

Running Head: Letter Naming Fluency

LETTER NAMING FLUENCY LEADS TO LATER READING FLUENCY

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ABSTRACT

This study was conducted to see if there was a relationship between early letter naming fluency and later reading fluency. There is a wide range of background knowledge for students entering their kindergarten year. Some come in knowing all or most letters, while some enter kindergarten with little or no letter knowledge. This study looked at letter naming fluency benchmark scores for 46 randomly selected kindergarten students who were also benchmarked for reading fluency in their fourth grade year. After compiling and reviewing the findings for this study, current research and literature and the data collected, it was determined that beginning letter naming fluency is a good predictor of later reading fluency.

## INTRODUCTION

### *Background, issues and concerns*

With the enactment of Senate Bill 319 reading fluency has become a great concern at the fourth grade level. Beginning at the kindergarten level, students are given reading fluency assessments provide by Aimsweb. The following study will show whether or not that early Letter Naming Fluency (LNF) assessments are a good predictor of later scores on the Reading Curriculum-Based Measure (R-CBM) and therefore a predictor of later reading fluency.

At the beginning of kindergarten students come in with a variety of background knowledge. Some students are well aware of letter names, while others have a limited or no background knowledge of letter names. Although some students have a good background of letter names, they need to become more fluent with these letter names. Therefore a great emphasis has been placed on increasing all students' letter-naming fluency. Stage, Sheppard, Davidson and Browning (2001) explain, "Letter-naming fluency may be predictive of reading growth because it assesses a gateway skill for the development of more complex grapheme-phoneme knowledge. That is, students must visually discriminate the letter and then name it before they can develop orthographic knowledge and the ability to decode words" (p. 226). With an increased letter-naming fluency in kindergarten, students will become better readers as they progress through the upper grade levels. Because of the importance of becoming a fluent reader by fourth grade, students must have this background knowledge before they reach this level. Speece and Ritchey (2005) explain, "Reading fluency is considered critical to skilled reading, given its correlational if not causal connection to comprehension and evidence

that at-risk and typically developing children as early as first grade demonstrate large differences in reading fluency skill” (p. 387).

*Practice under Investigation*

The practice under investigation will be how a great emphasis is applied to the learning of letter names in kindergarten and then assessed by the LNF. There will be an investigation to see if scores achieved on the LNF are a good predictor for later reading fluency in fourth grade as measured by the R-CBM.

*School Policy to be informed by Study*

Currently students are given benchmarks to assess LNF during the fall, winter, and spring of the kindergarten year. An emphasis is put on to the learning of letter names at the beginning of kindergarten. This study will show if these early benchmarks are a good predictor of later reading fluency in fourth grade, measured by the R-CBM.

*Conceptual Underpinning*

Theories exist that early LNF assessments scores can predict future scores on later R-CBM assessments. These early assessment scores can be used to tailor instruction for students as related to reading fluency. Students scoring low on the LNF will receive response to intervention (RTI) geared toward increasing their letter naming awareness. More exposure to letter names will increase these students’ scores on LNF benchmarks and in turn increase their reading fluency in later grades.

Some studies have proven that with increased letter-naming fluency, students will become more fluent readers in later grades. One study found that in addition to being a good indicator of kindergarten reading skills, letter knowledge at this age is also a good predictor of

later reading fluency (Leppanen, Aunola, Niemi and Nurmi, 2007, p. 559). With letter-naming fluency being proven to be a predictor of later reading fluency, it is important that kindergarten students have a good knowledge of letter names.

#### *Statement of the Problem*

If LNF scores are a good predictor of later reading fluency as measured by the R-CBM, then teachers need to put a greater emphasis on letter naming activities for students that score low and are at risk for lower reading fluency at the fourth grade level.

#### *Purpose of the Study*

The purpose of this study is to show whether LNF scores are a good predictor of later reading fluency as measured by the R-CBM. The information garnered by this study will show whether teachers need to increase the time spent on letter naming activities in early grade levels.

