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Evaluating, Developing, and Enhancing Domain-Specific Measures of Child Care Quality

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Introduction

Measures of quality are now in widespread use across states as part of quality improvement initiatives. For example, many states are currently using global measures of quality that were first developed for research and practice purposes (such as the Environmental Rating Scales[1]) in their Quality Rating Systems (QRSs). Although global quality measures are widely used and applied in both the research and policy arenas, recent analyses indicate that the associations between global measures of quality and child outcomes are modest.[2] Findings suggest that existing measures of quality may not capture adequately those aspects of practice and children's experiences that are linked most closely to children's development. Indeed, measures of specific practices are found to be slightly better predictors of child outcomes than are global quality measures.[3]

The goal of this research brief is to explore areas for refining, extending, and developing measures of quality for early childhood education and school-age care settings. We will focus on identifying the practices and aspects of the environment that support specific domains of children's school readiness (language and literacy; math, science, and general cognitive development; social emotional development; and health, safety, and nutrition), as well as two specific contexts of development (families and culture).

It is of critical importance that, as new measures are developed, adequate attention is paid to their applicability across settings, age groups, and diverse demographic backgrounds. Specifically, measures must be developmentally appropriate[4] and applicable among children with special needs, such as children with disabilities or children with limited English proficiency. Where possible, we highlight aspects of quality within domains that accommodate variations of setting, age, race/ethnicity, ability, and linguistic and cultural diversity.

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Areas for Refinement, Extension, and Development

Language and Literacy

Multiple components of children's language and literacy should be addressed in quality assessments of early care and education settings due to their association with children's literacy and later cognitive achievement. These components include: oral language, letter/word knowledge, phonological awareness/phonemic awareness, general/world knowledge, and early writing.[5] Environmental supports that have been shown to foster the development of these outcomes include using a curriculum and conceptually based instruction, regular interactive book reading, teachers' substantive verbal interactions with children throughout the day, small group and one-on-one interactions, play, explicit instruction in letters, environmental and instructional supports for writing, attention to phonological awareness, and parent involvement.[6] Measures have been developed that assess support of the components of language and literacy skills listed above, and validity and reliability have been established for many of the measures in the field. These instruments are applicable across early/school-age care settings (for example, in both center-based and home-based settings). However, there is not a single measurement tool that adequately assesses support of all five components of children's language and literacy development identified above. Additionally, few tools have been used to measure the quality of language and literacy input to children under age 2, and most do not address the earliest signs of communication including gestures, shared attention, and reciprocal verbalizations.[7] Finally, concerns remain about the appropriateness of existing measures for diverse cultural groups and their ability to accurately measure supports needed by English language learners.[8]

Math, Science, and General Cognition

There are multiple components of "general cognition," including attention, memory, problem solving, executive function or self-regulation, flexibility of thinking, creativity, and curiosity.[9] Exposure to learning materials and a variety of instructional approaches, along with opportunities for self-directed activities, are important components of developing math and science knowledge in young children.[10] Mathematics knowledge and skills are fostered when environments provide opportunities to engage in manipulating materials that will expose children to numbers, spatial relations, measurement, classification, and patterning.[11] Scientific knowledge and skills will be fostered in environments that encourage observation of the natural environment, inquiry or investigation, exploration, prediction, and testing of hypotheses. Although measurement of math, science, and general cognition is less developed compared to other domains, acknowledgement of the need to measure environmental supports for development in this domain is growing in the field. The tools that are available for measuring environmental supports for math and science development have a number of limitations, including the lack of psychometric testing for established measures, the prevalence of curriculum-specific measures, the lack of literature on the link between math/science/general cognition interventions and child outcomes, and the prevalence of floor effects[12] for observational measures (because many teachers do not incorporate math and science lessons or activities into their day). A number of empirical issues must be resolved before further developing and refining math and science quality measures, including: whether it is appropriate to include teaching materials in the assessment of math/science quality or to assess the environment as it occurs naturally; what aspects of teacher-child interaction and explicit instruction should be assessed; how often, in what context, when, and how assessments of the environment should be conducted; how teacher knowledge should be assessed; at what age it is appropriate to start assessing math/science knowledge in young children; and what predictive power early math and science knowledge has on future child outcomes.

