

DIFFERENTIATING AMONG MEASURES OF QUALITY:

*Key Characteristics and
Their Coverage in Existing Measures*



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Differentiating Among Measures of Quality: Key Characteristics and Their Coverage in Existing Measures

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This Research-to-Policy, Research to-Practice brief series focuses on issues related to the development and refinement of measures to assess the quality of early childhood settings. The views represented in this brief do not necessarily reflect the opinions of the Office of Planning, Research and Evaluation of the Administration for Children and Families.

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OVERVIEW. With growing policy interest in improving access to high quality child care there is a need to operationalize the basic characteristics of quality irrespective of setting. This Brief discusses key characteristics that differentiate measures of quality, and the extent to which measures that vary on these characteristics predict child outcomes. Quality is examined in terms of structural aspects including setting and classroom features and in terms of process such as how the caregiver interacts with the children. Characteristics that have shown to more strongly predict child outcomes include observations of caregiver interactions as opposed to classroom and teacher background variables, observations of caregiver sensitivity, and observations of the quality of instruction, especially when they are content-specific.

Children who attend higher quality child care are more likely to start school with better cognitive, academic, and social skills (c.f., Lamb, 1998; NICHD ECCRN, 2006; Vandell, 2004). Accordingly, improving access to high quality of child care is the goal of policies designed to increase school readiness of all children, especially for children from low-income families (Barnett, Hustedt, Hawkinson, & Robin, 2007). However, close examination of the extensive research literature indicates that there are multiple characteristics to consider when assessing child care quality and these characteristics predict child outcomes differently.

Child care quality measures vary along a number of characteristics. Bryant (2010, this series) and Goodson and Layzer (2010, this series) consider issues in the measurement of quality that are specific to center based settings and home based settings, respectively. Here we ask: what are the basic characteristics of quality irrespective of setting? The goal is to summarize the research literature relating selected characteristics of child care quality to child outcomes. We begin by noting four key ways in which measures of quality can be differentiated. We then summarize how existing measures address key facets of quality, and the evidence on the relationships between the key characteristics and child outcomes.



Differentiating Among Measures of Quality

Structural and Process Measures

The first facet reflects whether the instrument measures key aspects of the classroom setting or caregiver background (i.e., structural quality) or aspects describing how the caregiver interacts with children (i.e., process quality). “Structural” variables include classroom characteristics such as the ages of children served, group size, child-adult ratio, the health and safety of the environment and caregiver background characteristics such as education and training (Lamb, 1998). These characteristics are thought to promote the likelihood that caregivers will provide high quality care to individual children, but are indirect assessments of quality (Vandell, 2004). In contrast, “process” measures reflect the child’s experiences in the child care setting. Typically these measures reflect caregiver sensitivity and responsiveness, instruction, and classroom management and can assess the activities available to children.

Classroom and Caregiver Background Measures

These structural measures are included in licensing criteria or quality rating systems because they are thought to have predicted process quality (Zaslow, Tout & Martinez-Beck, 2010, this series). Child-caregiver ratios and caregiver education are the most widely studied structural measures. Child-caregiver ratios showed modest, but significant, prediction of child outcomes in all large child care studies (Howes, 1997; NICHD ECCRN, 1999, 2000b; Phillipsen, Burchinal, Howes, & Cryer, 1997; Pianta et al., 2005) and predict caregiver sensitivity in two major child care studies (NICHD ECCRN, 2002; Phillipsen, et al., 1997). Caregiver education appears to be a stronger predictor of observed quality and child outcomes in home-based care (Burchinal, Howes, & Kontos, 2002; Clarke-Stewart, Vandell, Burchinal, O'Brien, & McCartney, 2002) and a modest to moderate predictor in center-based care (Lamb, 1998; NICHD ECCRN, 2000a, Phillipsen et al., 1997). However, recent research indicated that caregiver education modestly predicted better outcomes in community child care, but was not related to either observed quality or child outcomes in Head Start or pre-kindergartens in seven large studies of preschool center-based care (Early et al., 2007). Vu and colleagues (2008) suggest this could be due to greater levels of supports, supervision and monitoring in publicly funded than in community settings, therefore making caregiver education relatively less important in public programs.



