2009

The Use of the Child Observation Record as a tool for predicting early literacy skills in preschool children

Christopher R. Singer

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The Use of the Child Observation Record as a Tool for Predicting Early Literacy Skills in Preschool Children

Christopher R. Singer

Rochester Institute of Technology

College of Liberal Arts

Department of School Psychology

September, 2009

Dr. Susan B. Graney, Thesis Advisor

Dr. Vincent Pandolfi, Committee Memeber

ABSTRACT

Reading is an important part of a child's schooling. Identifying students with literacy difficulties early in the academic process can provide them with early intervention services to keep them from falling behind. The use of an observational assessment when dealing with preschoolers can yield vital information to help identify children who may be at risk for developing reading difficulties. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002) is a standardized assessment currently used to identify and evaluate students' reading abilities. The Child Observation Record (COR; High/Scope, 1992) is a preschool assessment tool used to assess school readiness skills in children. This research seeks to extend the work of Sekino & Fantuzzo (2005) by exploring the correlation between the COR and DIBELS Letter Naming Fluency (LNF) and Oral Reading Fluency (ORF). Participants in the study consisted of 299 students given these assessments in their schooling. Bivariate correlations and linear regressions were used to examine the relationship between the four COR dimensions and the DIBELS LNF and ORF first grade scores.

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STATEMENT OF THE PROBLEM

The number of functionally illiterate adults is estimated to be increasing by approximately 2,250,000 people each year (The National Right to Read Foundation, NRRF; 1996). This statistic includes people who drop out of school before graduation, legal immigrants, refugees, illegal immigrants, and high school graduates. Many students are graduating high school at a functionally illiterate level. Illiteracy is not a problem America should have to face as one of the most affluent and technologically advanced nations on the planet.

The role of schools is to teach children the skills necessary to become productive members of society. Reading is at the base of these skills and is an important part of daily living. The early success of children in school can be related to their readiness in learning to read. The National Center for Education Statistics (NCES; 2002) found that children who recognize letters and whose caregivers read to them at least three times a week demonstrated significantly higher reading knowledge and skills than their peers. They were, in effect, more ready to learn to read and more ready for school than their peers. This school readiness can result in better school performance, and yet, it is not the only means to predict success in this area.

School ready behaviors such as following directions, sustaining attention, participating in groups, having well developed processing abilities, and showing

motivation are all necessary conditions for learning to read (Kamps et al. 2003). Students who possess these aforementioned skills are better able to function in the classroom resulting in higher achievement in learning. But possessing these skills is not the only precursor to literacy development. Research has shown that pre-literacy knowledge and exposure to environments which provide access to literacy are correlated with literacy outcomes. Children who are read to or have books readily available perform better on tasks related to literacy (Oliver, Dale, & Plomin, 2005). Students who were exposed to literary rich environments and had pre-literacy knowledge scored higher on early literacy experience measures and pre-literacy knowledge measures. They were also rated higher on teacher assessments of reading and writing than peers who were not exposed to such benefits.

This effect of environment on literacy illustrates the importance of measuring non-cognitive, environmental components of literacy such as experience and exposure (Oliver, Dale, & Plomin, 2005). However, if the influence of the environment is to be taken into account, then not only must the positive effects of environment be examined, but also the negative aspects. Students may display academic risk in failing to acquire basic academic skills, and behavioral risks in exhibiting disruptive and challenging behaviors. Early behavioral difficulties alone are not as powerful as academic risk in predicting poor literacy outcomes. Children identified as having both academic and behavioral risk have the greatest difficulty in becoming proficient readers as compared to students with only academic or behavioral risk. When both factors are present, the child is at an even greater risk of poor literacy development (Kamps et al., 2003). Students in

kindergarten through second grade identified in preschool as having either academic or behavioral risk factors scored lower on oral reading measures when compared to same-grade peers. Early identification and intervention should take place as soon as possible in order to mitigate against the delays associated with academic and behavioral risks; and the earlier the intervention, the better.

Early intervention is a broad term that encompasses all activities designed to augment a young child's development. When provided services under the umbrella of early intervention many students substantially improve their intellectual performance and academic achievement. Early intervention has been found to be essential in enhancing the intellectual development of those children who do not receive adequate stimulation from their home environment in the early years of life. Providing literary stimulation at school, which may be lacking at home, can aid in children's reading development. The more actively a student participates in an intensive early intervention program, the more developmental improvements have been observed. The earlier these interventions are implemented and the longer they are continued, the greater the benefits associated with them (Ramey & Ramey, 1994; Ramey & Ramey, 1998).

If a preschool child who is at risk for developing reading difficulties can be identified early in his or her academic career, then later literacy difficulties may be avoided. For example, children living in impoverished conditions had long lasting improvements in their cognitive performance after they experienced an early intervention program, when compared to children receiving the intervention later in life (Campbell & Ramey, 1994). Children who participated during their preschool years in a special

curriculum designed to enhance cognitive, language, perceptual-motor, and social development reaped more short and long-term benefits than those who participated after beginning school. These early intervention students maintained a cognitive advantage through age 12 over those who had not received early intervention services, at which point the school age control group, who did not receive extra services, caught up to the intervention group.

Similar results have been found regarding early intervention techniques and literacy development. Just a few hours per week of intervention services emphasizing reading strategies, sound-symbol relationships, and independent activities such as cooperative story writing and journal writing produced long-term positive changes in students' reading and related linguistic skills (D'Anguilli & Siegel, 2005). Students at risk for developing reading difficulties benefited from the intervention services and increased their reading abilities.

