Incidental Phonological Awareness Instruction in Early Childhood Education: The Development of an Observational Tool

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Abstract

Explicit phonological awareness instruction in preschool curricula has been established as playing a fundamental role in improving reading outcomes in children (Carroll, Snowling, Stevenson, & Hulme, 2003). However, to date, there has been a lack of evidential research data that assess the value of incidental phonological awareness instruction as a supplement to regular instruction within these preschool classrooms (Phillips, Clancy-Menchetti, & Lonigan, 2008). This study covers the development and evaluation of an observational tool designed to capture, quantify, and assess instances of incidental phonological awareness instruction in preschool and early childhood education classrooms.

After a review of extant measures, a classroom observational tool was developed that quantified instances of incidental phonological awareness instruction on the bases of instructional context, method, and phonological awareness content. Observations were conducted through the use of this tool in eight preschool classrooms by seven graduate students and one undergraduate student of speech-language pathology. According to user reports, this tool proved to be simple and practical to use in preschool settings. It was also reported to be effective in the collection, description, and evaluation of instances of incidental phonological awareness instruction within preschool classrooms.
1. Introduction

Literacy, or the ability to read and write, is a fundamental skill that enables a person to achieve success in lifelong learning endeavors. For school-aged children, developing a comprehensive knowledge base of effective reading skills is the catalyst for high performance in all other subject areas, as it allows for the derivation of meaning and conceptual understanding from passages of text. The ability to read, however, is not a naturally occurring skill that emerges with developmental growth. This particular skill must be encouraged and elicited through purposeful instruction. The pre-reading period within early childhood years where the foundations of literacy are laid is critical, as it plays a considerable role in determining the outlook for a child’s success in academic efforts, and eventually, in the ability to be successful in life as members of modern society.

The abstract concept of sounds within words and their correspondences to graphemic structural representations is commonly emphasized through pre-reading instruction in early childhood classrooms. As defined by Phillips, Clancy-Menchetti, and Lonigan (2008), the ability to detect and manipulate the sound structures of words independently of the meanings of those words is known as phonological awareness. In contrast to the widespread familiarity of “phonics,” an instructional method that promotes reading by associating sounds with printed letters, phonological awareness involves specific manipulation and detection abilities over a collection of sounds and sound structures (Phillips et al., 2008). One of the most important components of phonological awareness is phonemic awareness, which deals with the
manipulation of individual phonemes. Phoneme awareness is essential for the understanding that single sounds within spoken words are represented by letters, which are then combined to form meaningful utterances.

We know that children’s skills in phonological awareness are not inherently developmental and must be encouraged through intentional instruction. This is due to the fact that single sounds do not exist in distinct and individual states within spoken language; instead, they are merged with one another in speech through the natural process of coarticulation (Phillips et al., 2008). Coarticulation is defined as instances within spoken language when individual speech sounds are influenced by their surrounding components in words (Phillips et al., 2008). This normal occurrence during spoken language makes the development of phonological awareness a gradual process for pre-reading children, and may pose instructional challenges for preschool teachers.

Although there is a mismatch between written words and spoken words created through the process of coarticulation, the skills required in phonological awareness are known to be essential to future reading success of preschool children. As stated by Phillips et al. (2008), a child’s level of skill in phonological awareness is both highly predictive and causally related to his or her later ability to read. Successful skill in phonological awareness is indicative of success in understanding reading instruction in populations of typically developing preschool children. Additionally, according to authors Carroll, Snowling, Stevenson, and Hulme (2003), phonological awareness instruction can be especially beneficial for children with specific learning disabilities, such as dyslexia, and can be a helpful accompaniment to reading instruction. Research also shows that children who have had remarkable difficulties in learning
to read as they are being instructed with their peers either have or had noticeable deficits in their phonological awareness skills (Phillips et al., 2008).