Other caregiver characteristics showed a mixed pattern of association with child outcomes. Better child outcomes have been related to caregiver training in some studies (Burchinal, Cryer, Clifford, & Howes, 2002; Clarke-Stewart et al., 2002; Howes, 1997; NICHD ECCRN, 1999) and in a recent meta-analysis (Fukkink & Lont, 2007), but training was not related to observed quality in at least two large studies (Phillipsen et al., 1997; Pianta et al., 2005). Years of prior experience working with young children was positively related to observed quality in two studies of pre-kindergarten (Phillips,

Gormley & Lowenstein, 2009; Pianta et al., 2005), but negatively related in a study of community child care (Phillipsen et al., 1997). Wages and turnover predict process quality, but not child outcomes, in a few studies (Helburn, 1995; Howes, 1997; Pianta et al., 2005).

In summary, only a few classroom and caregiver background characteristics show consistent modest associations with child outcomes, and these associations are believed to be through their impact on process quality measures.

Observed quality measures. Most child care quality instruments describe “process quality” by quantifying the aspects of child care believed to promote child development directly; both physical features of the environment, and interactions between caregivers/educators and children. Typically, these instruments entail observations of the child care setting to determine the extent to which the caregiver is providing the children with the kinds of experiences thought to enhance young children’s development. Data collection typically involves having a trained rater code record time spent in varying types of activities or interactions or rate the overall quantity and quality of the activities and the caregiver’s interactions with the children. Not surprisingly, it is more difficult to measure process quality accurately than structural quality. The subsequent discussion focuses on different characteristics of measures of process quality.

Age and Type of Setting

Perhaps the most distinguishing characteristics of observed quality measures relate to the specific ages of the children in the setting and the type of setting (Bryant, 2010, this series and Goodson & Layzer, 2010, this series). Assessment tools tend to be age and setting specific, but at least two instruments can be used across age and setting -the Observational Record of the Caregiving Environment (ORCE) (NICHD ECCRN, 2003) and the Caregiver Interaction Scale (CIS) (Arnett, 1989). Other widely used rating scales have different systems depending on age and setting as discussed in more detail by Bryant (2010, this series).

Observing All Children or One Child in Process Measures

A third characteristic of quality assessment reflects whether the quality assessment describes the child care setting in general or as experienced by a specific child. Most child care quality assessments focus on the types of activities available to and the caregiver's interactions with all children in her care. Widely used measures that focus on the caregiver in relation to all of the children she is caring for and educating include: Caregiver Interaction Scale (CIS) (Arnett, 1989); Early Childhood Environment Rating Scale-Revised (ECERS-R) (Harms, Clifford, & Cryer, 1998); Infant-Toddler Environment Rating Scale (ITERS) (Harms, Cryer & Clifford, 1990); Family Day Care Environment Rating Scale (FDCRS) (Harms & Clifford, 1989); Classroom Assessment Scoring System (CLASS) (La Paro, Pianta, & Stuhlman, 2006); and the Early Language and Literacy Classroom Observation (ELLCO) (Smith & Dickinson, 2003). The data collector rates the classroom environment and the caregiver as she interacts with any child in the classroom.

In contrast, other measures focus on the experiences of the individual child based on the belief that two children in the same classroom might have very different experiences. The ORCE and Emerging Academic Snapshot (EA Snapshot) (Ritchie, Howes, Kraft-Sayre, & Weiser, 2001) describe the experiences of individual children with individual care providers. Two measures, the ORCE at 54 months and CLASS, can include observations of the level of the child and the classroom.

