 672.

others") as the most important outcome. Thirty-two percent of parents and 57% of professionals recorded this outcome first on their list of five most-important outcomes. In general, regardless of subgroup affiliation, all respondents rated the three language outcomes and the one pertaining to basic self-help skills as the most important of the 15 outcomes.

Parents also generally converged with professionals in their rankings of the two remaining adaptive outcomes (i.e., "Meets behavioral expectations in home, school, and community settings" and "Appropriately varies or continues behavior to achieve desired goals"), motor outcomes, one social interaction outcome (i.e., "Appropriately solves problems in interactions with others"), and two cognitive

outcomes (i.e., "Demonstrates recall of verbal stories and experiences, as well as past events" and "Solves problems that require reasoning about objects, concepts, situations, and people"). However, by and large, professionals ranked the two remaining social interaction outcomes (i.e., "Interacts with peers and adults, maintaining social interactions and participating socially in home, school, and community settings" and "Shows feelings appropriate to varying social situations") higher than parents did. In contrast, parents generally ranked the two remaining cognitive outcomes ("Demonstrates an understanding of age-appropriate information" and "Understands and uses concepts related to early literacy and math skills") higher than professionals did.

Table 6.
Parents' and Professionals' Ratings (Percentage of Respondents) of Growth Outcomes

A Child Between Birth and Age 8:	Critically Important		Very Important		Somewhat Important		Overall Rank*	
	Prts.	Pros.	Prts.	Pros.	Prts.	Pros.	Prts.	Pros.
Uses gestures, sounds, words, or sentences to communicate (convey wants and needs or to express meaning to others)	85	92	15	8	0	0	1	1
Responds to others with appropriate gestures, sounds, words, or sentences	78	83	20	16	2	1	3	2
Uses gestures, sounds, words, or sentences to start, respond to, or maintain conversations and interactions with others	77	75	21	23	2	2	4	3
Engages in a range of self-help skills, including but not limited to dressing, eating, toileting/hygiene, and safety/identification (knowing name, address, and phone number)	81	68	18	29	1	3	2	4
Meets behavioral expectations (such as following directions, rules, and routines) in home, school, and community settings	69	55	28	42	2	3	5	6
Appropriately varies or continues behavior to achieve desired goals; maintains effort or tries different strategies if first efforts don't work	64	43	34	51	1	6	8	9
Moves in a fluent and coordinated manner to play and participate in home, school, and community settings	56	19	40	53	4	28	13	15
Manipulates toys, materials, and objects in a fluent and coordinated manner to play and participate in home, school, and community settings	48	23	47	54	5	22	14	14
Interacts with peers and adults, maintaining social interactions and participating socially in home, school, and community settings	62	62	36	36	2	2	10	5
Appropriately solves problems in his/her interactions with others	64	44	32	48	4	8	9	8
Shows feelings (e.g., happiness, sadness, anger) appropriate to varying social situations	57	50	39	45	4	5	12	7
Demonstrates an understanding of age-appropriate information	67	28	30	52	3	20	6	12
Demonstrates recall of verbal stories and experiences, as well as past events	40	26	45	52	15	22	15	13
Understands and uses concepts related to early literacy and math skills	65	31	29	52	7	17	7	11
Solves problems that require reasoning about objects, concepts, situations, and people	59	34	33	50	7	16	11	10

Note. Prts. = Parents ($n = 351$). Pros. = Professionals ($n = 672$).

*Rank based on percentage of respondents endorsing an item as critically important.

of Growth Outcomes

Somewhat Important		Overall Rank ^a	
Prts.	Pros.	Prts.	Pros.
0	0	1	1
2	1	3	2
2	2	4	3
1	3	2	4
2	3	5	6
1	6	8	9
4	28	13	15
5	22	14	14
2	2	10	5
4	8	9	8
4	5	12	7
3	20	6	12
15	22	15	13
7	17	7	11
7	16	11	10

Applicability of outcomes to subgroups of children. Qualitative feedback from parents and professionals indicated the general growth outcomes did not require major revision to apply to specific subgroups of children (e.g., children with sensory impairments or children with severe disabilities). Two parents and 8 professionals asked if one or more of the outcomes applied equally well to children with disabilities as to typically developing children. Professionals, however, mentioned only children with physical impairments as a subgroup to consider specifically when finalizing motor outcomes.