Early intervention can help reduce educational delays and decrease the need for later special education classification for at-risk students. These early intervention procedures ideally would start with a comprehensive assessment of a child's strengths and needs in order to identify those students who need early intervention services. Students who are behind their peers in academic development may be at risk for future difficulties in school. Identifying these students early in their schooling can allow for the implementation of services to bring them up to grade level. The assessment process should include factors related to early literacy development and be sensitive to preschool children's special social and developmental characteristics. Yet young children's reading

skills are being measured improperly through the use of standardized tests which are not developmentally sensitive (Teale, Hiebert, & Chittenden, 1987). Children this young function differently than older children and adults on social, emotional, and cognitive levels. They are still in the process of learning and exploring their environments. They do not have fully developed social relationships and cannot be held accountable to the standards of older children, and assessments need to take these differences into account. Early literacy assessment based on a multi-method model would maximize information and determine which students need intervention.

Multi-method assessment is an important part of the early intervention process. This type of assessment includes standardized testing of students, as well as informal assessments such as observations, work samples, interviews of teachers and parents, and portfolios. Using a comprehensive, multi-method approach to assessing students can provide educational professionals with the information required to not only identify students in need, but measure the success of curriculum and instruction, and identify areas in need of improvement. According to the National Institution for Early Education Research (NIEER; 2004) the assessment of preschool children should yield four types of information, the first being the identification of students in need of services. Proper assessment would show which students are at risk for experiencing difficulties with learning to read. Second, the assessment data should be able to be used by teachers and instructors in order to help plan instruction to best aid the student's learning. It should be simple, informative, and applicable to the classroom. Third, the assessment process can help to identify areas in need of improvement not only for the student, but also for the

staff. This process can highlight specific areas of the curriculum in need of further development. Fourth, assessments can help to evaluate a program's effectiveness and whether or not it is meeting the needs of the children. It can serve as a "report card" for rating the staff and overall instructional program, as well as an indicator for when program changes are needed. This assessment is important in order to support young children who are at risk and to understand their developmental needs.

NIEER (2004) policy also states that when dealing with younger children the assessment process should be non-intrusive in order to accurately measure their development and behavior. Non-intrusive assessment does not interfere with the natural behaviors of a child and leads to a more honest and accurate conclusion as the child is in his or her natural environment. This can take place in everyday settings such as the classroom or playground and is ideally delivered by someone who is familiar with the child such as a teacher or other school professional who works with the student on a regular basis. These types of observations let children fully express themselves and show the observer what they are capable of doing. They are not limited to the boundaries of a standardized assessment. It allows for more freedom and can provide a great deal of information to the observer.

These standards are also supported by Haager and Windmueller (2001) and Coyne and Harn (2006) who further apply them to childhood and literacy assessment, respectively. Identification of students in need, guided planning, progress monitoring, and diagnosing areas in need of improvement are all qualities of an effective assessment. Combining these three sets of standards (Coyne and Harn's, 2006; Haager &

Windmueller, 2001; NIEER, 2004) into one set to be used for assessing early literacy skills provides us with the guidelines that need to be incorporated into one assessment which is shown to be both reliable and valid. If a student is identified by a reliable and valid tool, and the child is found to be at risk, then an intervention can be put into place.

One such measure of literacy skills is the Dynamic Indicators of Basic Early Literacy Skills (DIBELS, Good & Kaminski, 2002). DIBELS are a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through third grade. It is based on the measurement procedures of curriculum-based measurement and designed to be quick and efficient. The different parts of the system are designed to be short (one-minute) measures used to regularly monitor the development of early literacy and early reading skills including phonological awareness, alphabetic principle, accuracy and fluency with connected text, vocabulary, and comprehension.

The system is designed to measure students' abilities in five essential reading skills (phonological awareness, alphabetic principle, accuracy and fluency with connected text, comprehension, and vocabulary) and consists of seven measures; Word Use Fluency, Initial Sound Fluency, Letter Naming Fluency, Phoneme Segmentation Fluency, Nonsense Word Fluency, Retell Fluency, and Oral Reading Fluency. Each task is designed to assess a different area of reading development and is given at different stages of a student's reading development. Phonological awareness assesses a child's skill at identifying and producing individual sounds within a given word and is measured by the Initial Sounds Fluency (ISF) task and Phonemic Segmentation Fluency (PSF) task.

Alphabetic principle consists of a child's knowledge of letter-sound recognition correspondences as well as their ability to blend letters together. This area of early literacy is assessed through the Nonsense Word Fluency (NWF) task and the Oral Reading Fluency (ORF) task. The third area of literacy development assessed by the DIBELS system is fluency with connected text. This is the child's skill at reading text in grade-level materials and is assessed by the Oral Reading Fluency task. Comprehension, the fourth area, measures a child's understanding of material he or she read. This is also measure by the Oral Reading Fluency task, as well as the Retell Fluency (RTF) task. The last area, vocabulary, is the child's ability to accurately use a provided word in the context of a sentence. This is measured by the Word Use Fluency (WUF) task (Good & Kaminski, 2002).

Two portions of the DIBELS assessment system, Letter Naming Fluency and Oral Reading Fluency, are given in first grade, when reading skills begin to emerge, along with Word Use Fluency, Phoneme Segmentation Fluency, Nonsense Word Fluency, and Retell Fluency. Letter Naming Fluency assesses emergent literacy skills and measures a student's risk for having difficulty with reading by identifying youngsters who fall within the lowest 20% of students in their district. The percentile ranks are calculated using local district norms. This task is commonly given throughout kindergarten and at the beginning of first grade and can help to identify students who need intervention. However, it does not correspond to a big idea of early literacy skills (phonological awareness, alphabetic principle, and accuracy and fluency with connected text) and does

not appear to be an essential skill to achieve the desirable reading goals; moreover, it is used primarily as a screening tool (Good & Kaminski, 2002).