#### *Research Question(s)*

RQ #1: Is early letter naming fluency an indicator of future reading fluency?

RQ #2: Is there a difference in reading fluency between students with early letter naming fluency and students not involved with early letter naming fluency?

#### *Null Hypothesis(es)*

HO #1: Early letter naming fluency is not an indicator of future reading fluency.

HO #2: There is no difference between students with early letter naming fluency and students not involved with early letter naming fluency.

#### *Anticipated Benefits of the Study*

The anticipated benefits of this study is to show that letter naming fluency is important for early childhood students and that this will be a good indicator of future reading fluency.

*Definition of Terms*

AimsWeb – a complete web-based solution for universal screening, progress monitoring, and data management for grades k-12.

LNF – Letter Naming Fluency: standardized assessment that is individually given to students. Students are given a page of random letters to name in set amount of time.

R-CBM – Reading-Curriculum-Based Measurement: a short, standardized assessment of oral reading given to individual students.

RTI – response to intervention: multi-tiered approach to the early identification and support of students with learning and behavior needs.

*Summary*

A study was conducted to see if LNF is an indicator of later reading fluency measured by the R-CBM and that there is a difference between students with letter naming fluency and those not involved with letter naming fluency. After the study, schools will be able to see whether a greater emphasis is needed for early letter naming fluency to increase later reading fluency.

## REVIEW OF LITERATURE

In 2001, Missouri enacted Senate Bill 319. This bill states that school districts need to provide early assessment of student's reading skills and intervention for those that are reading below grade level ("State Policies on Reading Assessment," n.d.). With the enactment of this bill, a great emphasis has been placed on reading fluency at the fourth grade level. By the fourth grade, students are expected to be reading on grade level or are at the risk of being retained ("Senate bill 319 to have", 2001). According to Al Otaiba, Connor, Lane, Kosanovich, Schatschneider, Dyrland, Miller and Wright (2008), "A gap between weak and strong reading achievement...begins early and subsequently widens over the elementary years, and becomes increasingly difficult to close, particularly after third grade" (p. 282). Acquiring early literacy skills is important to reading fluency (Knight, 2014, p. 7).

Previous studies of letter naming fluency and reading fluency have been prevalent. According to Speece and Ritchey (2005), "Several recent studies provide support for the importance of sublexical skills in the development of fluency" (p. 388). These studies have concluded that letter-naming fluency at the kindergarten level is a predictor of later reading fluency (Speece & Ritchey, 2005, p. 388). Stage, et al. (2001) state, "Numerous studies indicate grapheme-phoneme knowledge is essential to word reading. Letter-name knowledge and letter-sound knowledge contribute unique variance to later reading skills" (p. 227). Although letter-sound fluency has been predicted as a greater indicator of later reading fluency compared to letter-naming fluency, there have not been any direct inquiries into this hypothesis (Stage, et al. 2001, p. 227). "Previous research has also shown that letter knowledge

provides a basis for understanding the alphabetic principle,” Leppanen, et al., 2007, p. 549).

Different letter-naming fluency assessments have proven to be predictors of independent reading (Neuhaus & Swank, 2002, p. 158). “The creators of DIBELS assert that its subtests are useful for predicting future reading difficulty and facilitating early and accurate identification of students in need of intervention,” Riedel (2011, p. 546). Along with phonological awareness, rapid letter naming fluency have been shown to be indicators of word reading ability (Katzir, Kim, Wolf, O’Brien, Kennedy, Lovett, & Morris, 2006, p. 55).

Stage, et al. (2001) state, “Letter-name knowledge is one of the best predictors of reading acquisition. Letter-name knowledge facilitates letter-sound knowledge when the letter name makes the sound (e.g. B makes the /bi/) and, therefore, is thought to facilitate letter-sound knowledge. Letter-naming fluency (rapidly naming letters in 1 minute) is also a predictive of later word reading ability” (p. 227). Through their study it was concluded that letter-naming fluency in kindergarten was a strong predictor of oral reading fluency in first grade students (Stage, et al. 2001, p. 233).