In terms of reading success, it is noteworthy that over one half of fourth grade students in the United States are unable to read at both a developmentally appropriate level and at a rudimentary level, as reported by the National Center for Education Statistics (2002). Greenwood, Carta, Atwater, Goldstein, Kaminski, and McConnell (2012) state that projects like Preschool Curriculum Evaluation Research (PCER) and Early Reading First (ERF) show substantial evidence of the lack of effectiveness in current preschool instructional curricula. According to these authors, early childhood education alone is not sufficient to facilitate gap closures in early literacy for at-risk students in preschool. In addition, nearly all of preschool curricula are not designed to adjust to the wide array of developmental levels and skill levels of at-risk students entering preschool (Greenwood et al., 2012). Modern learning theory asserts the need for educational instruction to be flexible and dynamic in order to adjust to students’ individual abilities to learn and understand information being presented within the preschool classroom (Fuchs & Deno, 1991; Greenwood et al., 2012). In support of modern learning theory, findings from Greenwood et al. (2012) showed significant value in differential instruction, and deemed this varied style of instruction to be beneficial to at-risk preschool children.

The aforementioned literacy and education statistics offer some evidence of the deficits in early literacy components of curricula, while highlighting the importance of phonological awareness instruction in early childhood education in order to prepare students to be more successful in reading. Phonological awareness instruction as a component of early childhood
educational curricula holds marked potential for future reading success, given what is known about the effects of poor instruction on overall literacy rates.

According to Phillips et al. (2008), the purpose of phonological awareness intervention in early childhood education is to minimize the amount of school-aged children with reading problems by maximizing the number of children who are entering kindergarten with the appropriate level of phonological awareness skills. Viewing phonological awareness instruction as a means for equipping students for reading with a set of helpful pre-reading “tools” is supported by the notion that preschool children’s success in phonological awareness yields success in reading skills. This process is essential to successful learning not only in childhood, but also throughout all stages of education.

Phonological awareness instruction is purposefully placed within early childhood education curricula because of its mutual relationship with letter knowledge and print awareness (Carroll et al., 2003). Skills in phonological awareness are predictive of increased letter knowledge and print awareness in preschool students. Reciprocally, letter knowledge is predictive of increased skills in phonological awareness for preschool students (Carroll et al., 2003). The research of Carroll et al. (2003) also shows that a solid understanding of letter knowledge in preschool children facilitates their cognitive phonological representations, which allows them to focus less on the individual speech sounds within each word and more on the meaning of the word within its context.

Carroll et al. (2003) also hypothesized that children’s lexical representations change substantially during the preschool years, causing extra sensitivity and more responsiveness to
phonological awareness instruction at four years of age. Thus, direct, explicit phonological awareness instruction as a supplement to the curriculum should be beneficial in the pre-kindergarten year. In addition, incidental moments of teaching phonological awareness throughout the preschool day may also support explicitly instructional programs. Phillips et al. (2008), however, note a “striking absence” of phonological awareness instruction, found through observational studies specifically in preschool classrooms. These authors reason this deficit exists because early childhood educators generally have shortcomings in full comprehension of phonological awareness. Early childhood educators may also not be educationally equipped to customize their instructions to facilitate and enhance phonological awareness development in all preschool children (Phillips et al., 2008).

2. Incidental Instruction in Preschool Classrooms

Based on many research findings, we know the value of explicit phonological awareness instruction in preschool curricula and its role in improving reading outcomes in early education (Phillips et al., 2008). However, to date, there has been a lack of evidential research data that assess the value of incidental phonological awareness instruction as a supplement to regular instruction within these classrooms. Keeping in mind that incidental instruction supplements explicit phonological awareness instruction, its implementation relies on finding opportune moments within interactions between instructor and student. These moments are then utilized to briefly infuse phonological awareness concepts, and highlight their relevancy within other subjects or topics. Incidental instruction of any kind also assumes that children receiving instruction have a conceptual understanding of the topic in order to benefit from the teachers’
instructional goals (Phillips et al., 2008). These authors describe incidental instruction in phonological awareness as “…albeit more planfully, typically focuses exclusively on sound patterns and on teachers’ commenting about shared sounds between words” (Phillips et al., p. 8, 2008).

