

2017

Invented spelling and its effect on kindergarten students' reading and writing abilities

Kelli A. Daly
University of Northern Iowa

Copyright ©2017 Kelli A. Daly

Follow this and additional works at: <https://scholarworks.uni.edu/grp>

 Part of the [Curriculum and Instruction Commons](#), [Early Childhood Education Commons](#), and the [Language and Literacy Education Commons](#)

Let us know how access to this document benefits you

Recommended Citation

Daly, Kelli A., "Invented spelling and its effect on kindergarten students' reading and writing abilities" (2017). *Graduate Research Papers*. 611.

<https://scholarworks.uni.edu/grp/611>

This Open Access Graduate Research Paper is brought to you for free and open access by the Graduate College at UNI ScholarWorks. It has been accepted for inclusion in Graduate Research Papers by an authorized administrator of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.

Invented spelling and its effect on kindergarten students' reading and writing abilities

Abstract

This review investigated the effects of invented spelling on kindergarten students and how it can affect their phonemic awareness, as well as how it can affect his or her reading and spelling in kindergarten. In addition, this review compared different writing instruction techniques and how they differ and impact a child's writing and spelling in kindergarten. Several articles compare the use and acceptance of invented spelling in comparison to conventional spelling. Findings from the review propose that invented spelling is a beneficial technique to helping young children learn to read and write and has a positive influence on their reading and writing abilities.

INVENTED SPELLING AND ITS EFFECT ON KINDERGARTEN STUDENTS
READING AND WRITING ABILITIES

A Graduate Review

Submitted to the

Division of Early Childhood Education

Department of Curriculum and Instruction

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts in Education

UNIVERSITY OF NORTHERN IOWA

By

Kelli A. Daly

May 2017

This Review By: Kelli A. Daly

Titled: Invented spelling and its effect on kindergarten students reading and writing abilities

has been approved as meeting the research requirement for the
Degree of Master of Arts in Early Childhood Education.

5/10/17
Date Approved

Allison Pattee
Graduate Faculty Reader

5/15/17
Date Approved

Mary Donegan-Ritter
Graduate Faculty Reader

5-10-17
Date Approved

Jill Uhlenberg
Head, Department of Curriculum and Instruction

ABSTRACT

This review investigated the effects of invented spelling on kindergarten students and how it can affect their phonemic awareness, as well as how it can affect his or her reading and spelling in kindergarten. In addition, this review compared different writing instruction techniques and how they differ and impact a child's writing and spelling in kindergarten. Several articles compare the use and acceptance of invented spelling in comparison to conventional spelling. Findings from the review propose that invented spelling is a beneficial technique to helping young children learn to read and write and has a positive influence on their reading and writing abilities.

Table of Contents

ABSTRACT.....	iii
INTRODUCTION	1
Description of Topic.....	1
Rationale.....	5
Purpose of the Review Results.....	6
Terminology.....	7
Research Questions.....	8
LITERATURE REVIEW	10
What is invented spelling?.....	10
Invented spelling and phonological awareness	13
Invented spelling and reading abilities.....	19
Invented spelling and spelling abilities	24
Instructional writing methods	29
RESULTS	38
Conclusions.....	38
Recommendations and Insights.....	38
Future Projects and Research.....	42
Teacher Practices and Educational Policies.....	42
REFERENCES	44

Chapter I

Introduction

Description of Topic

When children are young, they spend a lot of time experimenting with their writing before they learn to conventionally spell words. It has been researched whether or not a child's use of invented spelling, or developmental spelling, plays a role in their learning to read. Approaches which are most effective when teaching writing, and how much time should be spent on writing instruction have also been examined.

Although there are different theories regarding the stages of writing, most of them are comparable to each other in that they begin with scribbles or letter like formations, transition to phonemic spelling, and eventually evolve into conventional spelling. In a study done by Hashemi & Ghalkhani (2016), the five stages of learning to write are discussed, as proposed by Westwood (2005). Before invented spelling occurs, there are other stages of writing that typically occur. The first stage is the prephonemic stage. In this stage of writing, children are imitating writing by copying or inventing random strings of letters. The following example shows how a child may not have the proper formation of letters yet, so they are doing their own representations of what they do know.



In the early phonemic stage, children begin to use what they know about letter names and letter sounds to create words. The child may be familiar with their letters by now, and will use the letters they know to express their thoughts, even though they may be inaccurate.

A series of five handwritten letters: 'I', 'W', 'T', 'N', and 'M'. The letters are thick, black, and somewhat irregular in shape, characteristic of a young child's writing.

Retrieved from: <http://www.mecfny.org/wp-content/uploads/2015/06/StagesofWritinghandout.pdf>

Following the early phonetic stage is the phonetic stage, which is when a child uses their knowledge of letters and letter sounds relationships to represent words. In this example, the child is attempting to write the word “cat,” and includes a picture along with their letter representation.



Retrieved from: <http://www.mecfny.org/wp-content/uploads/2015/06/StagesofWritinghandout.pdf>

According to Westwood, children then progress to the transitional stage, where students now have a more sophisticated understanding of word structure. The child is now able to blend sounds together to form much more accurate spellings of the words.

A sample of early handwriting showing the words 'I LIKE TO PIK FLAS' written in a simple, blocky, and somewhat irregular font. The letters are black on a white background.

Retrieved from: <http://www.mecfny.org/wp-content/uploads/2015/06/StagesofWritinghandout.pdf>

The final stage of writing as proposed by Westwood is the independence stage. During this stage, students are able to use a variety of strategies for checking their words and to create accurate spellings (Hashemi & Ghalkhani, 2016). Children have become familiar with how to conventionally spell some words, and are able to get all or most of the correct letter sound representations.

A sample of early handwriting showing the sentence 'This pumpkin is mine.' written in a simple, blocky, and somewhat irregular font. The letters are black on a white background.

Retrieved from: <http://www.mecfny.org/wp-content/uploads/2015/06/StagesofWritinghandout.pdf>

When looking at the different writing samples of young children, there is a clear progression of their understanding of how letters and letter sounds are combined and used to represent meaningful representations of their ideas. This shows how students use invented spelling from the earliest stages, beginning with just scribbles, and moving forward until they are able to accurately blend sounds and form words. As children are given opportunities to experiment with their writing and connecting letters and letter sounds to their thoughts, they become better at accurately forming words. Spelling is a larger topic of interest for

researchers, as it is considered an important form of communication. It is of concern when children are not learning to spell, which can inhibit their reading abilities. Hashemi and Ghalkhani (2016) express the importance of spelling, stating, “If children cannot read efficiently, they will encounter problems in educational subjects in which writing is necessary.” (p. 730). The two are interrelated and must be taught beginning at a young age.

When thinking of how we teach children reading and writing, there are different approaches that have been researched, including different forms of interactive writing and writing workshops. While research provides evidence of the importance of teaching writing, not all educators are making the appropriate time for it, and students are missing out on meaningful learning opportunities. The Common Core State Standards for English Language Arts & Literacy have specific outcomes for kindergarten students. By the end of kindergarten, children are expected to print many upper-and-lowercase letters, write a letter or letters for most consonant and short-vowel sounds (phonemes), spell simple words phonetically, draw on knowledge of sound-letter relationships and use a combination of drawing, dictating, and writing to write about experiences, stories, people, objects, or events (Puranik, Otaiba, Sidler, & Gruelich, 2014). What is very concerning is how little time is being spent on writing instruction in the kindergarten classroom. Puranik et al. (2014) found that more time is being spent on students writing independently, rather than on teacher instruction, when it is recommended that there be a stronger balance between the two (Puranik, et al., 2014). While teachers may be aware of the expected outcomes for their learners, it is evident that there are some inconsistencies from classroom to classroom. Teachers may not have the training they need to properly incorporate the recommended teaching practices for writing in their classrooms.