Social and Emotional Development

Constructs for measuring children's social and emotional competence include: approaches to learning and academic regulation, emotional competence, social competence, and maladaptive behaviors.[13] Specific measures could be used to capture these constructs, teacher/classroom processes, and aspects of the environmental context that affect social and emotional development. Two strengths that have been identified in the measurement of children's social and emotional development are the emerging body of descriptive and intervention research and the strong starting point provided by existing measures. Current limitations include difficulties in determining the unit of analysis and format of measures, lack of agreement regarding the appropriate frequency and timing for assessments of environmental supports for children's early social and emotional development, changes in the underlying construct being measured commensurate with the child's age, and a lack of measures appropriate to use during important non-academic activities such as recess.

Health, Safety, and Nutrition

Five key constructs have been identified that need to be addressed to measure features of the environment that are important to the health of children in early care and education settings: environmental features and practices that support physical health, physical activity, nutrition, oral health, and socio-emotional health. The main strength of current assessments of health, safety, and nutrition are that checklists have been developed to guide health, safety, and nutrition practices. Limitations in assessing environmental supports in this domain include resolving issues around the use of scales as opposed to indices and the necessity of large samples for identifying associations between practices and outcomes that occur rarely (such as accidents and injuries). Additionally, new measures must be developed that address and integrate important health behaviors, such as physical activity and nutrition.

Families

Currently, the family context and relationships between families and early care and education providers play only a small role in existing measures of quality. There is a need to focus in greater depth on family-provider relationships as an aspect of early care and education quality. Constructs of interest for measurement in this domain include parent involvement, the quality of the parent-provider relationship, and outreach to parents. Strengths of the field in measuring this domain are the inclusion of parent involvement in existing QRSs and existing literature on family involvement among school-aged children.[14] Limitations include a dearth of research linking family involvement and child outcomes in early childhood, and heavy reliance on parent or teacher/provider report data as opposed to observational data. Work on this topic is ongoing and includes developing a conceptual model that incorporates family relationships with the provider and the child into the measurement of quality in early care and education settings, and linking this aspect of quality to child and family outcomes.[15]

Culture

There is growing recognition of the need to develop and expand measures in the area of cultural competence as a facet of quality in early care and education.[16] Cultural awareness, ethnic and racial socialization strategies, and culturally responsive pedagogy are constructs that have been identified as necessary to the measurement of quality environments and practices involving culture.[17] Global characteristics of child care quality, such as provider-child interactions, appropriate responsiveness, authentic knowledge about families, capacity to support multiple cultures, and characteristics of the caregiving environment, are important to assess regardless of culture. Measurement strategies and procedures are needed to ensure that these characteristics are assessed in a culturally responsive manner. Modifications of existing measures are currently underway with this goal in mind. Although some research has been done on complex cultural issues, the field lacks information on cultural topics and very few measures address the relevant constructs. There is a need to refine the constructs in this domain, integrate cultural components within other domains of child care quality, and improve the reliability and validity of measures of child outcomes by considering issues of cultural and linguistic diversity.

Conclusion

With measures of quality so prevalent in state-level quality initiatives, it is important that research inform policy makers' decisions about the most appropriate tools, bearing in mind that these tools must align with states' goals for quality improvement and efforts to promote children's school readiness. Although both basic research and intervention studies provide evidence for relationships between specific features of the care environment and improvements in domain-specific child outcomes, existing measurement tools could be strengthened to adequately capture these domain-specific aspects of the environment. The field needs to develop new--and enhance existing--domain-specific measures of quality care and education environments for young children. In particular, we need measures that are developmentally appropriate for the full range of ages, settings, cultures, languages, and ability levels.

Next Steps

Next steps in the development of domain-specific measures of quality in early childhood settings include:

- Developing or refining measures that are specific to certain domains and strongly associated with positive child outcomes
- Developing or refining measures so they function equally well across settings, with children of different ages and linguistic and cultural backgrounds, and with children who have a disability

- Taking into account ease of administration and cost of training to attain reliability in the development and refinement of measures
- Developing additional measures that assess fidelity of curriculum implementation and that take into account developmentally appropriate practices including balancing instruction with children's choice of activities and active engagement, transitions, classroom management, and nap and snack time
- Embarking on new research and experimentation on item-level analysis and psychometric properties[18]
- Aligning measures with professional development
- Examining the integration of domain-specific measures within QRSs, including a consideration of time and resource burdens and the possibility of combining domain-specific measures with global measures of quality

1 See, for example, Harms, T., Clifford, R. M., & Cryer, D. (2005). *Early Childhood Environment Rating Scale* (Rev. ed.). New York: Teachers College Press.