While the nature and implications of incidental phonological awareness instruction is known, the value and benefits, if any, of such instruction in early childhood education and its effects on students’ future reading successes are unknown. According to Carroll et al. (2003), preschool children possess an inherent sensitivity to phonemes that occurs naturally with normal language development. The challenge in utilizing incidental instruction within the preschool classroom is to accommodate the range of phonological awareness skills and levels of development among the students. Some may benefit from the supplementary instruction, while its inclusion may be lost on at-risk students or students with underdeveloped skills. Nonetheless, it has been recommended that incidental instruction be implemented with both consistency and brevity (Phillips et al., 2008). Incidental instruction of phonological awareness skills also can be integrated with other developmental areas of early childhood classroom curricula, such as social skills, language skills, large motor skills, fine motor skills, and art and creativity development.

3. Review of Existing Classroom Observational Measures

What follows is a review of literature describing extant observational classroom measures for phonological awareness instruction within language and literacy curricular modules. For the observational measures reviewed, it was determined that play-based learning receives more
emphasis than traditional, didactic instructional methods. This occurrence is due to the popular notion that “direct teaching of basic skills would thwart children’s natural inclination for learning” (Stipek & Byler, 2004, p. 278). In contrast, existing classroom observational measures with traditional, didactic instruction as the emphasized instructional method seem to be more appropriate for grades one and above (Stipek & Byler, 2004).

The Early Language and Literacy Classroom Observation (Smith & Dickinson, 2002) contains a Literacy Environment Checklist to measure the visibility of literacy related materials and assess the success of classroom management, classroom climate, and language learning opportunities as they affected the overall learning experience of the preschool students. Additionally, the Classroom Practice Inventory (CPI) (Hyson, Hirsh-Pasek, & Rescorla, 1990) sorts and rates early childhood education classroom components into two overall scales. These scales are comprised of factors of the classroom’s Emotional Climate, including instructor personality and demeanor, and the Program Focus, including curricular characteristics, didactic practices, and child-directed activities. Twenty-six factors are contained within the subscales, and their instances within the classroom as found through observation are noted within the inventory (Hyson, Hirsh-Pasek, & Rescorla, 1990; Stipek & Byler, 2004).

The Assessment Profile for Early Childhood Programs: Research Version (Abbott-Shim, Lambert, & McCarty, 2000) divides preschool classroom components into five categories: learning, environment, scheduling, curriculum, and individualization of instruction (Stipek & Byler, 2004). Within these categories are 75 items, which are rated by the observer on a binary “yes or no” basis as to whether or not they occurred during the designated observational period. These periods are intended to occur at 15 – 20 minute lengths, with one period occurring per
hour for three consecutive hours within the early childhood classroom. According to Stipek & Byler, the “yes or no” rating poses a hindrance to observational quality due to the lack of differentiating between kinds of instructional approaches (Abbott-Shim, Lambert, & McCarty, 2000; Stipek & Byler, 2004).

The Early Childhood Environmental Rating Scale (ECERS) (Harms, Clifford, & Cryer, 1998) is the most widely used classroom observation measure in practical research settings, and focuses on the overall quality of aspects that combine to create a functioning early childhood classroom environment (Stipek & Byler, 2004). This rating scale divides classroom components into seven categories: space and furnishings, personal care routines, language – reasoning, activities, interactions, program structure, and parents and staff. Housed within these categories are 43 items, which are rated by observers on a 1 – 7 scale with 1 being “inadequate situations” and 7 being “excellent situations.” These ratings are intended to be based upon a three-hour observational session conducted within the early childhood education classroom, with the goal of assessing the quantity and quality of available educational materials within the seven categories. However, while the scales account for quality and quantity, they do not descriptively measure the methods of instruction (Harms, Clifford, & Cryer, 1998; Stipek & Byler, 2004).

The Assessment of Practices in Early Elementary Practices observational measure (Maxwell, McWilliam, Hemmeter, Ault, & Schuster, 2001) divides early elementary classroom components into three categories: the physical environment, the social context, and the instructional context (Stipek & Byler, 2004). There are sixteen classroom practice items in these categories, which are given low or high scores based on qualities as they are determined by the observer. While this observational measure focuses on methods of instruction to a greater extent
than the ECERS, it also follows a similar observational procedure and rating structure (Maxwell et al., 2001; Stipek & Byler, 2004).