Rationale

The relationship between the ability to write and phonological awareness is extremely important because it has been shown to assist in students learning to become proficient readers. In a study conducted by Ouellette and Senechal (2016), they confirm “invented spelling has direct relations over both subsequent reading and spelling skills, and mediates the contribution of both alphabetic knowledge and phonological awareness in early literacy” (p. 85). This is something that I have been able to see in my own classroom, and has become of great interest to me.

When my students first began school in the fall, many of them knew their letters and letter sounds, but were unable to express their thoughts into written words. Although I had no guidance stating that I had to encourage invented spelling versus conventional spelling, I did encourage my students to sound out their words and do their best to blend sounds to form words. From the first weeks of school, I have been amazed at how well the students do with combining sounds to make words and turn their thoughts into meaningful sentences and stories.

At the beginning of the school year, we were provided with a handwriting curriculum, which was intended to teach the children the basic writing strokes and how to form upper- and-lowercase letters and numbers. The students were taught techniques for holding pencils, common language that aligned with the writing curriculum used in all elementary classrooms, educational poems, and other strategies for proper letter formation. After having handwriting instruction, we were able to advance on to journaling, which includes several different opportunities for fiction and nonfiction writing. We also use journaling that relates

to stories that we've read, and writing prompt journals, where students use their imaginations to write a story about a picture. Based on my observations of their writing progress from the beginning of the year, the students seemed to follow the writing stages mentioned earlier. Many began with pre-phonetic writing, where they were just writing letter strings that didn't match up with the words they were trying to express. I would dictate their writing for them. A lot of time has been spent on modeling during writing instruction, where I sound out words as I am writing. I have not been modeling the correct spelling, because many words don't look as they sound. This would be the phonetic-stage, where they are using their knowledge of letters and letter sounds to sound out their words. Along with being able to understand how the sounds and written language can be used to express their thoughts, the students have also learned about the rules of writing, which include when to use upper or lowercase letters, when to use spaces between words, and how to use punctuation. Most of the students are currently in the transitional stage, with a few who are still in the phonetic-stage. They are able to write sentences and words phonetically, and I am able to read them. To me and to the students, this is a huge success. The students are excited about writing each day, and I am excited to see what they will write about.

Due to the structure of my classroom, and the successes I have seen, it had led me to wonder if what I'm doing is appropriate and best practice. I sought out what practices recent research supports, so I can be sure I am doing what is best for my students.

Purpose of Review Results

Currently there are no Common Core State Standards requiring spelling to be taught in kindergarten classrooms. While there are recommendations for using core instruction time

to include teaching writing, there is a greater emphasis on reading. The purpose of this review is to help educators understand how teaching spelling, particularly encouraging invented spelling, can help students to excel in their reading and writing abilities. Ouellette and Senechal (2016) encourage invented spelling, stating that “Allowing children to engage in the analytical process of invented spelling, followed by appropriate feedback, has been found to facilitate learning to read and spell, not hamper the process” (p. 85). While some classrooms may provide minimal time devoted to writing instruction, the purpose of this review is to highly encourage time for writing, specifically invented spelling, in the kindergarten classroom.

In addition to encouraging invented spelling, the purpose of this review is to examine the different approaches to providing writing instruction in the classroom and the amount of time spent on writing instruction. The Common Core State Standards for English Language Arts & Literacy suggest that children receive ninety minutes of reading instruction each day, but it is unclear how much time is being spent on reading and how much time is being spent on writing from classroom to classroom. This review will examine the research that has been done on writing instruction, while comparing different writing approaches and interventions. Educators will be provided with recommendations for providing meaningful writing instruction in their classrooms.

Terminology

Throughout this review, I will use several terms regarding literacy skills. For the purposes of this review of literature, I am using the following definitions to guide the reader:

- Invented spelling: “refers to children’s spontaneous or self-directed attempts

to represent words in print” (Ouellette, 2017, p. 77). Invented spelling can also be defined as when children invent spellings of real words by using their knowledge of letter names, letter sounds, and print conventions (Ahmed & Lombardino, 2000)

- Conventional spelling: the accurate spelling of words.
- Phonemic awareness: refers to “a metalinguistic skill characterized by the ability to analyze the individual phonemes of spoken language” (Werfel & Schuele, 2012, p. 292).
- Phonological awareness: “refers to the ability to detect and to manipulate the elemental sounds in speech” (Ouellette & Senechal, 2017, p. 78).
- Phonemic segmentation: an early literacy skill that involves “breaking words into their component sounds” (Werfel & Schuele, 2012, p. 292).
- Automaticity: otherwise known as fluency, “is defined as the rate at which children can access, retrieve from memory, and write alphabet letters accurately” (Kim et al., 2014, p. 238).
- Orthographic knowledge: the information that a person stores in memory for how spoken language is represented in writing. This includes two types of knowledge: knowledge of orthographic patterns, and knowledge of mental grapheme representations, or MGR’s (Werfel & Schuele, 2012).

Research Questions to be answered

To examine the research on invented spelling and its effect on kindergarten student’s phonemic awareness, I proposed the following questions:

1. How does a kindergarten student’s invented spelling affect their phonological awareness?
2. How does a kindergartener’s use of invented spelling affect his or her reading abilities?

3. How does a kindergartener's use of invented spelling affect his or her writing abilities?
4. How does a teachers writing instruction affect a child's reading and writing abilities?

Chapter II

Literature Review

Invented spelling and its importance in early childhood

When children begin school, many of them are just learning their letters and letter sounds. From there, they learn that putting letters together is a way to form meaningful representations of their expressions. Often times, this can begin as letter strings, which will eventually lead to invented spellings. Those invented spellings are the ways that young children are forming the words they are trying to represent.

Invented spelling is a prereading skill that young children exhibit before they have received any formal instruction in reading and/or writing. In this creative endeavor, young children invent plausible spellings of real words by using their knowledge of letter names, letter sounds, and print conventions (Ahmed & Lombardino, 2000, p. 19).

In this literature review, I will look at the importance of invented spelling by documenting what it looks like, how it affects a child's phonological awareness, and the effect instruction has on reading and writing abilities in kindergarten. In addition, I will compare types of instructional methods used to teach writing and describe how they differ from each other in regards to their success.

Invented spelling and conventional spelling are both very important skills for young children to acquire, as they play an important role in reading skills later in life. They are also important for a variety of other subject areas. "If children cannot read efficiently, they will encounter problems in educational subjects in which writing is necessary. In combined

teaching of the two skills, reading and spelling, one encourages and enhances the other leading to a better and effective learning and success in students” (Hashemi & Ghalkhani, 2016, p. 730). Having the ability to read and write will make learning other skills much easier for students in their future years of education and beyond.

He and Wang (2009) examined how EFL (English as a Foreign Language) kindergarten and first grade students use invented spellings to represent their words. To assess each student’s ability to create invented spellings, researchers met weekly with the study participants to evaluate their writing. The researcher and child would discuss things that have happened in their daily lives and stories they had heard in the past weeks. The researcher then shared what the child would be writing about, giving them a choice of topics. The child would complete the writing task, and was then asked to read aloud what they had written (He & Wang, 2009). The researchers were able to hear and identify how the children used their letter sound knowledge to create spellings. They found that “invented spellings take place because young EFL writers may inaccurately or inappropriately distinguish or articulate phonemes, but still systematically apply phonologically sophisticated principles when they try to represent them” (He & Wang, 2009, p. 54). It appears that young EFL student’s exhibit the phonological awareness and phonemic awareness needed to spell English words. Their ability to create these invented spellings will help them to become conventional spellers as EFL students in the future.