Oral Reading Fluency can be given after the fall of first grade, and is usually given in the winter and spring of that year. It is a standardized and individually administered test measuring accuracy and fluency in reading in which the child is asked to read from grade level text for one minute. The amount of words read correctly translates into the child's score for that test session. Benchmarks are given for ORF; 40 words in spring of first grade, 90 in spring of second grade, and 110 in spring of third grade. Students who score below these benchmarks (10 in first grade, 50 in second grade, 70 in third grade) may have difficulty learning to read and require intervention (Good & Kaminski, 2002).

The DIBELS LNF and ORF tasks incorporate several of the proposed components of assessment such as identification and screening of students who may be at risk, guiding instruction in the classroom, and for progress monitoring purposes; however, they do not include a naturalistic observation piece. They also cannot be easily used to identify the effectiveness of curriculum and classroom organization. Assessing students through observation (Coyne and Harn, 2006; Haager & Windmueller, 2001; NIEER, 2004) is unobtrusive to the student and to the classroom and can be used to identify areas of need, track student growth, and assess curriculum effectiveness (Teale, Hiebert, & Chittenden, 1987). Observations along with performance samples can give a well rounded picture of the student's developmental level.

Observation fits into an interactive curriculum and in many cases can get the teacher more involved with the students. The teacher may realize things about the students that were not apparent before the observations as the teacher watches for particular behaviors which might have otherwise gone unnoticed. These realizations can result in better learning and better classroom functioning as more is learned about the students (NIEER, 2004).

To incorporate observation into an assessment, anecdotal recordings may be an effective means of gathering data on preschool students (NIEER, 2004). Anecdotes are recorded in note form by the professional who is involved with the student and can then be examined later to infer the current developmental level of the child. This would allow the child uninhibited performance in the classroom, and provide opportunities for the evaluation needed in order to decipher whether early intervention services are necessary.

The Child Observation Record (COR; High/Scope Educational Research Foundation; High/Scope, 1992) is an assessment instrument designed to use observational and anecdotal data to measure the current levels and abilities of children and can also be used to identify areas of need and the effectiveness of the current curriculum. The use of the COR is based on six categories that represent broad domains of child development. The Preschool COR categories include initiative, social relations, creative representation, movement and music, language and literacy, and mathematics. Each category consists of three to eight COR items that describe developmentally important behaviors. The items consist of a five-level Likert Scale that indicates a typical developmental sequence for the specific behavior described. The COR user assigns a

precise rating to his or her observations of the child resulting in an overall developmental score (High/Scope, 2005).

Purpose of Study

If the COR can be shown to have predictive validity with literacy measures, then preschool children who are discrepant in their literacy skills can be identified before they reach kindergarten. Students who are at risk for literacy development can begin receiving early intervention services at a younger age, thus giving them more time to achieve age-level reading skills. They would already be identified when entering school and could have services ready and waiting for them, if services have not already been implemented. With the extended exposure to the interventions the student's literacy growth can be that much greater.

Thus, this research will investigate the correlation of the Pre-School COR with the DIBELS Letter Naming Fluency, which is given in the fall of first grade, and Oral Reading Fluency, which is given in the winter and spring of first grade. The following research questions are addressed in the study:

1. What is the correlation between the Pre-School COR and DIBELS First Grade Letter Naming Fluency task after a child has completed both tasks?
2. What is the correlation between the Pre-School COR and DIBELS First Grade Oral Reading Fluency task after a child has completed both tasks?
3. Can the Pre-School COR be used to successfully predict a student's performance on the DIBELS First Grade Letter Naming Fluency task and Oral Reading Fluency Task?

LITERATURE REVIEW

The Preschool Child Observation Record (COR; High/Scope, 1992) was originally developed in 1992 and re-released as a second edition in 2003. The development of this instrument was based on a need for assessing students in early childhood as part of the daily routine in a variety of settings without removing them from the classroom. It is designed to be used in preschools, pre-kindergarten, developmentally appropriate early childhood settings, day care centers, family child care homes, and any other setting which may accommodate preschool children. The COR allows for observational, anecdotal assessment. It provides a broad view of child development in order to present a well rounded picture of the student, identify areas of need, and track growth. This is in contrast to other instruments, which may focus on one specific area of development (High/Scope, 2005).

Originally developed as an assessment tool for use with the High/Scope Preschool Curriculum, the COR has since been expanded to be used in all developmentally appropriate early childhood programs (High/Scope, 2003b). At the time, a broad-based assessment was lacking for early childhood that would not require the student to be removed from the classroom. Many early childhood educators felt they needed an assessment instrument that could be used as part of the child's daily routine in order to maximize learning and still allow for an in-depth assessment of the students developmental levels and abilities (High/Scope, 2003b).

Educators were also concerned with the content of the assessment, as they wanted a broad instrument that looked at all the key areas of growth nurtured in young children.

However, the available instruments were often narrowly focusing on only a few areas, such as language or social skills, or used specifically for screening purposes (High/Scope, 2003b). Thus, the COR was developed to provide educators with an assessment tool that could be used in the student's daily routine and monitor important aspects of the student's growth.

The COR is based on six child development categories that represent broad domains of child development (High/Scope 2003a). The Preschool COR uses the categories of Initiative, Social Relations, Creative Representation, Movement and Music, Language and Literacy, and Mathematics and Science. These categories were derived from 10 experiences which were identified as key components for early learning and development in preschool-aged children (Hohmann & Weikart, 2002). They include: initiative, social relations, creative representation, movement and music, language and literacy, classification, seriation, number, space, and time.

These key experiences were originally derived from the observations of children by educational psychologists and early childhood practitioners within the High/Scope institution (Hohmann & Weikart, 2002). As they worked with and observed children, these professionals began building an educational approach around a specific curriculum designed to provide optimal support for a child's development (Phillips, 1975). The key experiences have developed over the last 30 years through the integration of child development theory, and the observations and experiences of professionals working within the High/Scope system (Weikart, 1974).