Several factors, including initial fluency skill with words or text, letter-name and letter-sound fluency and rapid automatized naming of letters, contribute to development of oral reading fluency (Speece & Ritchey, 2005, p. 388). According to Burke, Hagan-Burke, Zou and Kwok (2010), “Alphabetic knowledge is the second constant identified in the research literature as promoting reading acquisition” (p. 386). Alphabet understanding is generally measured by letter naming, letter sound identification and nonword reading tasks (Burke, et al. 2010, p. 386). “Children who know their letter names usually understand that letters underline reading, not contextual and environmental cues” (Burke, et al. 2010, p. 386). Katzir, Kim, Wolf, O’Brien,

Kennedy, Lovett and Morris conclude, "Rapid letter naming and phonological awareness have been extensively proven to be related to word reading performance" (2006, p. 55). Rapid letter naming has shown to be an important predictor of word recognition (Katzir, et al. 2006, p. 70-71). Leppanen, et al. (2007) found, "Children's letter knowledge predicted their reading comprehension, text reading and word chain reading: the higher the level of letter knowledge at the beginning of kindergarten year, the higher the level of reading comprehension, text reading and word chain reading at the end of Grade 4" (p. 555).

## RESEARCH METHODS

### *Research design*

A quantitative study was conducted to determine if LNF scores can be used as a predictor for later reading fluency as measured by R-CBM. Kindergarten students' fall, winter and spring benchmark LNF scores were collected as well as the scores of the those same students from their fourth grade R-CBM fall, winter and spring benchmarks. For this study, the kindergarten fall LNF scores were the independent variables and the spring fourth grade R-CBM scores were the dependent variables.

### *Study group description*

Scores from a group of 46 kindergarten students were collected. The same students' scores were also collected from their fourth grade year. These students ranged in age from five to six years in their kindergarten year and from nine and ten years of age in their fourth grade year. These students attend a rural Missouri school with a population of approximately 12,000. Scores were only collected from students who attended the same school during both their kindergarten year and fourth grade year. This elementary school has an enrollment of 488 students with 93.6% white students. Of these students, 46.3% were eligible for free or reduced lunch.

### *Data collection and instrumentation*

Data was collected from Letter Naming Fluency scores on AimsWeb during the kindergarten year and scores from the Reading-Curriculum-Based Measurement on AimsWeb during the fourth grade year. These scores were collected from the 2009-2010 kindergarten

and the 2013-2014 fourth grade school years. Each student was given a letter name to hide their identity.

*Statistical analysis method*

A simple regression analysis was conducted to determine if LNF scores are a predictor of R-CBM scores.

## FINDINGS

A simple regression analysis was conducted to determine if LNF scores are predictor of later reading fluency as measured by R-CBM scores.

**Table 1: Regression Analysis for R-CBM vs. LNF**

Model: 4-Spring = 1.421 K-Fall + 121.9 CNST

Source	Beta Coef.	R <sup>2</sup>	SEE	F	p-value
Constant	121.92				
4-Spring	1.421	0.22	40.34	12.26	1.075E-3