Research by Hashemi and Ghalkhani (2016) investigated how different techniques of teaching spelling to children with no experience with the English language would impact their spelling abilities. Three kindergarten centers were randomly assigned to one of three

groups, which consisted of a control group, a personalized instruction technique group, and a detection technique group. In the personalized instruction group, the researcher tried to connect each letter and sound to something familiar to the child, such as their name, family members, objects, etc. In the detection technique group, children were asked to identify a letter wherever they could find them. To do this, they were given various sources, such as a newspaper, and were asked to circle or highlight the sound (Hashemi & Ghalkhani, 2016). To assess the students, they were first given a pretest, which was just an observation to see if children were able to answer elementary English spelling and reading questions. A posttest consisted of a researcher developed test which was presented to them over a two-month period. During this time, they were assessed on their English letters. In addition, three quizzes were given to the children to make sure that the instructional techniques were beneficial to the students. These quizzes were presented after the introduction of ten English letters. Finally, a questionnaire assessing the attitude of the participants regarding the techniques was administered. At the end of the study, students were assessed on their English letters by doing their best to write down what they heard from a tape recorder, and to use a piece of writing to identify letters they heard. The researchers found both groups spelling performances to be significantly higher on the post-test, but the personalized technique group scores appear to be most effective for learning English language letters (Hashemi & Ghalkhani, 2016). They found that the personalized instruction technique and the detection technique groups were both able to create spellings that exceeded those of the control group. These findings suggest that children who are unfamiliar with the English language letters are able to evolve their knowledge and spelling abilities with exposure to letters, sounds, and different instructional techniques that encourage invented spelling.

Invented spelling and phonological awareness

There have been a variety of studies that examine how a child's phonemic awareness and phonological awareness impact their ability to read in write in kindergarten.

Phonological awareness "refers to the ability to detect and to manipulate the elemental sounds in speech" (Ouellette & Senechal, 2017, p. 78). Children are able to count syllables, make rhymes, and are familiar with similar initial sounds of words. Of the phonological awareness skills, a child's ability to segment phonemes is the leading predictor of early reading and spelling success (Craig, 2006). With phonemic segmentation, children are able to manipulate the individual sounds, or phonemes, of words.

Craig (2006) researched how different instructional approaches impacted kindergarten children's phonological awareness, alphabetic knowledge, and early reading. During the study, children were placed into one of two conditions, which were an experimental group: adapted interactive writing plus letter-sound instruction group, and a comparison group: metalinguistic games plus letter-sound instruction group. Children were then placed into small intervention groups that met four times per week for sixteen weeks. During this time, the interactive writing plus letter-sound instruction group was broken into three parts. First, the tutor read a story with the group. Next, they completed writing, either as a group or individually, and finally they would practice letter sound instruction through word building activities. In the metalinguistic games plus letter-sound instruction group, they engaged in a variety of language games based on the curriculum they followed. These were activities that focused on listening, rhyming, words and sentences, awareness of syllables, initial and final sounds, phonemes, and introducing letters and spellings (Craig, 2000).

While these conditions were very different from each other, the results were not. Both the interactive writing-plus and metalinguistic games-plus children demonstrated similar performances on measures of phonological awareness, spelling, and pseudo word reading. The children in the interactive writing-plus group showed greater progress on measures of real word identification, passage comprehension, and word reading development. Based on the results, it was concluded that writing instruction that is supportive of children's invented spelling and conventional spelling will help them to develop the phonological awareness and alphabetic knowledge needed for early reading (Craig, 2000). In this particular study, invented spelling made a positive impact on a child's ability to read.

In a study conducted by Schuele et al. (2008), three schools were selected from schools participating in the "Virginia Phonemic Awareness Project." The classrooms were either supplemental classrooms, which received Tier 1 and Tier 2 instruction, or comparison classrooms, where teachers continued to implement the literacy program that was currently being used. During the Tier 1 instruction, the kindergarten teacher implemented activities focusing on listening, rhyming, segmenting sentences into words, and segmenting words into syllables. This group also practiced initial and final sounds, segmenting words, and spelling. During the Tier 2 instruction, which was done as a small group, students were pulled for twelve weeks, with three 30 minute sessions each week. The students worked with a SLP (Speech-Language Pathologist), using the IPAP (Intensive Phonemic Awareness Program), which is a phonological awareness intervention program. The skills being practiced included rhyming, initial sounds, final sounds, and segmenting and blending (Schuele et al., 2008). An early literacy battery was administered three times, during the fall, mid-year, and in the spring. This was used to identify the six lowest achieving students. Each child was tested

individually in 20 to 30-minute testing sessions. There were six subtests of the PALS-K (Phonological Awareness Literacy Screening-Kindergarten), which looked at their individual rhyme awareness, beginning sound awareness, alphabet knowledge, letter sound knowledge, spelling, and word recognition in isolation. In addition, a 10-word developmental spelling measure was administered (Schuele et al., 2008). To evaluate the effectiveness of the supplemental curriculum, the researchers looked at the end-of-year student performance on three of the measures, including letter sounds, word recognition in isolation, and the ten-word developmental spelling measure. The results showed that there was little difference between the groups of measures of letter sounds, word recognition, and developmental spelling. The results also suggest that the two-tiered supplemental program will provide a substantial advantage to the children who are considered “low achievers” at mid-year (Schuele et al., 2008). While typical learners may not need intensive instruction, the low-achieving students can definitely benefit from such a phonological awareness intervention.

Silva and Martins (2006) were interested in finding out if a program designed to evolve a child’s invented spelling would have an effect on their phonemic awareness. Their study included ninety middle-class Portuguese kindergarten aged children, who were composed of three groups. Group one consisted of children whose spelling was pre-syllabic, group two of children whose spelling was syllabic without phonetization, and group three included children whose spelling was syllabic with phonetization. Each of these groups was then divided into an experimental group and a control group (Martins & Silva, 2006). Children were assessed by spelling their name and being asked to spell a set of 20 words to the best of their ability. The responses were then classified into categories, which included pre-syllabic, syllabic without phonetization, syllabic with phonetization, and syllabic-

alphabetic/alphabetic. They were classified based on the way the child spelled and read each word. From there, their phonemic skills were evaluated using an initial-phoneme classification test, an initial-phoneme deletion test, and a phonemic segmentation test. Children were also evaluated on their letter knowledge, based on how many letters they could name, and on their intelligence, using the Raven's Progressive Matrices test. Children in the experimental groups met for a total of eight sessions, where they would write ten words beginning with a vowel during the first session, and eight words beginning with the same consonant in the other seven sessions. The sessions lasted about 15 minutes each. The control group was asked to classify geometric shapes, based on the shape, size, or color (Martins & Silva, 2006). When discussing the outcome of their study, Martins and Silva wrote:

“The results we obtained indicate that the training program led the children to improve their performance in phonemic awareness tasks. All the experimental conditions except one (pre-syllabic children results in the initial-phoneme deletion test) produced statistically significant effects in the post-test results. Our data thus support the idea that involvement in writing situations prior to formal education is a factor in the development of phonemic awareness and that this is true from quite elementary forms of spelling onwards” (2006, p. 52).

In their study, they were able to find that children having the exposure to spelling had a positive impact on their phonemic awareness and their future spelling abilities.

He and Wang (2009) assessed how young EFL writers and their invented spellings affected their phonological awareness and grapheme-phoneme principles. Their fourteen-

month study involved only four students, including two kindergarteners and two first graders. All of the students were EFL native speakers of Taiwan Mandarin. Each child met weekly with one of the researchers to complete a free writing task. Children shared their daily experiences, and then discussed topics that they would be writing about next (He & Wang, 2009). When students began writing, they were not given any assistance to help with spelling, and were given an unlimited time to write. After writing, the students were asked to read their writing aloud, which allowed the researchers to see their intentional word meanings, as well as verify that the invented spelling words were close to the traditionally spelled word. One of the researchers also conducted face-to-face interviews with the child to identify what strategies the child used to create their spellings. The findings of their study revealed that even at a young age, children are capable of meaningful writing. Through their research, He and Wang saw that “Invented spellings take place because young EFL writers may inaccurately or inappropriately distinguish or articulate phonemes, but still systematically apply phonologically sophisticated principles when they try to represent them” (He & Wang, 2009, p. 54). As these students continue to get exposure to these skills and more familiar with the sound units of words, they will become more sophisticated spellers and will be better able to produce traditional spellings.