The process of development can be divided into four phases (Hohmann & Weikart, 2002). Phase 1 began with identifying the levels and content areas. The educational teams, consisting of teachers, support staff, and researchers, began to plan children's education around three major concepts: levels of representation (object, index, symbol, and sign levels), content areas (classification, seriation, spatial relations, and temporal relations) and levels of operation (motor and verbal). Each of these concepts was a part of the *Cognitively Oriented Curriculum* (Weikart, Rogers, Adcock & McClelland, 1971); a curriculum designed to maximize preschool development, and evolved from Piaget's stage theory of development.

As the High/Scope staff progressed and began to train others in the use of their curriculum, the three concepts began to expand and reorganize. This entered phase 2 of the key concept development. The curriculum began to move toward goal sequences. These sequences comprised of a goal being set for child, such as the ability to sort objects. However, these goals were soon thought to be basic elements of child development that must be reached at an individual rate (Hohmann & Weikart, 2002).

It later became clear that these children were having important experiences that were helpful in developing knowledge and understanding of the world around them. This brought the key experiences into phase 3 of their development. The focus of teaching preschool children now shifted from an emphasis on timed interventions to a focus on having children explore new materials and challenging situations (Hohmann & Weikart, 2002). At this point the first "key experiences" were formally published with the following organizational structure: active learning, experiencing and representing,

language, classification, seriation, number concepts, temporal relations, and spatial relations (Banet, 1976).

The "key experiences" have since entered the fourth phase of their development and gone though some expansion and revision. Through field work and observation, the "key experiences" did not appear to address social learning and development adequately. Thus, the initiative and social relations category was added (Hohmann, 1991). This phase also saw the additions of movement (Weikart, 1987) and music (Carlton & Weikart, 1994) key experiences. This brings the "key experiences" to their current incarnation of: creative representation, language and literacy, initiative and social relations, movement, music, classification, seriation, number, space, and time.

An active learning preschool program based on the key experiences and designed for at-risk youth resulted in major differences when compared to other at-risk youth who participated in a Head Start preschool program. These results include fewer arrests (7% of program participants were arrested versus 35% of Head Start participants) better economic status (36% of program participants owned their own home vs. 13 % Head Start participants), and better educational performance (71% of program participants received a high school diploma or equivalent compared to 54% of Head Start participants) (Schweinhart, Barnes & Weikart, 1993). However, participants in this study were from a low-income urban setting and had to qualify for specific services, which could limit the generalizability of the study.

The COR uses these same key experiences listed above as its developmental framework. The one major difference is the COR combines the key experiences of

classification, seriation, number, space, and time into one category of Mathematics and Science. The key experiences were designed as an observational guide to help teachers develop and plan curriculum and classroom techniques. The COR is designed as an assessment tool to gauge and track students development, thus it combined the experiences into a more academically oriented category of Mathematics and Science (High/Scope, 2005).

Within each category children are assessed on three to eight COR items. Each item is derived from a developmentally important step identified as part of the student's key experience in the classroom. Items have 5 levels that indicate a typical developmental sequence for that behavior, allowing scorers and observers to assign a precise rating to the observations of the children. Assessment using the COR involves writing brief anecdotal notes describing significant behaviors of a child's day. These are recorded and then rated according to the COR categories, items, and levels (High/Scope, 2005).

The student receives a score on each item from a scale of 1 to 5 representing a developmental sequence with 1 indicating simple development up to 5 indicating more complex development. Each item falls within one of the six COR categories and category items are summed to obtain an overall category score (High/Scope, 2003a). These scores are then used to judge a child's developmental level and the complexity of their interactions and activities (High/Scope, 2003b).

The COR coincides with the proposed assessment purposes (identification of students in need, providing useful information for the classroom, identification of areas of

need, evaluation of program effectiveness) that have been found in previous literature (Coyne & Harn, 2006; Haager & Windmueller, 2001; NIEER, 2004). Along with this, the tool has also been shown to be reliable and valid for all of these purposes.

Schweinhart, McNair, Barnes, & Larner (1993) investigated the feasibility, reliability, and concurrent validity of the COR as an assessment tool for preschool children. They trained a team of teachers in appropriate usage of the COR and had them assess 98 students' developmental levels in Head Start classrooms. An analysis of the results showed that COR was a psychometrically promising tool for the assessment of children's development. The analysis of the six COR scales' level of reliability revealed that the internal consistency was acceptable between teachers rating the same student (*Mdn* = .87) as well as between teaching assistants (*Mdn* = .84). Inter-observer agreement was also found to be adequate for day to day instructional decisions and basic research (*Mdn* = .685; Schweinhart, McNair et al., 1993). This statistic was increased once the staff was trained in correct use of the COR. Inter-rater reliability was raised to .93 agreement (calculated as agreements divided by agreements plus disagreements) when comparing 10 independently completed CORs (Epstein, 1992).

The concurrent validity of the COR was assessed by examining correlations with the McCarthy Scales of Children's Abilities (McCarthy, 1972) which measure constructs similar to the COR. These measurements as well as the children's age and sex, mothers' and fathers' years of schooling, and mothers' and fathers' employment status were compared. The language and literacy scale on the COR was found to have the highest correlation with the McCarthy Scales of Children's Abilities, with coefficients ranging

from .53 to .66. A moderate correlation was found between the COR results and the children's age ranging from .53 to .61. Minimal correlations were found between the COR and mothers' and fathers' years of schooling, ranging from .14 to .20 and .16 to .28 respectively, and the COR and mothers' and fathers' employment status, ranging from .07 to .10 and .00 to .06 respectively (Schweinhart, McNair et al., 1993).

