Kindergarten Assessment Summary Report[1]

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1. Current state of the field

Each year, many young children transition from preschool to a more structured kindergarten environment. Moreover, for many children in Oregon, kindergarten will be their first experience in any organized group or educational setting. Although most children navigate this transition without difficulty, it can be challenging for those entering kindergarten without the skills they need to succeed. Although definitions vary, many educators and researchers consider school readiness to include aspects of social competence, self-regulation, early literacy and math skills, physical development and heath, and cognitive and general knowledge skills (Snow, 2006, 2011). Recent efforts from a variety of disciplines have focused on how to assess these skills in young children in reliable and valid ways, and which content areas best predict later school success (McClelland & Cameron, 2012).

A central challenge has been the uncertainty and debate over what aspects of school readiness are most predictive of later success. A growing body of research has now documented that aspects of early achievement (early literacy and math skills) (Duncan et al., 2007), self-regulation (including attention, working memory, and inhibitory control) (McClelland, Acock, Piccinin, Rhea, & Stallings, 2012; McClelland et al., 2007), social competence (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger,

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2011), and cognitive skills (including general knowledge and fine motor skills) (Grissmer, Grimm, Aiyer, Murrah, & Steele, 2010; McClelland, Acock, & Morrison, 2006) significantly predict concurrent and later achievement in children.

Moreover, research supports these predictive relations after controlling for important demographic characteristics such as child IQ, gender, age, ethnicity, and parent education level. In particular, children's early self-regulation (including the ability to pay attention, remember instructions and demonstrate self-control) has predicted concurrent and later achievement in children. In one recent study, a child with high ratings of self-regulation at age 4 had 49% higher odds of completing college by age 25 (McClelland et al., 2012). Other research has documented the importance of early math and reading skills for later achievement. In one study, early math was a stronger predictor of later reading and math skills than was early reading (Duncan et al., 2007). Together, this research suggests that it is important to assess the most predictive aspects of school readiness in reliable and valid ways that are also practical and easily-administered.

The ability of parents, teachers, and policy-makers to support children's behavior as they enter kindergarten has also been stymied because few appropriate, ecologically valid, and predictive measures of school readiness exist for children transitioning to school (Blair, Zelazo, & Greenberg, 2005; Smith-Donald, Raver, Hayes, & Richardson, 2007). Examples of measures include teacher or parent reports of behavior and individual assessments; many have been designed for the laboratory or clinical populations, or exist within longer batteries that are impractical to incorporate in school-based research (Fahie & Symons, 2003; Pickering & Gathercole, 2004). Further, few

assessments have been developed with multiple language populations (i.e., English- and Spanish-speaking children). Assessments that are commercially available often lack strong psychometric properties including evidence of predictive validity to later outcomes.

There have, however, been a number of recent advances in measuring school readiness. For example, teacher and parent ratings and a direct measure of self-regulation have been found to significantly predict achievement gains in children in early elementary school (McClelland et al., 2006; McClelland et al., 2007) and into adulthood (Moffitt et al., 2011). Research continues in other domains including early reading and math skills (EasyCBM)(Lai et al., 2010). It is clear that measuring school readiness is a topic of considerable attention and it is likely that additional measurement advances will occur over the next few years. Thus, existing measurements may be supplemented or replaced by better measures in the near future.

The importance of school readiness is underscored by research finding that children from disadvantaged ethnic and socio-economic backgrounds are at particularly high risk for entering school behind their peers, due in part to the stresses of having low family income and low parent education levels (Connell & Prinz, 2002; Dearing, Berry, & Zaslow, 2006; Evans & Rosenbaum, 2008; Howse, Lange, Farran, & Boyles, 2003). For example, one study found that children who were low-income English-language learners entered prekindergarten significantly behind their peers on self-regulation and academic achievement and were not able to catch up to their peers on either factor by the end of kindergarten (Wanless, McClelland, Tominey, & Acock, 2011) or elementary school (Han, 2012). Thus, supporting these skills in children at-risk is of particular importance.

2. Importance of using instruments for their intended purpose.

Early childhood assessment instruments are developed for a specific purpose—to answer questions about certain aspects of children's development or skills (McLean, Wolery, & Bailey, 2004). For example, screening instruments are brief, economical measures meant to be given to large populations of children to ascertain whether skills are on target or if a more in depth evaluation is needed. (Squires & Bricker, 2007). Screening instruments should not be used for purposes other than this dichotomous sorting into two categories: child is in need of further evaluation, child appears to be typically developing and does not need further evaluation(Squires, Bricker, Twombly, & Potter, 2009). Along these lines, intelligence tests are not usually helpful for determining appropriate classroom activities or curriculum; diagnostic math tests do not help monitor child progress on a math curriculum.

Kindergarten readiness assessments are often developed with broader purposes in mind, but in general are administered to kindergarten children entering the school system for the first time to ascertain whether they are *ready to learn.* That is, readiness assessments measure how likely children are to succeed and whether they will need some form of extra support to perform alongside their peers (National Research Council & National Academies, 2008). Like screening instruments, they should be brief, psychometrically sound, easy to administer, and provide useful information for teachers (National Research Council & National Academies, 2008). Contrary to screening instruments, they should give teachers in-depth, practical information on abilities that children need for classroom learning. For example, the readiness tests DIBELS is focused on early literacy and provides information on skills critical for reading; the Child

Behavior Rating Scale (CBRS) is focused on behavioral self-regulatory skills such as following directions and completing tasks. Other assessments were developed with multiple purposes so that they can provide information for both readiness at the beginning of the school year and on-going evaluation such as progress towards curriculum goals. For example, portfolio sampling tests (e.g., Teaching Strategies Gold, Work Sampling System) were developed to be used for evaluation of children's skills, monitoring their progress towards goals, and achievement towards district standards. These often present more challenges in administration due to more intensive administration requirements such as data collection over several weeks and the multiplicity of interpreting results.

3. What is important? (i.e., predictability)

Oregon is searching for a kindergarten readiness assessment that will 1) identify the kindergarten population as "ready to learn," 2) measure whether readiness improves or declines over time, and 3) identify areas or domains of readiness that Oregon must target. Psychometric integrity including validity and reliability forms the basic structure for determining important components to consider. Tests must measure what they purport to measure and do it in a consistent manner, regardless of children's characteristics such as ethnicity, locale, family income, or gender.

Predictive validity is also important because a central aim of school readiness assessments is to assess skills at kindergarten entry that significantly predict third grade reading and math skills. As noted above, a number of the content areas of school readiness have been shown to predict later academic achievement. In particular, early reading and math and self-regulation are strong predictors of later reading and math

skills (Duncan et al., 2007; McClelland et al., 2006). Thus, it is critical that any kindergarten readiness assessment demonstrate predictive validity to later reading and math achievement.

4. Recommendations

After a detailed review of available kindergarten readiness assessments, it is our recommendation that Oregon pilot a composite assessment that measures what we believe are critical kindergarten readiness skills—early reading, early math, self-regulation, social competence, and cognitive development. Due to the flux in the school readiness arena, we feel that investing in a published assessment package at the current time is unwise. By choosing separate, well-established measures that best tap these readiness skills and are easy to administer, we believe that the purposes of the kindergarten readiness assessment will be fulfilled and that teachers will be more likely to complete the measures in a reliable manner. In addition, we believe that the information gathered from these measures will provide teachers, administrators, and parents with critical information that will improve the outcomes of young children in kindergarten and beyond.

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