Werfel and Schuele (2012) examined the segmentation and representation of consonant blends in kindergarten children’s spellings. In the study, 40 kindergarten children were assessed three times from November to May. Students were assessed on letter sound knowledge using the letter sounds subtest of the PALS-K (Phonological Awareness Literacy Screening-Kindergarten), where children were asked to produce the sounds of letters and digraphs. A word reading list was presented to them, where children were asked to read as

many words from the list as they could in a one minute timed period. Initial sounds were assessed by asking children to name the sound that was missing when given a word. The final measure evaluated the child's developmental spelling. Children were given words and were asked to spell them to the best of their ability (Werfel & Schuele, 2012). Due to the fact that this study was conducted over a long period of time, and students were assessed three times, it was the hopes of the researcher to view growth in segmentation and representation of consonant blends. The findings suggest that certain skills are more predictive of blend representation, with their knowledge of letter sounds being the most significant (Werfel & Schuele, 2012). In comparison, word position does not appear to be as important. When children have the ability to segment and represent blends, they are able to produce meaningful spellings.

Senechal, Ouellette, Pagan & Lever (2011) researched how invented spelling affected kindergarten students with low-phoneme awareness. They examined whether or not invented spelling would help kindergarten students who were at-risk for reading. The study included 56 kindergarten children who had low phoneme awareness. They were assigned to one of three conditions, which included invented spelling, phoneme segmentation, or storybook reading. The study took place over eight weeks, where the students met in 16 small group sessions. In the invented spelling condition, children were presented with words given orally or in picture form. The child had to print the word to the best of their ability. This exercise included feedback from the instructor, which gradually increased with each session. Feedback began with praise, and eventually the instructor was showing the child which letters were unnecessary. In the phoneme awareness condition, children were matching pictures to other pictures with the same initial and final sounds. They were then taught a

phoneme segmenting task where they used a stamp to mark for each phoneme of a word given. Finally, in the storybook reading condition, children participated in shared reading sessions. Children were exposed to a target word, shown a picture of the target item, and then asked to repeat the word (Senechal et al., 2011). Children were assessed on their alphabetic knowledge, their phoneme awareness, and their invented spelling. To assess alphabetic knowledge, children had to identify the sounds of random letters presented to them. To assess phoneme awareness, three subtests of the Comprehensive Test of Phonological Processing was used. Within the three subtests, children had to match pictures to other pictures that began or ended with the same sound, listen to a word and then be able to identify what sound was deleted when the word was repeated, and had to blend words based on individual sounds heard on a recording. To assess the children's invented spelling, children were asked to spell five words to the best of their ability. Children were also asked to read five high frequency words and three additional words to assess their word reading abilities (Senechal et al., 2011). At the conclusion of their study, Senechal et al. found that invented spelling can be favorable for students in kindergarten and at risk for reading difficulties due to poor phoneme awareness. When given a learn-to-read task, children trained in invented spelling exceeded children who had received phoneme awareness training or an alternative intervention (Senechal, et al., 2011). While each of the interventions had benefits to the children and their phoneme awareness, the invented spelling group showed the most promising results of future reading abilities.

Invented Spelling and Reading Abilities

Extensive research has been conducted on the impact of invented spelling on a young

child's reading abilities from an early age and how it can affect their reading in the future.

Various studies suggest that the use of invented spelling in an early childhood classroom will have a positive impact on their future reading abilities.

Ouellette and Senechal (2008) developed an intervention study which tested whether invented spelling plays a role in learning to read. In the study, three groups of children participated in a four-week intervention. Children were divided into three groups, which included an invented-spelling group, a phonological awareness group, and a control group. In the invented-spelling group, students were asked to write words to the best of their ability, and were then provided feedback showing how to correctly spell the word, even if not shown the exact way. In the phonological awareness group, students were taught to break words into segments. Children had to find pictures that began or ended with the same sound. The other task was making the correct number for each phoneme of the words they were presented. The control group received instruction that was similar to the invented-spelling group, except they were asked to draw a picture rather than to write the word (Ouellette & Senechal, 2008). There were a variety of measures used to assess the students prior to the intervention and post-intervention. The students were assessed on their invented spelling by spelling 10 words to the best of their ability. Children were assessed on word reading skills by reading five high frequency irregularly spelled words, and five high frequency decodable words. Letter sound knowledge was assessed by having students provide the sounds of 24 letters of the alphabet and three digraphs. Phonological awareness was assessed using three subtests of the Comprehensive Test of Phonological Awareness. In the learn-to-read task, children were taught to read 10 decodable words. The final assessment measure looked at orthographic awareness, which was deemed an unreliable source. Children were not expected to do well

on this task, and they seemed to do well more by chance (Ouellette & Senechal, 2008). The findings of the study concluded that invented spelling does indeed play an important role in the acquisition of early literacy skills. The students from the invented spelling group exhibited more advanced invented spellings than the other groups, and also demonstrated a superior ability to read words used in the training protocol (Ouellette & Senechal, 2008). The invented-spelling group also outperformed the other two groups on the learn-to-read task, suggesting that this intervention is beneficial in helping children learn to read.

An additional study by Ouellette and Senechal (2017) investigated a child's use of invented spelling in kindergarten and its impact on their reading and writing abilities in first grade. Each of the 171 participating students was tested in early kindergarten, and again in first grade. When students were in kindergarten, they were assessed on oral vocabulary, phonological awareness, alphabet knowledge, invented spelling, and reading. Oral vocabulary was tested by presenting the students with a word and having them find the most fitting picture to match that word. The phonological awareness assessment had children name pictures with similar beginning or ending sounds, repeat words verbatim and also with omitted sounds, and were also asked to listen to a recording of phonemes and blend the sounds together to form words. To assess alphabet knowledge, children were shown 27 letters and digraphs and had to name the letter and its sound. Invented spelling was assessed by the assessment administrator saying the name of an object while showing them a picture, and then asking them to spell the words to the best of their ability. In order to assess reading, students were asked to read a list of 10 words, which included high frequency decodable words and high frequency irregular words (Ouellette & Senechal, 2017). In first grade, students were only assessed on their reading and conventional spelling abilities. To assess

reading, students were presented with a list of 15 words and were asked to either read or sound out the words. To assess conventional spelling, children were asked to spell 12 words after hearing them in isolation, hearing the word in a sentence, and then the word repeated. Children were assessed on these measures at the beginning of the kindergarten school year, and then again half-way through 1st grade. Concluding remarks in Ouellette and Senechal's study suggests that invented spelling plays a very beneficial role in a child's ability to learn to read. "The present results add direct longitudinal evidence that invented spelling has direct relations over both subsequent reading and spelling skills, and mediates the contribution of both alphabetic knowledge and phonological awareness in early literacy learning" (Ouellette and Senechal, 2016, p. 85). In addition, invented spelling is appropriate for kindergarten age children. They found that allowing and encouraging these young students to use invented spelling in the classroom would have a positive impact on their future reading and writing abilities.

Uhry (1999) explored the relationship between finger-point reading and invented spelling. In this particular study, 109 kindergarten students were selected from an urban public school. To examine this topic, classroom teachers were provided with an unfamiliar big book to read aloud to the class. The book was read aloud to the class several times a day, for at least four days. After the multiple readings, the researcher took each child out of the classroom for a 20 to 25-minute testing sessions. Children were assessed on oral vocabulary, letter naming, phonological awareness, invented spelling, finger-point reading, the ability to locate words, and word identification (Uhry, 1999). At the conclusion of the study, Uhry found results similar to those of other such studies, revealing that letter knowledge and phonological awareness are heavily correlated with reading. Results also suggest that

invented spelling is a meaningful predictor of a child's ability to match voice with print during finger-point reading (Uhry, 1999). The child's ability to use invented spelling, due to their letter sound knowledge, provides guidance in reading the text shown.