Finally, the Early Childhood Classroom Observation Measure, developed by Stipek and Byler (2004), assesses classroom dimension based on two sets of items that are rooted in separate and distinctive theoretical frameworks. The first of the two sets is based on Piagetian theory that views children as in control of their own knowledge inventories. In this framework, it falls under the responsibility of the instructor to structure classrooms and curricula in order to facilitate the development of cognitive representations through sensory exploration and manipulation (Stipek & Byler, 2004). The second set is based on traditional learning theory, which emphasizes didactic instruction of skills and curricular content (Stipek & Byler, 2004). This theory also maintains that knowledge of basic skills is acquired discretely through explicit instruction and practice (Stipek & Byler, 2004).

After completing a comprehensive review of extant classroom observational measures, it was determined that phonological awareness and its instruction are not accounted for as a component in any tool. Given that phonological awareness instruction is not addressed, it was also determined that no tool exists that specifically accounts for or describes incidental moments of instruction focused on phonological awareness across subject areas within a preschool setting. Being that no measures exist to collect data on incidental types of phonological awareness instruction, we are not yet able to assess the role and potential value of its implementation in preschool curricula.
4. Development of an Observational Tool for Incidental Phonological Awareness Instruction

A. Method

Currently, empirical data are missing that would inform research on the value of incidental phonological awareness instruction. The observational tool in this study was developed as a means to capture, quantify, and describe instances of incidental phonological awareness instruction in preschool and early childhood education classrooms as they occur within the implementation of daily curricula. The overall goal of this tool is to allow researchers to build baseline data that describe these incidental instructional occurrences, in terms of frequency and quality, as they appear in supplement to normal preschool and early childhood instruction.

This observational tool was developed based on knowledge of preschool teaching styles and curricula, and tested through observational sessions in various preschool and early childhood education classrooms. It was expected that observational results would vary in frequency and quality of incidental phonological awareness instructional instances across classrooms and instructors. It was also hypothesized that the presence of an observer might have a slight impact on the quality of instruction overall, and that teachers and instructors may engage in higher-quality teaching behaviors if they were aware that they were being observed.

1. Sample

In this study, the observational sample included fourteen preschool instructors from seven preschool classroom sites. Of the preschool classroom sites, six were located within the same county, and one was located nearby in a neighboring county.
2. **Procedure**

Observations of each preschool classroom were carried out during peak curricular instruction, typically occurring between 8:00am – 12:00pm. Observations were conducted by seven graduate and one undergraduate level speech-language pathology student clinicians. All clinicians were knowledgeable in phonological awareness skills, and graduate clinicians were also implementing a supplemental phonological awareness instruction through teacher mentoring in other classrooms. All student clinicians were asked to look for incidental phonological awareness instruction as they observed, as it supplemented the regular daily preschool classroom curriculum. They were also asked to make notes of the types of instruction, or to note if no incidental phonological awareness instruction occurred at all during the course of their designated classroom observational time.

3. **Measures**

The observational tool included one data collection page for each occurring section of the preschool classroom’s daily schedule. Specifically, the tool accounted for:

1. **“Free Play,”** categorized by time when students are allowed to make independent choices about their own activity participation, without the purposeful manipulation of the environment in order to teach a lesson;

2. **“Circle Time,”** which includes time where students gather as a class and review materials with the instructor (such as themes, calendar, books, weather, etc.);

3. **“Teacher-Guided Play,”** similar to free play, teacher-guided play is classified as time where students make independent play choices, however, the environment and activities have been purposely structured in order to facilitate lesson instruction;
4. “Class Reading time,” which occurs when students spend time looking at books or practicing reading, or when the instructor reads a story aloud to the students;

5. “Snack or Lunch Time,” which includes instances where students are served food as a class;

6. “Learning Centers,” which accounts for the bulk of curricular lesson instruction, and includes time periods of students participating in writing, art, math, dramatic play, and large motor skill activities.