Staff participating in the study also claimed to know their students better and felt better equipped to assess the student's development and progress once they were trained in and began to use the COR. The test was reported to help the staff better understand early childhood development and also helped them understand the current curriculum being employed by the Head Start Program. The staff also felt better prepared when having to conduct individualized educational programs for the students after they had participated in the COR observations because they felt they better knew the students who had been observed and assessed using the COR (Schweinhart, McNair et al., 1993).

A factor analysis was conducted in order to find the best latent structure embedded within the design of the COR. Two separate samples (n = 733 and n = 1427) of low-income, preschool children were gathered and analyzed using multivariate techniques. These children were given the COR as part of a larger initiative to enhance child assessment in the local school district. Teachers were trained according to High/Scope standards, including procedures for observation and note-taking prior to completion of the COR protocols (Fantuzzo, Hightower, Grim, & Montes, 2002).

The analysis revealed a three-dimensional model with the domains of Cognitive Skills, Social Engagement, and Coordinated Movement as opposed to the previously

proposed six categories of initiative, social relations, creative representation, movement and music, language and literacy, and mathematics. Each of the three dimensions (Cognitive Skills, Social Engagement, and Coordinated Movement) were made up of specific items from the COR, incorporated several different scales, and encompassed a wider measurement than the original six scales (Fantuzzo et al., 2002).

The Cognitive Skills domain included all the items from the Logic and Mathematics scale as well as the literacy items from the Language and Literacy scale. This domain was found to include students' emergent literacy skills as well as numerical skills. The Social Engagement domain measured behaviors commonly displayed in free play activities such as making friends, pretending, and expressing choices. This domain included all of the items from the Initiative and Social Relations scale, a few of the items from the Creative Representation scale, and a few items from the Language and Literacy scale. The Coordinated Movement domain was the smallest of the new domains, and represented gross and fine motor skills. It consisted of items primarily found within the Music and Movement scales on the COR. Within these three scales, intercorrrelations were found to exist ranging from .70 to .81 in the first sample and .72 to .76 in the second sample (Fantuzzo et al., 2002).

A more comprehensive examination of these three COR dimensions was conducted in relation to the constructs of social-emotional and cognitive preschool competencies, which are seen as important predictors of competent school readiness (Sekino & Fantuzzo, 2005). The predictive validity of the COR was also assessed in order to determine how information garnered from the COR can help to predict future

school performance. This further analysis not only supported the previous findings of convergent and divergent validity but also supported the three-dimensional model, particularly the COR Cognitive and Social Engagement dimensions (Sekino & Fantuzzo, 2005). Specifically, high ratings on the Cognitive dimension were associated with greater reading skills as measured by the Dynamic Indicators of Basic Early Literacy Skills-Letter Naming Fluency Task (DIBELS-LNF; Good & Kaminski, 2002) and the Test of Early Reading Ability, Third Edition (TERA-3; Reid, Hreski, & Hammill, 2001). The children's early reading skills were related only to the cognitive dimension and not to any other COR dimensions.

The predictive validity of the COR was examined as children who exhibited higher ratings on the COR Cognitive dimension were more likely to demonstrate a greater competence in letter recognition tasks (Sekino & Fantuzzo, 2005). Students were assessed using the COR in late spring of their pre-kindergarten year as part of a program-wide performance assessment for the school district by credentialed, trained teachers under supervision. Approximately 64% of these students were then given the Letter Naming Fluency task from the DIBELS (Good, & Kaminski, 2002) by their teachers in their kindergarten year as part of an ongoing classroom performance assessment that is conducted routinely throughout the year. Those who were rated higher on the COR Cognitive dimension proceeded to score better on the DIBELS Letter Naming Fluency task (bivariate correlations on the DIBELS-LNF = .32). These students' scores were also correlated with the TERA-3 (r-values ranged from .11 to .28). This relationship between preschool cognitive functioning and kindergarten letter naming fluency illustrates a weak

to moderate correlation for the predictive validity of the COR (Sekino & Fantuzzo, 2005).

This study will further the research of Sekino and Fantuzzo (2005) by exploring the correlation between the COR and DIBELS LNF and ORF. The next level of the relationship between these assessment tools is examined and the correlational relationship is expanded from preschool and kindergarten to preschool, kindergarten, and first grade. The predictive validity of the COR, given in preschool, can possibly be strengthened if it is shown to have a significant relationship with DIBELS LNF and ORF, which is given in first grade.

METHODS

Participants

Participants in this study were 299 students from 10 schools in a city school district in Upstate New York. These students were given the Child Observation Record (COR) while in preschool by their trained classroom teachers as part of the general classroom assessment during the fall and the spring. The students were then given the DIBELS reading assessments in first grade in order to assess early literacy skills. The Letter Naming Fluency was given in the fall portion of first grade. The Oral Reading Fluency was given twice; once in the winter, and again in the spring. The COR is used in the city's schools Head Start programs on all the preschool students in order to track educational growth. The DIBELS assessment is used as part of a Reading First grant awarded to qualified schools in order to monitor student growth and achievement. Students who attend the Head Start program in preschool and then attend a Reading First school were given both assessments. However, not all kindergarten students who participated in this study attended a Head Start program. Thus, the sample sizes for the two tests are different, with a lower amount of students having received the COR assessment.

The ethnic distribution of the school district is 65% African-American, 21% Hispanic, 12% Caucasian, and 2% Other. Students who qualify for free or reduced lunch make up 88% of the district population and 17% of the students in the district are identified as students with special needs. Half of the district's schools are at 90% poverty rate or higher.