Alpha = 0.25

Conditions: Confidence Limits = 95

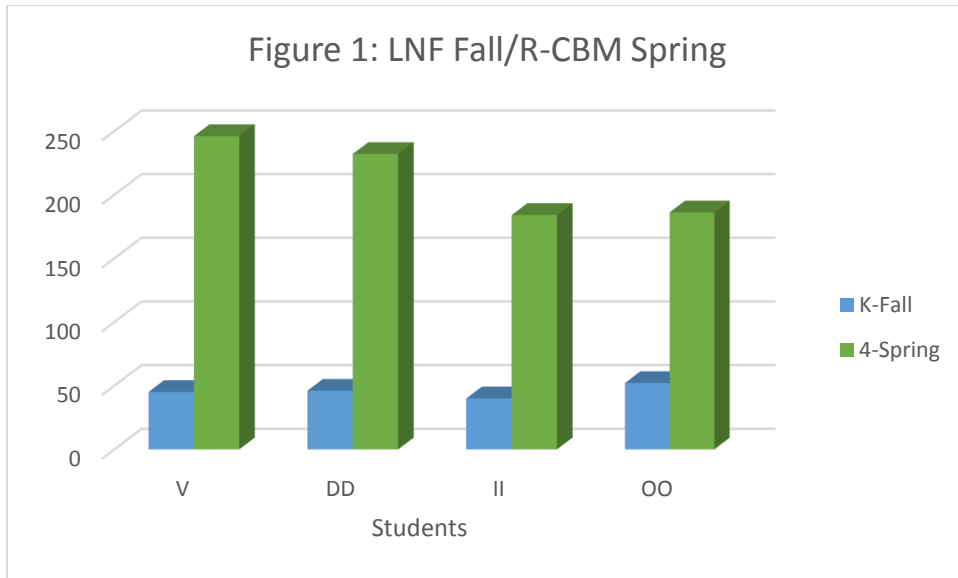
Value for K-Fall = 13

Forecast = 140.4

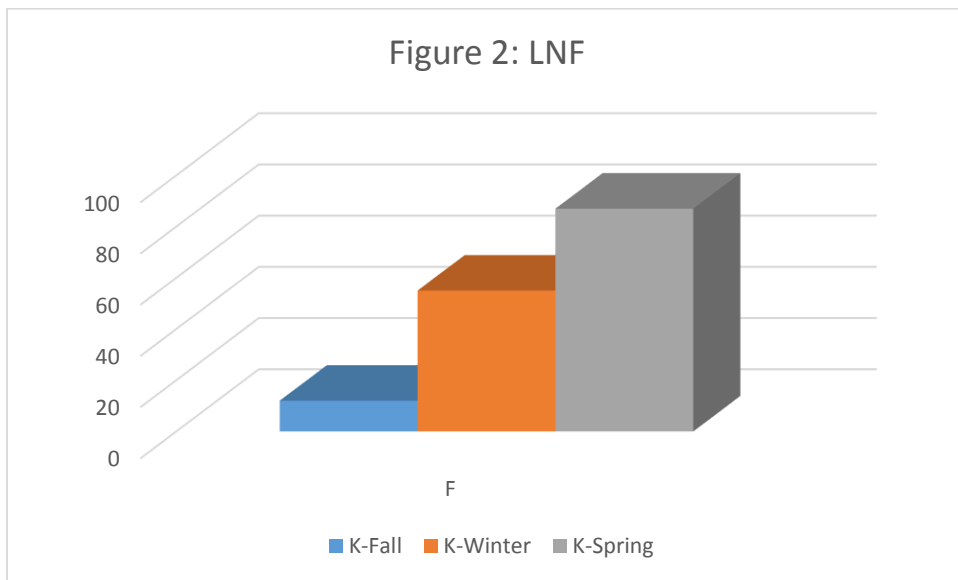
Lower = 57.95

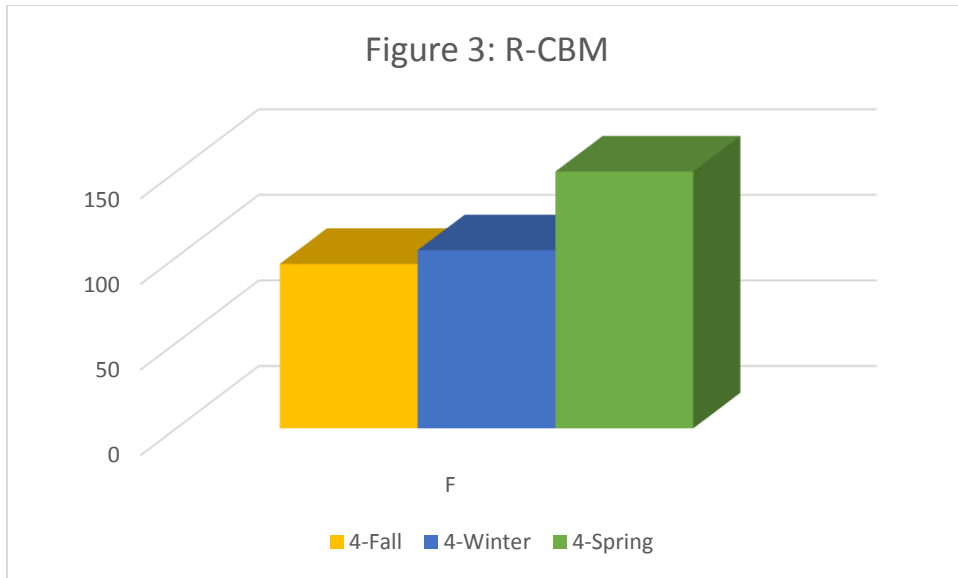
Upper = 222.85

The Independent Variable was the Kindergarten Fall LNF and the Dependent Variable was the Fourth Grade Spring R-CBM score. Forty-six scores were analyzed from students who were assessed in kindergarten and then again in fourth grade. As shown in Table 1, student's spring R-CBM scores were predicted by their fall LNF score. A significant regression equation was found ( $F(1/44) = 12.26$ ,  $p < 0.001$ ), with an  $R^2$  of 0.22. The subjects R-CBM score increased by 121.92 and the SEE was +/- 40.34. The null hypothesis was: Early letter naming fluency is not an indicator of future reading fluency. The null can be rejected because the p value of 1.075E-3 is less than the alpha of 0.25. This concludes that LNF is a good predictor of R-CBM scores. The higher the LNF score, the higher the R-CBM score will be.