It is not clear whether focusing on the caregiver's interactions with all children or with a specific child provides better measurement of the quality of child care experiences because only a few studies included both types of measures. At least one study suggested that both levels of observation are related to children's outcomes (Howes et al., 2008). The purpose for measurement should be considered when selecting the level of measurement. Measures that observe the lead caregiver as she interacts with the whole class should be selected when the goal is to provide an overall summary of quality for the classroom (e.g., for licensing or program evaluation). In contrast, observations at the child may be helpful when the goal is to relate early care and education to a particular child's development and there is considerable variability among children in care quality.

Conceptual Framework

Another characteristic of quality assessments relates to the theory of child development used in developing that instrument. None of the instruments is based solely on a single conceptual framework, but the focus of the various instruments tends to vary in line with these frameworks. The environment rating scales developed by Harms and colleagues (e.g., ECERS-R) reflect a belief that children learn best when allowed to explore an environment with a variety of age-appropriate activities that stimulate creative play as well as academic learning (Piaget, 1970) and that caregivers should scaffold these interactions with sensitive and responsive caregiving (Vygotsky, 1935). These rating scales focus on the extent to which children are offered a variety of age-appropriate activities and caregivers scaffold interactions to facilitate learning. A general belief that children learn from individual and small group activities is reflected in the scoring in that it is almost impossible to obtain high quality scores when programs spend a substantial amount of time in large group activities.

Overall, the scores from these measures have been modestly to moderately related to language and social skills across a large number of studies (c.f. Vandell, 2004).

The teacher-child interaction portion of the Snapshot and the qualitative ratings on the ORCE were developed for projects designed to study the impact of child care experience on an infant's attachment to adults based, in part, on Attachment Theory (Ainsworth, Bell, & Stayton, 1974). These instruments measure the extent to which caregivers create a secure base for the child by showing positive affect toward the child and being responsive and sensitive in interactions with the child, but they both also include other aspects of care such as the amount to which the caregiver talks to the child (ORCE) and the amount of time children spend in various academic activities (EA Snapshot). Like the Vygotskyian-based measures of caregiver sensitivity, these measures of caregiver sensitivity tend to focus on caregiver affect and responsiveness and have been consistent modest to moderate positive predictors of children's language development (Howes et al., 2008; NICHD ECCRN, 2000b; 2006) and inconsistent modest predictors of children's social skills (NICHD ECCRN, 1998; 2006).

In contrast to these measures that largely focus on the responsiveness and sensitivity of the caregiver, newer measures focus in greater detail on the quality of the instruction and classroom management. The CLASS added ratings of the quality of instruction and classroom management to ratings of caregiver responsiveness and sensitivity. One study relying on this measure (Burchinal et al., 2008; Howes et al., 2008; Mashburn et al., 2008) reported that both measures of sensitivity and instruction modestly predicted child gains in pre-kindergarten programs, but that quality of instruction was a more consistent predictor of language and literacy outcomes than caregiver responsiveness and sensitivity.



Global or Content Specific Measures

A fourth characteristic reflects the extent to which instruments measure quality globally or within a specific content area. As described by Bryant (2010, this series), the growing focus on academic achievement in pre-kindergarten and Head Start programs has resulted in the development of programs designed to improve literacy and numeracy. These programs often rely on assessment tools designed to describe the quality of instruction in specifically defined academic content areas. These targeted and content specific measures often show a stronger association with child outcomes in the particular area they are targeting than do the global measures for math outcomes (Sarama & Clements, 2004) and language and

literacy outcomes (Dickinson & Smith, 1994; Dickinson & Tabors, 2001; Jackson et al., 2007). In all of these studies, careful measurement of specific instructional activities was critical in establishing how early academic interventions or curricula appeared to improve children's academic skills through specific hypothesized changes in instruction. Accordingly, the combined use of both the specific and global quality measures has proved useful in large scale evaluations (Howes et al., 2008; Jackson et al., 2007).