Comments from respondents converged on three recommended revisions of outcome statements. First, one parent and 18 professionals commented that all three of the communication outcomes neglected to include the use of sign language, or alternative or augmentative systems. Second, professionals found the phrase "fluent and coordinated" confusing in describing motor outcomes (i.e., moving in various settings and manipulating toys, materials, and other objects). Two professionals asked if "fluent" was the same as "motorically smooth," while another suggested the term refers to a child's verbal skills rather than to his or her motor skills. Third, 7 professionals recommended we use the phrase "developmentally appropriate" in place of "age appropriate" in the following outcome: "Demonstrates an understanding of age-appropriate information."

Adequacy and importance of developmental information. When asked on the survey, 83% of parents attached great importance to information about their children's development before the children enrolled in school. Only 44% of parents, however, indicated the information they received qualified as *very adequate*. Likewise, whereas 91% of parents rated the significance of developmental information after school enrollment as *very important*, only 45% of them indicated the information they had actually received was *very adequate*.

Seventy-eight percent of professionals felt clear, easy-to-understand information about individual children's development was *very important* to share with parents before chil-

dren enroll in school. Only 29% of professionals, however, indicated they had *very adequate* information to share. Forty-five percent of them stated they had *somewhat adequate* information to share with parents, and 26% felt the information available to share with parents was *inadequate*.

Only 21% of professionals indicated they could evaluate an intervention's effects on an individual child to a *great extent*, whereas 64% stated they could evaluate effects to a *moderate extent*. Yet, 79% of professionals indicated an assessment system that easily and directly helps them monitor individual children's rates of development from birth to age 8, and helps them plan changes in intervention, would be *very useful*.

Discussion

We conducted a mail survey of early childhood constituents to gauge the acceptance of general growth outcomes we developed as goals for children between birth and age 8. Parents of young children with and without disabilities and professionals in early childhood and early elementary education generally converged in their evaluation of the overall importance of the outcomes, as well as the relative importance of specific outcomes. Parents tended to rate more outcomes as critically important than professionals did, but large proportions of both groups rated all of the outcomes as either critically or very important. Parents and professionals ascribed comparable levels of importance to outcomes within communication, adaptive, and motor domains, although professionals generally assigned greater importance to social interaction skills than parents did, and parents ranked two cognitive outcomes (i.e., understanding of age-appropriate information and understanding of early literacy and math skills) higher than professionals did.

Based on feedback from respondents, we have already revised the communication outcomes to include the use of sign language and alternative or augmentative systems. None of the qualitative feedback, however, indicated the outcomes failed to apply to subgroups of young children, although a few professionals

questioned the applicability of motor outcomes to children with physical disabilities. Future work on developing indicators to measure motor outcomes will create opportunities for changing these statements, if necessary, when applied to children with physical disabilities.

Although feedback from parents and professionals supports the face validity of these outcomes in describing young children's development across time, it represents simply a first step in evaluating the success with which we met the four criteria that guided the selection process (i.e., functional continuity; a balance between comprehensiveness and parsimony; a partial attainment model of skill acquisition and demonstration; and amenability to efficient, direct, and repeated measurement of children's skills across time). Ultimately, the true value of these statements will be demonstrated by whether or not they spawn measures of developmental progress that can be linked with intervention to improve young children's long-term outcomes (i.e., treatment validity; Barnett et al., 1997; Neisworth & Bagnato, 1996).

Empirical investigations of procedures for operationalizing measures of young children's progress toward these outcomes have been underway in recent years (Greenwood, Luze, & Carta 2002; Kaminski & Good, 1998; Luze et al., 2001; McConnell, 2000; McConnell, Priest, Davis, & McEvoy, 2002). These measures will be part of an idiographic, decision-making model in which the developmental growth of young children, especially those labeled with a disability or considered at risk, is monitored continuously (Deno, 1989; Early Childhood Research Institute on Measuring Growth and Development, 1998). Local norms or benchmarks of "acceptable" progress toward these outcomes will be used to judge whether or not professionals should intervene on behalf of a child exhibiting insufficient growth (Kaminski & Good, 1998). For those children identified in need of additional services to "push and pull" their trajectories closer to the norms or benchmarks, professionals can implement a change in service and continue to use outcome measures to gauge

the effectiveness of their interventions, modifying instruction as needed based on changes (or lack thereof) in children's growth. This system should lead to more timely and effective interventions for children already identified with disabilities. It might also prevent the onset of difficulties for children who are at risk or might minimize debilitating effects.