Each page also included lined space at the bottom for the observer to describe the activities in order for them to be more easily identified in the future.

Within each observational schedule section, phonological awareness activities were integrated into the scope of observation. Observers were asked to pay attention to instances of instruction that covered phonological awareness topics of:

1. Letter names;

2. Letter sounds;

3. Word rhyming;

4. Breaking words into sounds; and

5. Blending sounds into words

Each phonological awareness assessment component was analyzed based on the instructional method through which it was presented, including methods of:
1. Sentence completion prompt (example: “This is the letter ‘D.’ The letter ‘D’ makes the sound…” The teacher then waits for students to complete the sentence with the correct letter sound.);

2. Explicitly requests answer (example: “What sound do you think the letter ‘D’ makes?”);

3. Points and explains concept (example: While reading a word with the letter ‘D’ in it, the teacher points to the letter ‘D’ and says: “This is the letter ‘D.’ It makes the /d/ sound.”)

4. Writes and explains concept (example: While writing the letter “D” within the context of writing the individual word, letter, or writing out an entire sentence, the teacher simultaneously says: “This is the letter ‘D.’ The letter ‘D’ makes the /d/ sound.”)

5. Other method of instruction (Any unique instructional method that is not included on this form can be accounted for with tally marks in this section. Observers are to describe and give examples in the lined sections at the bottom of the page.)

Observers were asked to use tally marks to tracks instances of instruction within each type of method. In addition to quantitatively describing the instances of incidental phonological awareness, qualitative aspects were also accounted for in each scheduled curricular section in the observational tool. These aspects attested to the quality and effectiveness of the incidental instruction, and included specifications of:

1. Small group instruction – when the activity or lesson is conducted in a group of 6 children or less;

2. Play-based instruction – when the activity or lesson occurs through play scenarios that involve direct interaction with instructional materials;
3. Positively reinforced responses – when students are given verbal, tactile, auditory, or visual positive and immediate feedback for their responses to prompts of incidental instruction.

Observers assessed these specifications on a binary “yes or no” basis, with “yes” indicating their identification of its presence within the instruction, and “no” indicating its absence within the instruction.

The duration of each schedule section (in minutes) was also documented for two reasons; (1) to allow for the instructional quantities to be perceived within the perspective of time and (2) to allow for the calculation of Implementations per Minute (IPM). This calculation is the rate of the measured quantity of observed implementations of incidental phonological awareness over the time of the scheduled section in minutes. IPM scores range from 0.00-0.40 (infrequent), 0.41-0.80 (moderately frequent), and 0.81-0.99 (very frequent). This measurement process was included in evaluating the findings of the observational tool as a means of standardizing the data, making the results easily readable and comparable, and giving the tally marks numerical and practical meaning.

B. Results

Scores were calculated by utilizing the aforementioned IPM calculation process across all observational sites and schedule sections.
Table 1
IPM scores for each site and schedule section

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Centers</td>
<td>0.06</td>
<td>0.00</td>
<td>0.65</td>
<td>0.90</td>
<td>0.00</td>
<td>1.07</td>
<td>0.37</td>
<td>0.44</td>
<td></td>
</tr>
<tr>
<td>Circle Time</td>
<td>0.00</td>
<td>0.00</td>
<td>0.48</td>
<td>0.48</td>
<td>0.03</td>
<td>0.35</td>
<td>0.20</td>
<td>1.00</td>
<td>0.32</td>
</tr>
<tr>
<td>Class Reading Time</td>
<td>0.00</td>
<td>0.00</td>
<td>0.40</td>
<td>0.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.36</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>Teacher-Guided Play</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.13</td>
<td>0.00</td>
<td>0.00</td>
<td>1.80</td>
<td>0.48</td>
</tr>
<tr>
<td>Free Play</td>
<td>0.00</td>
<td>0.00</td>
<td>0.08</td>
<td>0.08</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
</tr>
<tr>
<td>Snack/Lunch</td>
<td>0.03</td>
<td>0.2</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.30</strong></td>
<td><strong>0.003</strong></td>
<td><strong>0.31</strong></td>
<td><strong>0.28</strong></td>
<td><strong>0.03</strong></td>
<td><strong>0.04</strong></td>
<td><strong>0.16</strong></td>
<td><strong>0.51</strong></td>
<td></td>
</tr>
</tbody>
</table>