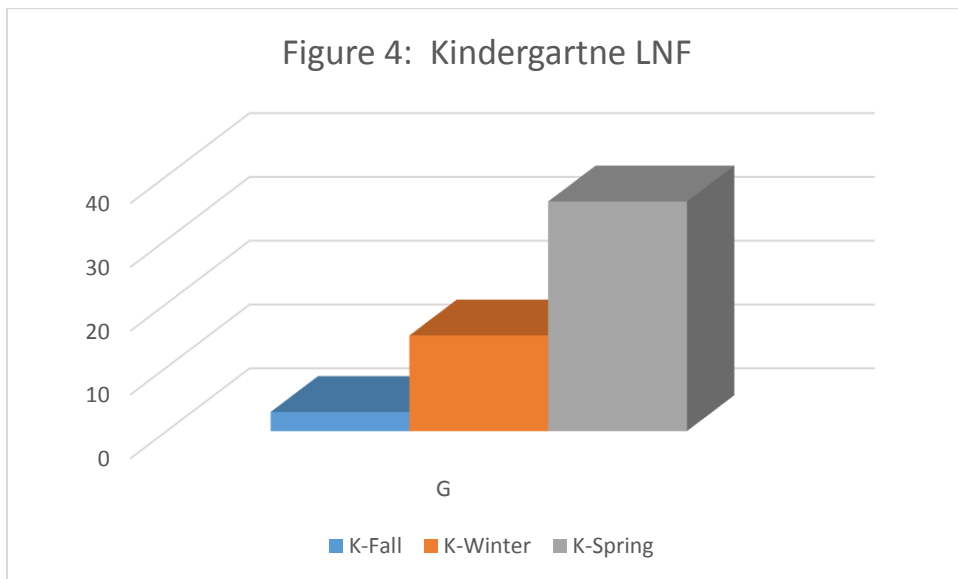


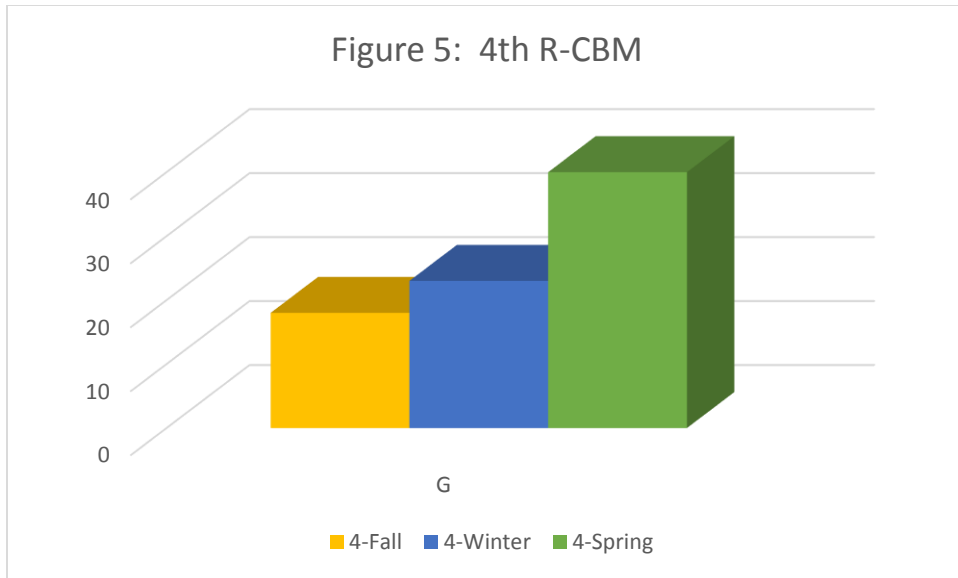
Four student's scores who met or exceeded the kindergarten fall benchmark of 13 on LNF were compared to their fourth grade spring benchmark scores on R-CBM (Figure 1). Each of these students R-CBM scores met or exceeded the spring R-CBM benchmark of 136. Through these findings, the second null hypothesis can be rejected. These findings prove that there is a difference between students who have early letter naming fluency and those that are not involved with early letter naming fluency.





Student F’s scores were examined from kindergarten and fourth grade (Figures 2 and 3). These scores show an increase in each benchmark score on LNF and an increase on each R-CBM benchmark score. This helps to prove that students involved in RTI for letter naming fluency will improve with letter naming fluency and then improve with later reading fluency.





Student "G" scored below each benchmark on the kindergarten LNF for fall, winter and spring (Figure 4). This student also scored below the R-CBM benchmarks for fall, winter and spring in fourth grade. This indicates that this student, for whatever reasons, was not involved in early LNF and therefore did not improve on their reading fluency in fourth grade.

## CONCLUSIONS AND RECCOMENDATIONS

With the conclusions generated from the simple regression analysis it can be determined that early LNF is a predictor of later reading fluency. Those students scoring at or above the benchmark for LNF in kindergarten were shown to score at or above the benchmark for R-CBM in fourth grade. Students who did not meet the benchmark for LNF in kindergarten were shown to score below the benchmark on R-CBM in fourth grade.

As previously stated, theories suggest that early letter-naming fluency can predict later reading fluency. This study has concluded that those students that scored at or above the benchmarks for kindergarten fall LNF, were shown to score at or above the spring bench mark on the fourth grade R-CBM. With proper RTI for those students that scored below the fall benchmark of the kindergarten LNF, these students can increase their letter-naming fluency and then in turn increase their reading fluency at the fourth grade level. This study has concluded that letter-naming fluency is a good indicator of later reading fluency and also that identified early, students lacking letter-naming fluency can increase their letter-naming fluency and then become more fluent readers as they progress throughout the upper levels.

With proper RTI, those students that are lacking with LNF at the beginning of kindergarten can improve on this skill and then will improve on reading fluency in fourth grade. Students that score below the benchmark on kindergarten LNF, but do not improve on later benchmarks throughout the year will continue to struggle with later reading fluency.

This makes a valid case for proper RTI during the kindergarten year for LNF. Those students who were shown to respond to RTI with LNF scored at or above the benchmark for R-

CBM by the end of fourth grade. Therefore teachers would be encouraged to provide proper RTI for LNF for students shown to be at risk during the beginning of their kindergarten year.

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