Building a valid and reliable growth and development monitoring system based upon these outcomes will also meet needs expressed by both groups of survey respondents. Professionals will be able to share accurate information about young children's development in timely ways, and parents will receive such information in ways they can understand and use. Professionals will be able to evaluate the effectiveness of their interventions more precisely. In addition, they will be able to use progress monitoring data to formulate new or revised interventions, if needed, and then continue to monitor the effects of such interventions as often as they and children's families deem appropriate.

Limitations. Although parents and professionals strongly supported these outcomes, several limitations might prevent widespread generalization of these results. First, one of 3 parents who received the survey responded to it and only 15% of these parents were raising a child with a disability under the age of 9 years. Although the total pool of parent respondents represents a substantial contribution to evaluating the importance of our general growth outcomes, we must temper generalizations to national groups of parents, especially those with young children with disabilities.

Second, we must avoid generalizations across cultural and socioeconomic groups, based on the overrepresentation of Caucasian, highly educated women among parents and professionals who returned the survey. Given the organizations we contacted to recruit respondents, we could not know in advance how diverse the sample of parents and professionals would be. Although we had hoped to recruit parents from diverse cultural, educational, and socioeconomic backgrounds, results indicated we did not receive feedback representative of a comprehensive cross section of

s of their interventions, modification as needed based on changes in children's growth. This could lead to more timely and effective interventions for children already identified. It might also prevent the disabilities for children who are at risk to minimize debilitating effects.

Valid and reliable growth and monitoring system based upon this will also meet needs of diverse groups of survey respondents. We will be able to share accurate information about young children's developmental trajectories, and parents will receive information in ways they can understand. Professionals will be able to evaluate the effects of their interventions more accurately. In addition, they will be able to use the data to formulate new interventions, if needed, and then compare the effects of such interventions with those of children's families.

Although parents and professionals supported these outcomes, some concerns might prevent widespread use of these results. First, one of 30 parents who received the survey responded to the survey. Of these parents were raising children with disability under the age of 9 years, the total pool of parent respondents represents a substantial contribution to the importance of our general findings. Thus, we must temper generalizations about groups of parents, especially those raising children with disabilities.

We must avoid generalizations about parents and socioeconomic groups, and the overrepresentation of Caucasian and African American women among parents and professionals who returned the survey. Given the limitations we contacted to recruit respondents, we could not know in advance how representative the sample of parents and professionals was. Although we had hoped to recruit a diverse cultural, educational, and socioeconomic backgrounds, results of the survey did not receive feedback representing a comprehensive cross section of

the nation's parents. Future research on the social validity of these and other outcomes for young children must recruit study participants from wider, more nationally representative samples of early childhood constituents than membership lists of major, nonprofit organizations.

Third, our survey construction techniques might have restricted respondents' attitudes toward general growth outcomes for young children. We presented respondents with an *a priori* set of outcomes rather than allowing them to generate their own statements, perhaps preventing parents and professionals from adding or deleting important outcomes to the list. The rating choices available to respondents (i.e., critically important, very important, and somewhat important) might have artificially elevated their appraisal of outcomes, because parents and professionals could not rate an outcome statement as unimportant, unless they specifically recorded a comment. Given the wider variability in professionals' ratings (in contrast to parents' ratings), a broader Likert scale might have enhanced our evaluation of professionals' opinions about the outcomes.

Conclusion. The preponderance of researchers' and policy makers' efforts to develop accountability systems in early childhood education approach the task from a normative perspective (Kagan et al., 1995; National Education Goals Panel, 1991; U.S. General Accounting Office, 1998; Ysseldyke et al., 1993a; Ysseldyke et al., 1993b). Yet, the outcomes of children's development identified by the Goal 1 Resource Group can be (and, we argue, should be) applied validly from an idiographic perspective. Although aggregation of individual child data remains an important goal to evaluate program effectiveness, ultimately it is the growth trajectory of each individual child who participates in educational systems that will drive "improved services" and should be the primary focus of our accountability systems.

The general growth outcomes selected and tested in this report represent an effort to develop a manageable yet comprehensive number of long-term objectives that lend them-

selves to repeated measurement of a young child's growing functional skills. If we can craft and demonstrate the empirical validity of a set of measures to assess individual children's developmental progress toward these outcomes, we will be better able to evaluate how groups of young children are "ready" to meet the challenges of future transitions. We will also be better able to predict which individual children might benefit from timely intervention to boost developmental trajectories and maintain growth toward optimal outcomes.

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