Instruments

Child Observation Record (COR)

The COR (High/Scope, 1992) measures 32 dimensions of learning which are divided into six broad categories: Initiative, Social Relations, Creative Representation, Movement and Music, Language and Literacy, and Mathematics and Science. Data are gathered on students through teacher observations of everyday classroom activity and then rated on a scale of 1 (simple) to 5 (complex). Validation studies of the COR have revealed three dimensions with high internal consistency; Cognitive, Social Engagement, and Coordinated Movement (Fantuzzo et al., 2002), which were used as the dimensions in this study.

In order to carry out the assessment of students, teachers or caregivers spend a few minutes each day writing brief anecdotal notes that describe significant episodes of the young children's behavior. They can record their notes on printed forms or in computer files, and then classify and rate them according to the COR categories, items, and levels. These anecdotes are gathered over time, systematically classified, and rated within the COR framework. They are the basic units of information that are analyzed to provide a comprehensive profile of the child's developmental level and growth (High/Scope, 2005).

One example of this process of scoring would be a teacher observing a student looking through a picture book. The teacher would write, "Patrick was looking through *Flowers in Bloom* appropriately turning the pages from right to left during free time in the library area for ten minutes." The teacher would then assign this anecdote to the

appropriate COR scale (Cognitive) and item (demonstrating knowledge about books). It would then be rated on a scale from 1 (simple) to 5 (complex) depending on the levels of the item. Each anecdote can be rated to determine the student's current level of achievement (High/Scope, 2005).

The COR has been found to possess high reliability. Internal consistency has been found to be high, with $\alpha = .94$ for the COR Total score. Alpha levels dropped slightly for the individual scales, but were still acceptable with the Initiative and Social Relations scales $\alpha = .82$, Creative Representation and Movement and Music scales $\alpha = .79$, the Language and Literacy scale $\alpha = .85$ and the Mathematics and Science scale $\alpha = .88$ (High/Scope, 2003) indicating that the similar items within the scale agree with each other. Inter-observer reliability was found to have a Pearson product moment correlation of .73 indicating there is a correlation between raters and yet, there may be differences between some of the observations and measurements (High/Scope, 2003). These differences may diminish reliability, but they may also serve to illustrate a strength in a teaching team. Different members of the team can complement each other by seeing and observing different aspects of the student's behavior and skills (High/Scope, 2003).

Dynamic Indicators of Basic Early Literacy Skills (6th ed.) (*DIBELS*)

The DIBELS (Good & Kaminski, 2002) is currently in its 6th edition and is a standardized system designed to measure literacy skills in children through short (one-minute), regular measurements. It assesses early literacy and pre-reading skills through measuring students' development of phonological awareness, alphabetic understanding, and automaticity and fluency of reading.

The Letter Naming Fluency portion of the DIBELS is designed to identify students who may be at risk for poor reading outcomes. Students who perform below the 20th percentile of a school district using local norms are considered at risk, and students falling between the 20th percentile and 40th percentile are considered at some risk of developing reading difficulties (Good & Kaminski, 2002).

Students are presented with a page of upper- and lower-case letters arranged in a random order. They are then asked to identify as many as they can. The score is the number of letters a student identifies correctly in the one-minute time period. It is given throughout kindergarten and in the fall of first grade (Good & Kaminski, 2002).

The reliability for the DIBELS Letter Naming Fluency was found to be significant; interrater reliability was .94 (*n*=50), test-retest reliability was .90 (*n*=75), and equivalent forms reliability was .80 (*n*=75). Concurrent validity of the DIBELS Letter Naming Fluency with the Woodcock-Johnson Psycho-Educational Achievement Battery – Revised (WJ-R; Woodcock & Johnson, 1990) was revealed to be .63 for the Broad Reading cluster, .75 for the Skills cluster, and .71 for the Letter-Word Identification subtest (Elliot, Lee, & Tollefson, 2001).

The Oral Reading Fluency portion of the DIBELS is designed to identify students who may need additional instructional support in reading, and can also be used to monitor progress toward instructional goals. Student performance is measured by having a student read aloud from a passage for one minute. The student is presented with a passage designed to be at grade level. Words that are omitted, read incorrectly, and

hesitations of more than three seconds are scored as incorrect. The number of correct words read in a minute is a child's oral reading fluency rate (Good & Kaminski, 2002).

The ORF portion of DIBELS is based on the Curriculum-Based Measurement (CBM) model of reading assessment using methods outlined in Shinn (1989). CBM measures have been found to be technically adequate when measuring reading skills. Test-retest reliabilities for elementary students ranged from .92 to .97. Different passages at the same grade level were found to have alternate form reliability ranging from .89 to .94 (Tindal, Marston & Deno, 1983). The criterion-related validity of CBM testing has been reported to range from .52 to .91 (Good & Jefferson, 1998).

Procedures

This study was approved by the university's Institutional Review Board (IRB) as well as the school district's research board. Data were collected as a routine part of the schools' reading programs. The data were analyzed anonymously with only numerical identification codes as an identifying factor. Preschool students were assessed using the COR by trained teachers to judge academic acuity. The same students were assessed using the DIBELS system in kindergarten and first grade.

The correlation between the COR and DIBELS Letter Naming Fluency and the COR and DIBELS Oral Reading Fluency task was explored by examining bivariate correlations and linear regressions. These analyses were conducted on the total COR score, DIBELS Letter Naming Fluency, DIBELS Oral Reading Fluency – Winter, and DIBELS Oral Reading Fluency – Spring.

RESULTS

Concurrent Relationships

Bivariate correlations and linear regressions were used to examine the relationships between the three COR dimensions as well as the total COR score, the DIBELS Letter Naming Fluency, and the DIBELS Oral Reading Fluency using $\alpha = .05$. Descriptive statistics for each measure are provided in Table 1. Results were then arranged to observe the correlations between COR and DIBELS Letter Naming Fluency, as well as the COR and DIBELS Oral Reading Fluency (see Table 2).