Clemens, Oslund, Simmons and Simmons (2014) researched which methods for scoring a child's spelling abilities at the end of their kindergarten year are associated with reading skills measured at the same time at the end of first grade. The study included a sample of 287 kindergarten students who participated in a year-long intervention for students considered at-risk for reading difficulties. The students met in small groups five days each week for 30 minutes. Two interventions were compared, which included the "Early Reading Intervention" and the standard intervention implemented by the schools (Clemens et al., 2014). Each of the intervention groups received fairly similar instruction:

"The ERI program consists of explicit instruction targeting letter names and sounds, phonemic awareness, decoding, word recognition, and reading short sentences.

Writing and spelling are integrated into each lesson. Interventionists in the typical practice condition provided school-designed beginning reading intervention, and the content and instructional approaches were allowed to vary naturally. Across this condition lessons targeted letter and sounds, decoding skills, phonological awareness, writing, spelling, vocabulary, and comprehension activities" (Clemens et al., 2014, p. 51).

In regards to spelling, students were scored based on the number of words spelled correctly, the number of correct letter sounds, the number of correct letter sequences, a rubric used to score invented spellings, and calculating the Spelling Sensitivity Score. The findings

of the study found that the kindergarten spelling scores were a predictor of reading skills in first grade. This suggests that utilizing a kindergarten spelling assessment may provide information regarding future reading achievement that may not be explained by kindergarten word reading skills (Clemens, et al., 2014). While the findings don't specify whether or not the students who provided invented spellings are more advanced readers, it does provide information regarding what their reading abilities will be in the future. Using tools to assess kindergarten students on their spelling abilities is a predictor of their future reading abilities and allows the teacher to determine if that child may need more intensive instruction while in kindergarten.

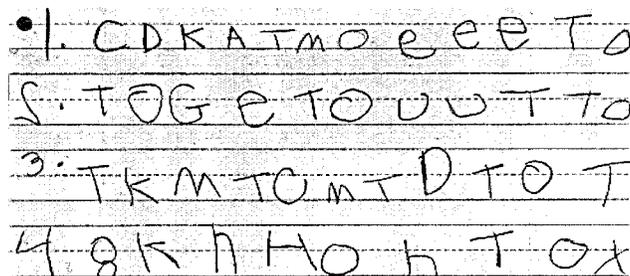
Each of these studies provides evidence of the benefits of invented spelling in the classroom and how it can improve a child's ability to learn to read. When children are using their letter sound knowledge to read and write words, they are developing a more sophisticated understanding how phonemes are combined to produce written and spoken words.

Invented Spelling and Writing Abilities

Examining research that looks into children's spelling abilities in kindergarten often view how it affects their spelling and writing beyond. There are many factors that go into a child's writing abilities, so examining those skills and comparing them to a child's writing later in elementary can be a good predictor of what skills are essential to a child's kindergarten learning.

Puranik and Otaiba (2012) examined how handwriting and spelling impact the written expression of kindergarten children. The study included 21 teachers and 242 kindergarten

students. Teachers were using the language arts curriculum, *Open Court*, which provides instruction in phonological awareness, phonics, vocabulary, and comprehension (Puranik & Otaiba, 2012). Students were assessed in the areas of written expression, spelling, and handwriting fluency during the spring of their kindergarten year. To assess students in written expression, students were asked to write about what they have enjoyed about kindergarten. Students wrote for 15 minutes. Children read their writing aloud to make sure the research assistant understood what was being expressed by the child. Spelling was assessed by asking students to spell a list of 14 words, which included decodable words, sight words, and nonsense words. The research assistant said the word alone, then in a sentence, and then repeated the word. Nonsense words were not used in a sentence, but were repeated three times for the child. The child then wrote each of the words to the best of their ability. Handwriting fluency was assessed by having children write all letters of the alphabet, in lowercase form, and in alphabetical order. The students were given 60 seconds to do their letter writing (Puranik & Otaiba, 2012). Upon reviewing their writing samples, the following is an example of what they referred to as a “poor writing sample.”



(Fig. 2, Puranik & Otaiba, 2012)

An average kindergarten writer sample would express more ideas. The following sample is that of an “average kindergarten writer.”

• I like to et CapCaks!
 I like to play on the
 play Gard! I like to have
 hat CoCo!
 I like to read books!

(Fig. 2, Puranik & Otaiba, 2012)

The final sample provides an example of what a “good kindergarten writer” would provide when asked to express their ideas.

• I like learning about the different states
 (learning about different states)
 I like when we read words
 when we go to the rug
 when we spell
 when we learn different words
 when it is a good story
 when we go outside
 when we do books
 and when we learn

(Fig. 3, Puranik & Otaiba, 2012)

This sample provides more appropriate ideas based on the initial question, where the research assistant asked the child what they have enjoyed in kindergarten and what they have learned so far. Based on the results and the samples, it appears that the children who are considered good writers used their letter sound knowledge to spell words they did not know how to spell conventionally. The findings from this study confirmed that handwriting and spelling are significant factors in early writing development (Puranik & Otaiba, 2012). For children who are able to write their letters automatically and have letter sound knowledge, they are able to

express their ideas in meaningful ways through writing.

Kim, Otaiba, Puranik, Folsom, and Gruelich (2014) examined the relationship between letter names and sounds and letter automaticity, and the relationship between letter writing automaticity and semantic knowledge to word reading and spelling (Kim, et al., 2014). The study included 21 teachers and 242 students who participated in spelling assessments. Children were assessed on word reading, spelling, vocabulary knowledge, phonological awareness, alphabet knowledge fluency, and letter writing automaticity. To assess word reading, five measures were used to determine how students read letters and words, decode nonwords, read sight words, and read phonetic words. To assess spelling, students were asked to spell five decodable words, five sight words, and four nonsense words. Vocabulary knowledge was assessed by asking children to identify objects that were shown to them, and to point to pictures that best matched the examiner's prompts. The examiners used the Blending Words and Elision subtests of the comprehensive test of phonological processing to assess phonological awareness. Students were asked to blend sounds to form real words and to say a word after deleting a sound. Alphabet knowledge was assessed using two measures, where students were given one minute to name as many uppercase and lower-case letters as possible. Students were also asked to name and produce the letter sounds. To assess letter writing automaticity, students were asked to write the alphabet as fast and as accurately as they could in one minute. Upon reviewing the assessment results, letter writing automaticity was more related to spelling than to word reading (Kim et al., 2014). Students who were more familiar with the letters and letter formations have an easier time forming words, because they do not have to consider letter formation for as long during writing. While phonological awareness, alphabet knowledge

fluency, and vocabulary knowledge are considered predictors of spelling performance, the amount of letters a child can write accurately within a specified period of time may also be a significant factor (Kim et al., 2014). A student's phonological awareness and alphabet knowledge are extremely important factors for spelling, but a child's letter writing automaticity also plays an important role. When combined, children are able to form meaningful invented spellings.

Critten, Sheriston, and Mann (2016) considered the different spelling representations and strategies used by young children. They explored what results would be found when combining two different models of development, which includes the Representational Redescription Model (RR) and the Overlapping Waves model (OW). The RR model "describes learning as a process through a multi-representational system whereby implicit level representations of knowledge are redescribed into a series of more explicit representations (Levels E1, E2, E3)" (Critten et al., 2016, p. 34). Different from the RR model, the OW model:

"explores variation and adaptive change in children's domain-specific problem-solving strategies and proposes that children will use a variety of strategies to solve a problem, often choosing from a co-existing repertoire of procedures depending on the nature of the problem they are attempting to solve" (Critten et al., 2016, 35).

The study included 96 children who participated in two 45-minute testing sessions. The testing sessions measured each student's expressive vocabulary, spelling ability, spelling recognition, and spelling production. To assess vocabulary, students were asked to provide the meaning of 30 words presented to them. Spelling ability was assessed by asking children

to write up to 75 words. Spelling recognition was assessed by giving students alternative spellings to 30 different words, and having them determine the correct spelling. The spelling production task asked children to spell 30 different words to the best of their ability (Critten et al., 2016). In their research to find the relationship between early spelling representations and spelling production, Critten et al. placed children into three groups based on the sophistication of their spelling. The researchers found a strong correlation between the spelling representations and the spelling procedures used by children. Ultimately, the amount of exposure students had with spelling and different spelling strategies played a large role in their future spelling abilities.