Summary

Measures designed to assess child care quality vary in terms of many characteristics, some of which also relate to their ability to predict child outcomes. Evidence suggests that observations of the caregiving environment tend to provide better prediction of child outcomes than do classroom or caregiver background characteristics. Among measures of the caregiving environment, the instruments vary in terms of whether they focus on the whole classroom or experiences of a target child, whether they focus primarily on caregiver sensitivity or also include separate assessments of quality of instruction, and whether they assess quality globally or within specific content areas. The widely used measures often include a combination of these factors. For example, some measures of quality focus only on classroom characteristics such as health and safety, others focus on a single aspect of the caregiver-child interactions (e.g., CIS), but most include combinations of multiple aspects of the caregiving environment (e.g., CLASS measures both caregiver sensitivity and quality of instruction at the global level) and/or combinations of assessments of the whole caregiving environment and individual children (e.g., ORCE at 54 months includes both classroom level and individual child level ratings). It is clear that selection of the most appropriate measure depends on the alignment between characteristics of the instrument and the purpose for which the instrument is being selected.

Coverage of Different Characteristics of Quality in Existing Measures

The different characteristics of quality described above have been covered to differing degrees in available research.

Characteristics That Are Well Covered in Existing Measures

Not surprisingly, structural measures are relatively easy to measure with accuracy because they entail collecting self-report data or more recently, using data on professional development collected and verified on an ongoing basis by state early childhood professional development registries (National Registry Alliance, 2006). However, these measures of the caregiving context and caregiver background provide indirect, not direct, quality indicators and are not as strongly linked to child outcomes as are measures that involve observing how the caregiver is interacting with the children in child care context, as discussed above.

Widely used measures designed to observe the quality of the caregiving environment and of caregiver-child interactions have demonstrated good reliability and validity. All of these process quality measures have stringent training criteria (see Bryant, 2010, this series), resulting in reliable assessment. Extensive use of measures of caregiver sensitivity and responsiveness also demonstrate validity in terms of predicting child outcomes. Modest, but relatively consistent, associations have been found between the caregiver sensitivity scale or child care quality total scores and cognitive skills in most studies and social skills in some studies (c.f. Vandell, 2004).

Characteristics of Quality That Are Not Well-Covered in Existing Measures

In contrast, there are other characteristics of the child care experience that are widely believed to be important for young children's development that have not been measured well across studies. These include curriculum implementation, roles of peers and of assistant caregivers in the setting, and engagement of the child. It is widely believed that curricula matter, but prior work has not provided sufficient implementation data so it is difficult to draw conclusions from largely negative findings. There is evidence that the peers in the child care setting may impact learning as much as the caregiver (Henry & Rickman, 2006; McCartney, Burchinal, Bub, Clarke-Stewart & NICHD ECCRN, 2010) and inclusion of information on peers in future studies could make it possible to examine this issue further. The extent to which other children in the classroom setting

have behavior or learning problems or conversely are brighter and better behaved appears to predict target children's academic and social development (Henry & Rickman, 2006). Careful examination of the conditions under which peers positively or negatively influence development is needed. Similarly, it is clear that assistant teachers play an important role in child care centers. Most quality measures focus solely on the lead teacher. Only one measure, the ORCE, observe all caregivers, but to date the ORCE quality measures have been based only on ratings of the lead caregiver (NICHD ECCRN, 2006). Thus, much more research is needed to know the extent to which the interactions between assistant teachers and children have an impact on learning separate from that of the lead teacher. Further, these assistants are often playing a much more visible role with the huge increase in dual language learners in child care. They are often the only adults in the setting who speak the first language of the dual language learners (DLL). Much more work is needed to understand how to assess their impact on DLL children's development, especially when much of the academic instruction tends to be provided by the lead teacher.

Other areas that clearly need further work include ascertaining the adequacy of our quality measures for children from different cultures and for children in home-based care (see also Bryant, 2010, this series, and Goodson & Layzer, 2010, this series). Whether the existing quality measures are appropriate for children from different backgrounds has been debated, although global measures of child care quality have been shown to predict school readiness outcomes for children regardless of family income or ethnicity in two large studies (Burchinal & Cryer, 2003). Similarly, too little attention has been paid to measuring quality of home-based care despite the frequent use of this type of setting, especially for infants and toddlers (Goodson & Layzer, 2010, this series). Reassuring evidence indicates that child outcomes have been predicted modestly from the only across-setting quality measure, the ORCE, (Clarke-Stewart et al., 2002; NICHD ECCRN, 2003) and the only widely used setting-specific quality measure for home-based settings, the FDCRS (Kontos, Howes, Shinn & Galinsky, 1995).