Table 1

Descriptive Statistics of the COR and the DIBELS Letter Naming Fluency and Oral Reading Fluency

Variables	*n*	*M*	*SD*
COR			
Cognitive	233	3.42	0.79
Social Engagement	233	3.79	0.77
Coordinated Movement	233	3.76	0.83
Total	233	3.61	0.77
DIBELS			
Letter Naming Fluency	299	34.25	16.91
Oral Reading Fluency - Winter	297	23.68	24.01
Oral Reading Fluency - Spring	293	39.97	29.75

Table 2

Bivariate Correlations of the COR and the DIBELS Letter Naming Fluency and Oral Reading Fluency Scores

		DIBELS		
Variables	*n*	Letter Naming Fluency	Oral Reading Fluency - Winter	Oral Reading Fluency - Spring
COR				
Cognitive	233	0.365**	0.560**	0.375*
Social Engagement	233	0.259**	0.067	0.122
Coordinated Movement	233	0.267**	0.084	0.124
Total	233	0.301**	0.071	0.186

**Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.025 level (2-tailed).

Examination reveals an overall positive correlation between the COR and the DIBELS Letter Naming Fluency with the strongest relationship occurring between the COR – Cognitive domain and the DIBELS Letter Naming Fluency ($r = .365$, $p < .01$). A simultaneous regression analysis was conducted to examine the relationship between the COR and the DIBELS scores. This simultaneous regression analysis presents the variance accounted for by the model as well as the effects of each predictor after accounting for each of the other predictors. A significant overall relationship was revealed $F(4, 228) = 8.76$, $p < .001$). Overall, the COR dimensions account for 13.3% of the variance in the DIBELS Letter Naming Fluency with an adjusted r^2 accounting for 11.8%. The Cognitive ($\beta = .543$, $p = .001$) portion is the only significant predictor out of the four COR dimensions included in the analysis (Table 3).

An overall positive correlation was also revealed between the COR and the DIBELS Oral Reading Fluency – Winter. The strongest relationship occurs between the COR – Cognitive domain and the DIBELS Oral Reading Fluency – Winter ($r = .56$, $p < .01$). A simultaneous regression analysis was conducted and a significant overall relationship was revealed $F(4, 228) = 10.64$, $p < .001$). Overall, the COR dimensions explained 15.8% of the variance in the DIBELS Oral Reading Fluency – Winter with an adjusted r^2 accounting for 14.3%. The Cognitive ($\beta = .560$, $p = .001$) portion was, again, the only significant predictor out of the four COR dimensions included in the analysis (Table 3).

There was also an overall positive correlation found between the COR and the DIBELS Oral Reading Fluency – Spring. The strongest relationship occurs between the

COR – Cognitive domain and the DIBELS Oral Reading Fluency – Spring (r = .375, p < .01). A simultaneous regression analysis was conducted and a significant overall relationship was revealed $F(4, 228) = 8.52$, $p < .001$). Overall, the COR dimensions explained 13.1% of the variance in the DIBELS Oral Reading Fluency – Spring with an adjusted r^2 accounting for 11.6%. The Cognitive ($\beta = .375$, $p = .025$) portion is the only significant predictor out of the four COR dimensions included in the analysis (Table 3).

Table 3

β values of the COR as predicting the DIBELS Letter Naming Fluency and Oral Reading Fluency

	DIBELS					
	LNF		ORF - Winter		ORF - Spring	
	β	Sig.	β	Sig.	β	Sig.
COR						
Cognitive	0.543	0.001	0.560	0.001	0.375	0.025
Social Engagement	0.175	0.329	0.067	0.703	0.122	0.495
Coordinated Movement	0.097	0.535	0.084	0.586	0.124	0.427
Total	0.436	0.213	0.071	0.837	0.186	0.595

The intercorrelations between the COR dimensions are also presented (Table 4). All four dimensions were found to be highly intercorrelated and significant at the $p < .01$ level. This can greatly reduce the significance of any single predictor as a change in one dimension of the COR is shown to be related to changes in the other dimensions.

Table 4

Bivariate Correlations between COR Dimensions

	COR			
Variables	Cognitive	Social Engagement	Coordinated Movement	Total
COR				
Cognitive	--	.747*	.782*	.901*
Social Engagement	.747*	--	.807*	.916*
Coordinated Movement	.782*	.807*	--	.908*
Total	.901*	.916*	.908*	--

*Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

This study extends research on the predictive validity of the COR to a sample of urban youth through correlational analysis of the COR dimensions (Cognitive, Social Relations, and Coordinated Movement) with the DIBELS Letter Naming Fluency task and Oral Reading Fluency task. Overall, results provided support for the validity of the use of the COR as a tool for predicting early literacy skills in preschool children, however, there are several limitations that should be considered. Bivariate analysis revealed significant correlation between each of the COR dimensions, as well as the total COR score, with the Letter Naming Fluency task. The bivariate analysis also revealed significant correlation between Oral Reading Fluency – Winter and the Cognitive portion of the COR, as well as, a correlation between the Oral Reading Fluency – Spring and the Cognitive portion of the COR.

When examining the relationship between the COR and DIBELS LNF, the COR – Cognitive dimension had the highest magnitude of correlation, followed by the Total, Motor Coordination, and Social Relations scales respectively. Children's scores on the Cognitive dimension were associated with higher letter naming scores, as consistent with past research (Sekino & Fantuzzo, 2005). Children who were rated higher using the COR were able to name more letters in the DIBELS Letter Naming Fluency task.

However, in contrast to this past research, the Coordinated Movement dimension and the Social Relations dimension were also shown to have significant correlation with letter naming performance. The COR – Total dimension was also found to be significantly correlated with performance on the Letter Naming Fluency task indicating

that the student's overall combined score for all three COR dimensions was itself a predictable measure of reading ability.