Instructional Writing Methods in Kindergarten

Investigating different approaches to teaching writing to kindergarten aged students could help support inventive spelling in the classroom. While there are many different instructional routines, it appears that not all of them will produce the same outcomes that will most effectively enhance reading abilities.

Levin & Aram (2013) explored how a writing program would affect the reading and writing abilities of children from low socio-economic backgrounds. The study included 197 kindergarten students, who participated in the six-phase program. During the first phase, students were given pretest assessments over a one week period. An eight-week intervention was then conducted, followed by a midterm assessment that was identical to the pretest. A one-month vacation was provided, and then a second eight-week intervention was implemented, followed by the posttest, that was again identical to the pretest and midterm assessment. The assessments used in the study included a teacher-reported demographic

scale, a teacher rating of each child's self-regulation, and five measures of the student's early literacy skills. The early literacy skills included letter names, letters for sounds, word segmentation, word spelling, and word decoding. For the letter naming assessment, students were asked to identify 22 letters presented in random order and letter sounds were assessed by asking students to name 16 sounds. Word segmentation was assessed by asking students to segment the words provided and to place a cube on a board for each segment of a word. To assess word spelling, students were first asked to spell their name, and then to use magnetic cards to spell the 12 words given. Students were asked to read 12 words to assess their word decoding abilities (Levin & Aram, 2013). After the assessment, students participated in 16 training sessions. During the sessions, students were asked to spell five dictated words, and five different words. Each of the three groups were treated differently following their spellings. In the process-product mediation group, the experimenter provided step by step guidance during invented spelling until a child could correctly spell the word with magnetic letters and say the word aloud. In the product mediation group, the experimenter provided the spelling of a word by naming each letter of the word while creating the correct spelling. In the no-mediation group, the experimenter asked the student to spell the word twice and provided no feedback. Based on their findings, Levin and Aram concluded that the groups that provided explanation of the processes of invented spelling, and provided the proper spelling, had the most impact on early literacy skills. While this may be true for the students involved in the study, not all students may be ready for this type of multi-step instruction. Regardless, the study shows that providing spelling instruction for students who are considered at-risk can greatly improve their reading and writing abilities.

Lee and Scanlon (2015) investigated how an interactive strategies approach would

affect kindergarten students who are considered at-risk for spelling. In their study, 232 students were screened and then assigned to either an intervention group or the comparison group. Several measures were used to place children into groups. Letter identification was assessed by asking children to name letters of the alphabet presented in uppercase and lowercase form. Alliteration detection was assessed by presenting children with three pictures, and asking them to identify which picture had a different beginning sound from the others. To assess rhyming skills, children were asked to name which two of the three pictures presented a rhyming word. In addition, kindergarten students were assessed on letter sound knowledge, phoneme segmentation, primary word identification, primary decoding, and developmental spelling (Lee & Scanlon, 2015). Following the placement of students, intervention began. Small groups met for 30 minutes, two times each week. This intervention continued from October thru May of the school year. During each session, students practiced phonological skills, phoneme awareness, high frequency word practice, and reading and writing. Children who were not in the intervention group received the normal classroom instruction (Lee & Scanlon, 2015). Findings from the study indicated that by the end of kindergarten, the children who received the intervention had significantly more advanced spellings than the children in the comparison group. These results suggest that the intervention helped children to obtain a no-longer-at risk status and improved the spellings of those who were still considered at-risk for spelling (Lee & Scanlon, 2015). Children who received the intervention not only made gains in their spelling, but also in their reading abilities.

A study done by Puranik, Otaiba, Sidler, & Greulich (2014) examined the amount of time spent on writing instruction and the types of writing instruction used across kindergarten

classrooms. There were 21 teachers from five schools, and a total of 238 kindergarten students participating in the study. In the spring of kindergarten, children were assessed on their writing using a measure of spelling, handwriting fluency, and written composition. To assess spelling, students were asked to spell 14 words, which included decodable words, sight words, and nonsense words. Handwriting fluency was assessed by having the students write all letters, in lowercase and alphabetical order. To assess writing productivity, children were asked about what they liked, have done, or have learned in kindergarten (Puranik et al., 2014). Students were given 15 minutes to write, and were then scored based on the total number of words written. To examine how much time was spent on writing in kindergarten classrooms, the classrooms were observed during their ninety-minute language arts block. Writing observations were divided into two categories, which included independent-student practice, or teacher-directed writing instruction. During the observations, the researchers were looking for inclusion of recommended practices, where teachers are providing students with daily writing opportunities, learning to write for a variety of purposes, and where children are becoming fluent in writing and spelling (Puranik et al., 2014). The findings of the study were a bit concerning. On average, only 6.1 minutes in the fall and 10.5 minutes in the winter were spent on writing instruction in the kindergarten classroom. Recommended practice suggests spending at least 30 minutes each day on writing and writing skills (Puranik et al., 2014). The amount of time spent on writing in these observed classrooms was minimal compared to what is recommended practice. In addition, they found that most of the time was spent on students writing independently rather than on teacher directed instruction. Writing experts recommend that the writing instruction in primary grades include a balance between teacher instruction and student independent writing, so this finding is a bit problematic

(Puranik et al., 2014). There were no consistent findings as to how much actual handwriting instruction was being taught, and the classrooms even within the same schools had very inconsistent amounts of time spent on writing and types of writing being used. It is evident from the findings of this study that there needs to be more consistency within schools, and more time devoted to teaching writing instruction.

Jones, Reutzel, & Fargo (2010) compared two different forms of kindergarten classroom writing teaching instruction, which included interactive writing and writing workshop. The 151 students were randomly assigned to either the interactive writing instruction, or to the writing workshop instruction. The intervention lasted for 16 weeks, from the beginning of school until students left for winter break, with writing instruction for 15 minutes for half day and 30 minutes for full day (Jones et al., 2010). In the interactive writing intervention, the teacher would read a story to the class, and then they would decide on a writing topic. The students and the teacher would share the pen and write on large chart paper. They would discuss the letter-sound relationships, sight words, irregular words, and properties of writing. At this time, the other students were writing the same things independently. In the writing workshop intervention, students did independent writing, where the teacher provided guidance. During writing workshop, there was a mini lesson at the beginning of the instruction, followed by writing and conferencing, and then sharing at least once each week. While students wrote independently, they were encouraged to use invented spelling (Jones et al., 2010). Students were assessed on their phonological awareness, alphabet knowledge, and word reading four times during the sixteen-week intervention period. To assess phonological awareness, students were given the Comprehensive Test of Phonological Processing, which has subtests assessing their letter sound omission, blending

words, and sound matching. Alphabet knowledge was assessed using the letter identification task, where they provided letter names and sounds. Word reading included reading sight words and deciding phonemic nonwords using the Test of Word Reading Efficiency. The student was scored based on how many decodable nonwords were read in 45 seconds (Jones et al., 2010). The conclusion of the study found that there were no significant differences between the interactive writing group and the writing workshop group, and that they both made equal growth over the 16-week intervention period. These results encourage flexibility in writing instruction. Teachers are free to use instructional writing methods of their choice, as long as they are engaging students in writing. There is no definite form of writing instruction that best fits the needs of every student or teacher, so teachers need to determine which form of writing instruction will be most meaningful for them and their group of students (Jones et al., 2010). With these findings, it is important for educators to acknowledge that while they are both successful instructional writing approaches, there needs to be consistency. Children need to be participating in these writing activities on a regular basis in order to achieve the desired outcome.