Conclusion

In summary, children appear to benefit from high quality child care (Vandell, 2004), therefore developing highly reliable and valid quality measures is important. Currently, we have some reliable global measures that show modest associations with child outcomes and specific measures that show modest to moderate associations. Recent work suggests that associations may be stronger when quality focuses on specific content areas and the outcomes examined are closely aligned. This raises the important possibility that there is a need for further in-depth measures of specific facets of quality that may be important to development in particular domains.

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Zaslow, M., Tout, K. & Martinez-Beck, I. (2010). *Measuring the Quality of Early Care and Education Programs at the Intersection of Research, Policy and Practice*, OPRE Research-to-Policy, Research-to-Practice Brief OPRE 2011-10a, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Overview for OPRE Research Brief Series on Measuring Quality in Early Care and Education Settings

Measures to assess the quality of early care and education environments, originally developed as research tools and, in some cases, as guides for improving practice, now play a prominent role in the early childhood policy arena. Many states use information from on-site observations and environmental rating scales to make decisions about inclusion of programs in publicly funded initiatives and interventions, to target quality improvement dollars and to target incentives when programs meet higher quality standards. To date, the majority of states that have developed statewide Quality Rating Systems combine scores on observational measures of quality with other quality indicators to provide a rating that is available to the public. The intent is to provide better information to parents, and to provide a framework within which quality benchmarks, financial support, technical assistance, and monitoring create leverage for quality improvements in early care and education.

Yet the use of quality measures in “high-stakes” policy and programmatic decisions raises important new questions about their content, reliability, validity, and applicability with diverse populations across a broad range of settings. To address these questions, the Office of Planning, Research and Evaluation in the Administration for Children and Families of the U.S. Department of Health and Human Services and other federal partners convened a meeting of researchers, state policymakers, practitioners and other key stakeholders. The meeting provided a forum for analyzing current quality measures, engaging in critical discussion about the use of quality measures in the policy arena, and outlining the steps needed to improve measurement strategies.

The four coordinated research briefs in this series were developed based on presentations made at the meeting, with the intent of informing policymakers, researchers and practitioners about new developments in quality measurement being generated at the intersection of child development research and early childhood policy.

- The first paper (by Martha Zaslow, Kathryn Tout and Ivelisse Martinez-Beck) describes why and how quality measures are currently used in policy and practice contexts and the issues and concerns that arise as a result of this widespread use.
- The second paper (by Margaret Burchinal) reviews the literature on the dimensions of quality that have been measured in early care and education settings and identifies the quality dimensions that have received a more thorough treatment in the literature compared to those that have not been studied as extensively.
- The third and fourth papers review the quality measures that have been developed for use in center-based early care and education programs (paper by Donna Bryant) and home-based settings (paper by Barbara Goodson and Jean Layzer). In addition to highlighting the types of measures used, their psychometric properties, and their value in predicting child outcomes, the authors discuss the importance of the findings for policymakers and practitioners.

Overall, we hope that the four papers provide a useful review of the current state of the field of quality measurement and suggest important next steps that policymakers, researchers, and practitioners can take to assure the integrity of measurement strategies and the appropriate use of data on the quality of early care and education settings especially when measures are widely implemented in policy and practice initiatives.

Those interested in the issue of the measurement of quality in early childhood settings may also want to read these OPRE briefs:

Burchinal, P., Kainz, K., Cai, K., Tout, K., Zaslow, M., Martinez-Beck, I. & Rathgeb, C. (2009). *Early Care and Education Quality and Child Outcomes*, OPRE Research-to-Policy Brief. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

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