IPM scores within specific schedule sections are compared graphically in Figures 1 – 6, with total IPM score comparisons presented in Figure 7. It was found that, while the frequency of implementations of incidental phonological awareness varied across schedule sections and sites, they were generally low or nonexistent. Most preschool teachers either omitted incidental phonological awareness instruction within their daily schedules, or included very brief, single moments of incidental instruction. Represented in Figures 1 & 2, most incidental phonological awareness instruction was reported to have occurred within the curricular parameters of “Learning Centers” and “Circle Time.” This frequency relationship most likely occurred because these schedule sections are where direct, curricular instruction is most likely to occur, making incidental instruction more easily integrated.
The qualitative results of the study showed variability. While many of the parameters were unreported, some results for specific sites and schedule sections held consistency. For example, across all sites, 83% of incidental phonological awareness instruction instances in Learning Centers were conducted in small group settings. Additionally, although few incidental instruction instances were accounted for in Free Play, nearly all were conducted in small groups and were positively reinforced. While some insights into quality were offered through these observational guidelines, the amount of unreported or unobserved qualitative aspects deemed the results to be inconsistent and unreliable.
While these results did offer insight into the implementation of incidental phonological awareness instruction within the seven preschool sites observed, the scope of this study focused on the development of the observational tool used to obtain these results. According to user reports, this tool was simple to use when tracking instances of incidental instruction. It was reported to be practical for use within preschool and early childhood environments, and most importantly, effective for the collection, description, and evaluation of instances of incidental phonological awareness instruction within preschool classrooms.

5. Discussion

The primary goal of this study was to develop and evaluate an observational classroom measure designed to quantify and describe instances of incidental phonological awareness instruction in preschool and early childhood education classrooms. The results and findings suggest that the collection of quantitative data is reliable, reportable, and consistent throughout observations, whereas the descriptive parameters of group or play-based instruction reinforcement yielded results that were sporadic, inconsistent, and ultimately unreliable.

Based on the findings of this study, it can be inferred that within the preschool sites observed through the use of this observational tool, there is a general absence or lack of incidental phonological awareness instruction. In the few instances where incidental instruction is present, it seems to be taught briefly and inconsistently. These findings offer some insight into how to improve instruction, specifically through reinforcement and repetition, which would increase overall rates of incidental instruction implementations.
Observational data can be collected with the tool in classrooms before and after a period of phonological awareness instructional intervention to collect pre- and post-intervention data. These findings can then be compared in order to assess the effect of the intervention on the instructional behaviors within the preschool classroom. With the availability of both baseline and post-intervention data collected with the same observational measure, clinicians and researchers are more easily able to make inferences about the impact of their instructional intervention on the type and quality of phonological awareness instruction within these classrooms. Research data and observational notes made through the use of the tool in preschool and early childhood education classrooms can offer comparative baseline data that can be used to gain an expansive view on the type of instruction generally occurring over a number of classrooms within communities or across different areas with varying socioeconomic statuses. Additionally, the entirety of the information, data, and notes collected through the use of the observational tool in preschool and early childhood education classrooms can be used to determine the validity, value, and effectiveness of incidental phonological awareness instruction integration throughout daily curricula.

Implications for further research and practice with the observational tool exist in the potential to test the tool within larger practical research settings, or within larger studies and projects regarding phonological awareness and its instruction within preschool and early childhood education classrooms. In order to gain a wider, more accurate, and more comprehensive perspective with the results of the tool, sample sizes would likely be larger and the qualitative description parameters of the tool would be revised to better capture and convey the environment surrounding incidental phonological awareness instruction in preschool and
early childhood education classrooms. It is also recommended for inter-rater reliability to be tested in order to ensure the consistency and validity of the obtained results.
References


developmentally appropriate classroom practices in kindergarten through third grade. 

*Early Childhood Research Quarterly, 16, 431-452.*