As discussed earlier in this review, Craig (2006) compared two instructional approaches, which included an adapted interactive writing program with a program of metalinguistic games. The interactive writing program consisted of three phases. The text phase included a reading of the tutors choosing. Following the text phase, students engaged in interactive writing, where they shared the pen to write words while receiving guidance from the tutor. The final phase included letter-sound instruction, where students were encouraged to identify the missing word of a sentence and then segment it while writing. Children took turns writing the word with the tutor while other children used white erase

boards. The children were evaluated based on the observations of the tutor (Craig, 2006). In the metalinguistic games group, children participated in a phonological awareness and alphabet training program. During the first four weeks, this group engaged in rhyming, sentences, words, and syllable activities. The remaining 12 weeks were spent on practicing and extending phoneme analysis with letter-sound instruction (Craig, 2006). Following the instructional programs, students were assessed on phonological awareness, letter knowledge, spelling, and reading. Results of the study indicated that both approaches produced comparable results on measures of phonological awareness, spelling, and pseudo word reading. The interactive writing plus group performed more competently on measures of real word identification, passage comprehension, and word reading development. While both approaches showed the students making growth, the results suggest that encouraging invented spelling and conventional spelling during writing instruction would provide students with the fundamental phonological awareness and alphabetic knowledge they would need for early reading (Craig, 2006). It does not seem to suggest that one approach is more valuable than the other, as long as this important skill is encouraged by the teacher.

Earlier in this review, Lee and Scanlon's (2015) study on an interactive writing approach was discussed. Students either participated in an intervention or in their regular classroom instruction. Students in the intervention group received 20 minutes of small group instruction, twice each week. Each session included three to four components: phonological skills instruction including alphabetic code and phoneme awareness, reading, writing, and high frequency word practice. Reading included rereading a familiar book or reading a new book (Lee & Scanlon, 2015). Students were assessed on letter identification, alliteration detection, and rhyme detection. In addition, measures assessing letter sounds, phoneme

segmentation, primary word identification, primary decoding, developmental spelling, and finger point reading were used to assess kindergarten skills. The results of the study found that students who received the intervention made more spelling progress than the students who did not participate in the intervention (Lee & Scanlon, 2015). The students who participated in the intervention program were found to be at-risk for reading and writing. While this study doesn't compare different writing instruction techniques, it is apparent that students who struggle with reading and writing would benefit from intervention in addition to their regular classroom instruction.

Mata (2011) did not explore different writing instruction techniques, but rather investigated what motivates young kindergarten children to read and write. In order to understand how children will actively participate in writing instruction, Mata explored what makes writing meaningful to young children. With parent permission, 451 students participated in the study, which included a 15-minute interview with each child during the last three months of the school year. The Motivation for Reading and Writing Profile (MRWP) was used to assess motivation, which addresses enjoyment of reading and writing, value and importance of reading and writing, and self-concept as a reader and writer (Mata, 2011). The highest scoring motivational aspect was value, followed by self-concept, and lastly enjoyment. This suggests that student's associate reading and writing with having value more than writing for the enjoyment (Mata, 2011). The students may not necessarily enjoy performing reading and writing tasks, but they know that it is an important skill, and that is what motivates them to read and write. The author also recognizes that in order for children to stay motivated, they need to have opportunities to understand, value, and apply meaningful writing. Using situations that children can relate to and including real-life

situations will create a purpose to the young writers (Mata, 2011). Through this study, the author was able to see that young children are highly motivated to read and write, but that this motivation declines as they get into upper elementary. Due to this, it is important that educators are continuing to provide meaningful literacy experiences to children.

In this chapter, I discussed the importance of invented spelling in the early childhood classroom. Several articles were reviewed and provided evidence regarding the importance of invented spelling and its impact on children's phonological awareness, reading, and writing abilities. Invented spelling is a spelling strategy that should be encouraged in the early childhood classroom, as it will help to strengthen these abilities and allow for further growth in reading and writing as they progress through the elementary grades. In the following chapter, I will discuss the conclusions and present recommendations for encouraging invented spelling in the early childhood classroom.

Chapter III

Results

The purpose of this review was to examine how invented spelling impacts a child's ability to read and write. This review focused on kindergarten aged students and how invented spelling can have an effect on their reading and writing in kindergarten. In the articles I reviewed, I was able to compare different writing and spelling instructional techniques and determine if there is a more successful strategy than others.

Conclusions

The findings indicating the correlation between invented spelling and reading and writing abilities in kindergarten suggests that teachers should encourage the use of invented spelling in the kindergarten classroom. Teachers can encourage children to use invented spelling, and can provide guidance if their spellings aren't phonetically correct. Teaching students invented spelling will later help them to become more sophisticated spellers. Having consistent practice at this skill will contribute to their reading and writing abilities.

Insights and Recommendations

My first review question investigated how a kindergarten student's invented spelling would affect their phonological awareness. I reviewed several articles and found that a child's phonological awareness and their ability to create invented spellings are highly correlated. Children use their phonological awareness to blend phonemes in an effort to make meaningful words. As they become more familiar with those sounds, they are able to create more sophisticated representations. Martins & Silva (2006) "support the idea that

involvement in writing situations prior to formal education is a factor in the development of phonemic awareness and that this is true from quite elementary forms of writing” (Martins & Silva, 2006). Teachers need to provide children with a variety of opportunities to participate in phonological and phonemic awareness activities and to encourage them to use those skills through writing. These practices will have a strong impact on their future writing abilities.

The second question in my review explored how a kindergartener’s use of invented spelling affects his or her reading abilities. Research shows that invented spelling has a positive impact on kindergarten children’s ability to learn to read in kindergarten and to become proficient readers after. Ouellette & Senechal (2017) discussed how invented spelling is beneficial to students and their abilities to read, stating that “Allowing children to engage in the analytical process of invented spelling, followed by appropriate feedback, has been found to facilitate learning to read and spell, not hamper the process” (Ouellette & Senechal, 2017). Allowing for invented spelling in the classroom will help children to develop more sophisticated spelling abilities, which then has been found to transfer to their reading. It is important to remember that in early childhood education, including kindergarten, children shouldn’t be expected to correctly spell everything, but should be allowed to use what they know to create their own meaningful spellings.

My next review question considered how a kindergartener’s use of invented spelling would affect his or her writing abilities. The literature that was reviewed examined the general spelling abilities of kindergarten students, and what skills were necessary to be considered “good spellers.” The children who had what is considered good handwriting skills were able to sound out their words and were officially deemed the good writers because of these abilities. Ouellette & Senechal (2008) confirmed the value of invented spelling,

recognizing that the participants of their invented spelling group did provide more advanced spellings and phonological awareness than the other groups (Ouellette & Senechal, 2008). Encouraging the use of invented spelling, while providing guidance during the process of creating those representations, will help children to understand and make letter sound connections. As they continue to have these opportunities, their spellings will become more sophisticated and will help them to become conventional spellers.

My final review question explored how a teacher's writing instruction affect a child's reading and writing abilities. The two most common instructional techniques researched include an interactive strategies approach, and writing workshop in the classroom. It was concluded that any writing instruction is better than none at all. Levin & Aram (2013) found that instruction describing the multi-step process involved in the invented spelling of a word, along with displaying the correct spelling of a word, had a positive impact on a child's early literacy skills (Levin & Aram, 2013). The children who received intervention and instruction on the steps it took to form meaningful spellings helped the children understand, and in the end, become more sophisticated spellers. While invented spelling is a beneficial skill to acquire, guidance needs to be offered during writing practice to eventually become conventional spellers. Jones, Reutzler, & Fargo (2010) explored the different effects of writing workshops and an interactive strategies approach as forms of writing instruction. The study determined that student growth in phonological awareness, alphabet knowledge and word reading ability is a significant predictor of a child's reading and writing abilities. Both the interactive writing group and the writing workshop group exhibited equivalent growth over time for these three measures (Jones et al., 2010). This finding shows that both methods of writing instruction are beneficial to the students, and that teachers should conclude what

form of instruction will be most meaningful to their group of students.