The Cognitive dimension of the COR, as a measure of children's intellectual abilities and readiness, would be expected to have a correlation with tasks such as reading, as part of its design is to measure this area. However, the Coordinated Movement and Social Relations dimensions may not be expected to have such a correlation. This may be explained as these dimensions may relate to school readiness of the child. Students who are more socially proficient may be more ready for the instructional school environment. Also, those who scored higher on the Coordinated Movement dimension may be more mature in body and mind and, thus, function at a higher level in the educational environment. Students with an overall higher score in any of the COR dimensions may be more mature and school ready than those who are rated lower.

The relationship between the COR and DIBELS ORF – Winter and ORF – Spring was not as strong as the relationship between the COR and DIBELS LNF. This may be due to the time at which the assessments were given. The COR, given in preschool, and the DIBELS LNF, given in kindergarten, are only given a year apart. The DIBELS ORF tasks were given in first grade. It is possible the student has grown cognitively during the time between the COR and the DIBELS ORF tasks.

The only component of the COR shown to have significant correlational value with the DIBELS ORF – Winter and ORF – Spring tasks was the Cognitive Dimension. The cognitive dimension would be expected to have some correlation with DIBELS ORF

as part of its design is the measure reading ability, but this is just one part of the cognitive dimension. This dimension also includes mathematical ability and writing skills. The COR is designed to be an overall assessment tool, and using it for assessing one area, such as reading, may lead to improper conclusions regarding students' abilities.

The correlation between the COR-COG and DIBELS ORF also decreases from winter (r = .560) to spring (r = .375). This could indicate a weaker relationship between these tests. If the correlation was similar between winter and spring, it would lend more support to the idea of a strong correlation existing. When a change of almost 20% exists, the correlational relationship may be diminishing as time goes on. If this relationship were extrapolated further, it may be found that less correlation exists between these two tests. The further the student gets from the initial COR assessment, the less reliable it may be. That is an area future research could explore.

The predictive findings of this study are significant in that the COR can be used to predict early literacy skills in children. Yet, the extent to which these skills can be predicted may be somewhat shallow. With only 13.3 % of the variance in Letter Naming Fluency being accounted for, along with 14.3% in Oral Reading Fluency – Winter and 11.6 % of Oral Reading Fluency – Spring, the COR may not be a meaningful predictor of future performance in children's reading ability. The percentage of variance accounted for is relatively small.

The fact that the COR Total was included in the original regression analysis may also impede statistical significance. The COR Total score is made up wholly of the three COR dimensions and the statistical strength of the analysis is limited as it may be

incorporating highly redundant predictors. This is especially apparent when the intercorrelations of the COR dimensions are considered. It was originally thought that including the COR Total score would help to show validity for the test as a whole in predicting children's performance. However, future research may wish to run separate statistical analyses consisting of the three COR dimensions (Cognitive, Social Relations, Coordinated Movement) and then a separate analysis consisting of the COR Total score alone.

When assessed with the COR in preschool, students' abilities and current level of performance can be identified. Those students that fall below the expected benchmark may be in need of early intervention services for reading, but may also require other academic interventions. A student's low cognitive score could be brought down by mathematical items, writing items, or reading items. Now that the Language and Literacy scale has been merged with other scales into the COR's three dimension model, it may be difficult to identify in which exact area a student may need help. The identification process can help prepare future teachers and classrooms for which students are in need of services, but which specific services may not be so easy to decipher. The early intervention process can be started earlier, and more services can be provided for a longer duration of time with the hope that the child will improve in his or her area of weakness.

But, is it worthwhile to give the COR in the preschool classroom? It can involve a sizeable amount of time to collect, document, and categorize each observation. When a teacher has to do this for a classroom full of students, the time involved can be extensive. The observations could be considered subjective, depending on who is observing and

what time the child is being observed. Certain behaviors may be missed and other behaviors may be documented or scored differently depending on which staff member is responsible for recording at that moment. The amount of variance accounted for by the COR scores is not all that practical in importance. The highest amount accounted for was about 15%. With the amount of time required to conduct a COR assessment and the cost of what this assessment entails, the economies of giving the COR in the classroom for only reading and literacy assessment may not be justifiable. As a tool for overall assessment, the COR may be worthwhile, but being used to identify a child's skill in a specified area does not seem to be a strength of the tool. Reasons such as this are why training and consistency are important when employing an observational assessment. Future research may wish to explore the economies of using extensive tests like the COR in a classroom, as well as other limitations that may have been present in this research.

The participants in this study were from a single urban school district, which is predominantly African-American. The demographics reported were also for the entire school district, and may not extrapolate directly to this study, which could influence the generalizability of the findings presented. Future research may wish to extend this assessment to school districts in a different setting and incorporate other populations in order to extend findings further. The correlational study may be extended to include other academic areas such as mathematics and writing, or other areas of reading such as comprehension. The age and grade range of the study can also be expanded. There is growth from preschool to kindergarten and first grade, but there is much more growth

from preschool through higher grades. Linking the COR to school performance in later years may also serve to increase is predictive validity.

This research contributes to the scientific base for the use of the COR as a tool for predicting early literacy skills, but the extent to which it does may not be very significant. The COR is a valid and reliable tool to measure overall school readiness in preschool children, however, using it for measuring just early literacy skills may be too limiting. Schools that employ this test could identify students in need of intervention and provide them help to increase school performance and reduce the risk of falling behind in reading. However, it may not be the ideal tool to identify specifically the area of reading in which the student is lacking. The COR is a quality tool if, like any assessment tool, it is used correctly. However, that is all the COR is; just a tool. The responsibility of helping students learn and grow still falls on the teachers and the classroom. Instruments can be developed to measure many aspects of student performance, but we still need quality professionals to use these instruments, teach the children, and make good decisions that will, in the end, help the students.

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