2 Burchinal, P., Kainz, K., Cai, K., Tout, K., Zaslow, M., Martinez-Beck, I., & Rathgeb, C. (2009). *Early care and education quality and child outcomes.* Research-to-Policy, Research-to-Practice Brief. Washington, DC: Child Trends.

3 See endnote 2.

4 Copple, C., & Bredekamp, S. (Eds.) (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). Washington, DC: National Association for the Education of Young Children.

5 For definitions of terms in this sentence, see Dickinson, D., & Neuman, S. B. (2006). *Handbook of early literacy research: Volume II.* New York: Guilford Press.

6 Halle, T., Calkins, J., Berry, D., & Johnson, R. (2003) *Promoting language and literacy in early childhood care and education settings.* Washington, DC: Child Trends; Neuman, S. B., Copple, C., & Bredekamp, S. (2000). *Learning to read and write: Developmentally appropriate practice.* Washington, DC: National Association for the Education of Young Children.

7 For more information on infant communication, see Adamson, L. B. (1996). *Communication development during infancy.* Boulder, CO: Westview Press.

8 For more information on cultural competence, see Ray, A. & Bowman, B. (2003). *Learning multicultural competence: Developing early childhood practitioners' effectiveness in working with children from culturally diverse communities.* Final report to the A. L. Mailman Family Foundation, Initiative on Race, Class, and Culture in Early Childhood. Chicago: Erikson Institute. See also NAEYC's 1995 Position Statement, *Responding to linguistic and cultural diversity: Recommendations for effective early childhood education.* Available online at www.naeyc.org/about/positions/pdf/PSDIV98.pdf.

9 Hyson, M. (2008). *Enthusiastic and engaged learners: Approaches to learning in the early childhood classroom.* New York: Teachers College Press; Kagan, S. L., Moore, E., & Bredekamp, S. (1995). *Reconsidering children's early development and learning: Toward common views and vocabulary.* Washington, DC: Goal 1 Technical Planning Group, National Education Goals Panel; Liss, M., Fein, D., Allen, D., Dunn, M., Feinstein, C., Morris, R., et al. (2001). Executive functioning in high-functioning children with autism. *Journal of Child Psychology and Psychiatry*, 42(2), 261-270.

10 Ginsburg, H. P., & Amit, M. (2008). What is teaching mathematics to young children? A theoretical perspective and case study. *Journal of Applied Developmental Psychology, 29*(4), 274-285.

11 Clements, D. H., & Sarama, J. (2000). Standards for preschoolers. *Teaching Children Mathematics, 7*(1), 38-41.

12 A "floor effect" results when you do not observe any instances of the behavior or skill you are attempting to assess.

13 See endnote 9.

14 See, for example, Manz, P. H., Fantuzzo, J. W., & Power, T. J. (2004). Multidimensional assessment of family involvement among urban elementary students. *Journal of School Psychology, 42*(6), 461-475.

15 The conceptual model described will be available in a forthcoming chapter of a book summarizing information from the Roundtable on Developing the Next Wave of Quality Measures for Early Childhood and School-Age Programs, January 23-25, 2008, sponsored by the Office of Planning, Research, and Evaluation. A summary of this meeting will be available on the Early Care and Education Research Connections website, http://www.researchconnections.org.

16 See endnote 8.

17 For definitions of terms in this sentence, see Cruz, B. C., & Patterson, J. M. (2005). Cross-cultural simulations in teacher education: Developing empathy and understanding. *Multicultural Perspectives, 7*(2), 40-47; Hollins, E. R., King, J. E., & Haymon, W. C. (Eds.) (1994). *Teaching diverse populations: Formulating a knowledge base.* Buffalo, NY: State University of New York Press; Ware, F. (2006). Warm demander pedagogy: Culturally responsive teaching that supports a culture of achievement for African American students. Urban Education, 41(4), 427-456.

18 For more details, see Burchinal, P., Kainz, K., Cai, K., Tout, K., Zaslow, M., Martinez-Beck, I., & Rathgeb, C. (2009). *Early Care and Education Quality and Child Outcomes.* Research-to-Policy, Research-to-Practice Brief. Washington, DC: Child Trends.

The information contained in this brief is based on the input of national experts who participated in the Developing the Next Wave of Quality Measures for Early Childhood and School-Age Programs *meeting that was held January 23-25, 2008, in Washington, DC. A summary of this meeting will be available on the Child Care and Early Education Research Connections website,* **http://www.childcareresearch.org**.