While I firmly believe invented spelling to be a meaningful form of spelling in the kindergarten classroom, my review has further confirmed the value of using invented spelling for students learning to read and write. As a kindergarten teacher, I see invented spelling every day in my classroom, and have been able to see how those who are “good spellers” are also turning into “good readers.” I recommend encouraging invented spelling in the kindergarten classroom and even in preschool if the child is developmentally ready. Along with that, the research has shown that teachers should provide feedback and guidance to help children understand how the letters and their sounds are used to form meaningful representations of their ideas.

There is a correlation between the amount of time spent on writing instruction, independent practice, and a child’s ability to write. Some educators in kindergarten don’t consider handwriting or writing to be an important skill for kindergarten children in comparison to reading, and don’t allow for as much writing time in the classroom as stated in this review. I believe that spending time on writing instruction and providing those experiences is very meaningful for a child’s reading and writing abilities later in life. The recommended amount of time spent on handwriting instruction ranges from 75 to 110 minutes per week, or 30 minutes per day if possible. I would encourage kindergarten teachers to provide instruction in handwriting and general writing instruction every day of the school year. During that writing time, it is important to maintain balance between teacher instruction and student independent writing (Puranik et al., 2014). Children need consistent opportunities to work on and enhance their writing skills. Whether it be with an interactive writing approach or writing workshop, any form of writing instruction will benefit those children and

will help them to become proficient readers and writers. For students who clearly may have challenges with these skills, providing intervention that enhances these abilities and understandings will be extremely valuable in their future in school.

Future Research

This review included several studies of students from various populations, including urban schools, suburban schools, lower class students, middle class students, and students from various countries. It would be interesting to see the results if those diverse populations were combined within one study, to see how each population varies in their spelling abilities. It would also be valuable to see how the reading and spelling instruction in the classroom of teachers varied, based on the teacher's literacy background and teaching experience. Finally, I believe that in order to truly see the impact of invented spelling on a child's reading and writing abilities, the studies should extend for longer periods of time. While some of them did last for the full school year, some of them were only weeks long, which may not provide an accurate depiction of the effects of the study.

Teacher Practices and Educational Policies

There are currently no requirements for using a handwriting curriculum in kindergarten. This means that there is very inconsistent instruction going on from school to school, with some providing no handwriting instruction at all. In order for children to become good writers, they need to be able to form their letters properly, and that is where handwriting becomes extremely important. I believe that putting more of an emphasis on handwriting and having consistency at least within the school district will help those students to become more fluent writers.

While the amount of time spent on handwriting, writing, and spelling is already lagging in many schools, this lack of instruction is even more impactful on the struggling students. There is no consistent definition for students who have a writing disability, or any consistent measure to determine if a child is at risk for future writing difficulties. It would be useful to educators and families to have a specific measure to determine a writing deficiency, followed by interventions that have proven to be beneficial. Some teachers are able to decide if a child may be struggling, but often times aren't sure how to provide meaningful intervention and support. Having the resources that are necessary to help those students excel would be extremely valuable.

This review was personally very important to me because as a kindergarten teacher, I believe writing to be a very important skill. I encourage the use of invented spelling, and model it when I am providing writing instruction. I demonstrate for the children how to sound out words and write their ideas. This experience can lead to multiple words and eventually into a whole story. The research has provided evidence that there are many benefits of using invented spelling during writing, and that knowledge carries over into the child's reading and spelling abilities later in life. It is important for young children to be given frequent opportunities to write and to have the opportunity to use what they know about letters and letter sounds to form written words so that they are able to express their ideas in a meaningful way.

References

- Ahmed, S. & Lombardino, L. (2000). Invented spelling: An assessment and intervention protocol for kindergarten children. *Communication Disorders Quarterly*, 22(1), 19-28.
- Clemens, N., Oslund, E., Simmons, L., & Simmons, D. (2014). Assessing spelling in kindergarten: Further comparison of scoring metrics and their relation to reading skills. *Journal of School Psychology*, 52, 49-61.
doi: 10.1016/j.jsp.2013.12.005
- Craig, S. (2006). The effects of an adapted interactive writing intervention on kindergarten children's phonological awareness, spelling, and early reading development: A contextualized approach to instruction. *Journal of Educational Psychology*, 98(4), 714-731. doi: 10.1037/0022-0663.98.4.718
- Critten, S., Sheriston, L., & Mann, F. (2016). Young children's spelling representations and spelling strategies. *Learning and Instruction*, 46, 34-44. doi: 10.1016/j.learninstruc.2016.09.001
- Hashemi, A.& Ghalkhani, O. (2016). The impact of different teaching strategies on teaching spelling to kindergarten children. *Journal of Language Teaching and Research*, 7(4), 730-737. doi: 10.17507/jltr.0704.13
- He, T., & Wang, W. (2009). Invented spelling of EFL young beginning writers and its relation with phonological awareness and grapheme-phoneme principles. *Journal of Second Language Writing*, 18, 44-56. doi:10.1016/j.jslw.2008.06.001
- Jones, C., Reutzel, D., & Fargo, J. (2010). Comparing two methods of writing instruction: Effects on kindergarten students reading skills. *The Journal of Educational Research*, 103, 327-341. doi: 10.1080/00220670903383119

- Kim, Y., Otaiba, S., Puranik, C., Folsom, J., & Gruelich, L. (2014). The contributions of vocabulary and letter writing automaticity to word reading and spelling for kindergarteners. *Reading and Writing, 27*, 237-253.
doi: 10.1007/s11145-013-9440-9
- Lee, S., & Scanlon, D. (2015). The effects of the interactive strategies approach on at-risk kindergartners' spelling. *Reading and Writing, 28*, 313-346.
doi: 10.1007/s11145-014-9526-z
- Levin, I., & Aram, D. (2013). Promoting early literacy via practicing invented spelling: A comparison of different mediation routines. *Reading Research Quarterly, 48*(3), 221-236. doi: 10.1002/rrq.48
- Martins, M.A. & Silva, C. (2006). The impact of invented spelling on phonemic awareness. *Learning and Instruction, 16*, 41-56.
- Mata, L., (2011). Motivation for reading and writing in kindergarten children. *Reading Psychology, 32*, 272-299. doi: 10.1080/02702711.2010.545268
- Ouellette, G. & Sénéchal, M. (2016). Invented spelling in kindergarten as a predictor of reading and spelling in grade 1: A new pathway to literacy, or just the same road, less known? *Developmental Psychology, 43*(1), 77-88.
- Ouellette, G., & Senechal, M. (2008). Pathways to literacy: A study of invented spelling and its role in learning to read. *Child Development, 79*(4), 899-913.
- Puranik, C., Otaiba, S., Sidler, J., & Greulich, L. (2014). Exploring the amount and type of writing instruction during language arts instruction in kindergarten classrooms. *Reading and Writing, 27*, 213-236.

- Puranik, C., & Otaiba, S. (2012). Examining the contribution of handwriting and spelling to written expression in kindergarten children. *Reading and Writing, 25*, 1523-1546.
- Senechal, M., Ouellette, G., Pagan, S., & Lever, R. (2012). The role of invented spelling on learning to read in low-phoneme awareness kindergartners: a randomized-control-trial study. *Reading and Writing, 25*, 917-934. doi:10.1007/s11145-011-9310-2
- Schuele, C., Justice, L., Cabell, S., Knighton, K., Kingery, B., & Lee, M. (2008). Field-based evaluation of two-tiered instruction for enhancing kindergarten phonological awareness. *Early Education and Development, 19*(5), 726-752. doi: 10.1080/10409280802374299
- Uhry, J. (1999). Invented spelling in kindergarten: the relationship with finger-point reading. *Reading and Writing, 11*, 441-464.
- Werfel, K. & Schuele, C. (2012). Segmentation and representation of consonant blends in kindergarten children's spellings. *Language, Speech, and Hearing Services in School, 43*, 292-307.