EVALUATING STUDENTS' EXPLICIT SYNTAX KNOWLEDGE

by

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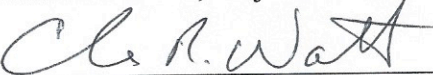A Thesis for the Degree of

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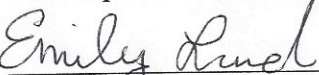_Danielle Brimo_
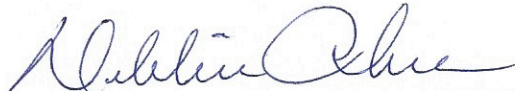Danielle Brimo, Major Professor

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Introduction

Children with language impairments, who make up seven percent of the population, exhibit deficits in language not caused by hearing loss, neurological damage, or cognitive deficits (Leonard, 2014). They are a heterogeneous group who demonstrate difficulties with morphology, syntax, semantics, and pragmatics (Bishop, 2003; Leonard, Deevy, Miller, Rauf, Charest, & Kurtz, 2003; Schuele & Hadley, 1999; Stanton-Chapman, Chapman, Bainbridge, & Scott, 2002; Tomblin, Smith, & Zhang,1997). Syntax, in particular, refers to the rule system that governs how words are combined into larger, meaningful units, such as phrases, clauses, and sentences (Kamhi & Catts, 2012). Producing errors in syntax in oral and written language can lead to difficulties developing peer interactions (e.g., Crinton, Fujiki, & McKee, 1998) and difficulties with academic success (e.g., Catts, 1993). Syntax is related to the academic success of students with and without language impairments (e.g., Catts, Adolf, & Weismer, 2006; Layton, Robinson, & Lawson, 1998).

To teach students with language impairments effectively, it is important that practitioners, including general education teachers, special education teachers, speech-language pathologists, and reading specialists, have explicit knowledge of language (e.g., Moats, 1994; Piasta, Connor, Fishman, & Morrison, 2009; Spencer, Schuele, Guillot, & Lee, 2008; Spencer, Schuele, Guillot, & Lee, 2011). Implicit linguistic knowledge facilitates the ability to generate and comprehend grammatical sentences and is often developed without conscious effort and without explicit training (Pinker, 1991). Explicit linguistic knowledge, however, is the ability to think about the grammatical rules of language, for example, to employ a variety of correction strategies (Finestack & Fey, 2009). Explicit linguistic knowledge enables practitioners to use meta-cognitive strategies to explain grammatical rules of language.

Much of the current research has focused on assessing pre-professional students' and practitioners' explicit phonemic awareness and providing inservice training to improve practitioners' explicit phonemic awareness (e.g., Cheeseman, McGuire, Shankweiler, & Coyne, 2009; Joshi, Binks, Hougen, Dahlgren, Dean, & Smith, 2009; Spencer, Schuele, Guillot, & Lee, 2008; Spencer, Schuele, Guillot, & Lee, 2011; Washburn, Joshi, & Binks-Cantrell, 2011). Currently, there is no research that examines pre-professional students' and practitioners' explicit syntax knowledge. Thus, the purpose of this study was to first examine pre-professional students' explicit syntactic knowledge and whether pre-professional students who have taken language development coursework perform better on an explicit syntax knowledge task than those who have not taken language development coursework. Additionally, this study sought to determine whether pre-professional students had better explicit knowledge of specific early developing syntactic structures than later developing syntactic structures, and whether subtest task type impacted performance. It is important to measure pre-professional students' explicit syntactic knowledge to determine whether current coursework is preparing them to provide effective syntax intervention.

Review of Literature

Explicit Knowledge of Practitioners

Practitioners have varying levels of explicit knowledge of language and literacy skills. Washburn, Joshi, and Binks-Cantrell (2011) examined teacher knowledge of basic language constructs including phonological awareness, phonemic awareness, phonics/alphabetic principle, and morphology. Among other tasks, including identifying their perceptions of their teaching abilities, the participants of the study were asked to answer questions on a survey that assessed their knowledge of those basic language constructs. The participants' total average score for the

survey was 58.06 out of 100. Of the four subtests, teachers scored highest on phonological awareness ($M = 86.19$, $SD = 16.64$) and phonemic awareness ($M = 71.66$, $SD = 19.96$). They scored lowest on the items that examined phonics/alphabetic principle ($M = 45.05$, $SD = 20.11$) and morphology ($M = 49.67$). The teachers who had more experience scored higher on the measure than teachers who had taught for only a year. However, all teachers who participated in the study received the same scores for phonological skills regardless of experience. All teachers scored lower on items that required use of explicit knowledge than on items that required implicit knowledge. Washburn, et al. (2011) results indicated that teachers who had more knowledge of basic language concepts were better prepared to teach struggling readers and children with dyslexia.

Piasta, Connor, Fishman, and Morrison (2009) examined whether teachers' explicit knowledge was related to their teaching practices and first grade students' literacy skills. The study participants included 616 students from 49 first grade classrooms and 42 first grade teachers. Students' word-level reading and expressive vocabulary skills were assessed. Teachers' explicit knowledge was assessed using a Teach Knowledge Assessment: Language and Print task. The task was designed to assess teachers' understanding of English phonology, orthography, and morphology. For example, teachers were asked questions like "What is the second sound in the word queen?" Piasta, et al (2009) found that teachers' explicit knowledge ranged from 9-36 (total score 45) with an average of 23.45. Teachers on average answered 50% of the questions correctly on the Teach Knowledge Assessment: Language and Print Task. They also found that the first grade students increased their word-level reading when a knowledgeable teacher spent time using explicit instruction. Contrastively, students showed a decrease in performance in word-level reading when a less knowledgeable teacher spent time on explicit

instruction. Thus, a knowledgeable teacher is more effective than a less knowledgeable teacher when providing explicit instruction.

Spencer, Schuele, Guillot, & Lee (2008) examined the explicit phonemic awareness skills of speech-language pathologists (SLPs) and other educators. The study participants included 541 educators. One hundred fifty-eight identified themselves as SLPs, and 377 identified themselves as kindergarten teachers, first grade teachers, reading teachers, and special education teachers. Using a written measure to assess explicit phonemic awareness skills, the authors examined phoneme segmentation, phoneme identification, and phoneme isolation. The authors found a significant group difference between the overall performance on the task of SLPs (M = 37.34, SD = 3.78) and that of other educators (M = 30.25, SD = 5.30), a large effect size, and significant group differences on each task (phoneme segmentation, phoneme identification, phoneme isolation) in which the SLPs scored higher than the other educators.

Spencer, Schuele, Guillot, & Lee (2011) compared the explicit phonemic awareness of students with and without phonetics coursework to the previously examined explicit phonemic awareness of speech-language pathologists and other educators. The 196 student participants included college sophomores, juniors, seniors, first-year graduate students, second-year graduate students, and students who identified their education level as "other". Participants had completed at least one course in phonetics, language, articulation, phonology, or speech science. Practitioners who served as comparison groups included SLPs (74% with master's degrees) and other educators (kindergarten and first-grade teachers, reading teachers, and special education teachers) from a previous study (Spencer, et al., 2008). The students completed the same written phonemic awareness measure as the SLPs and practitioners in their 2008 study to examine their phonemic awareness skills. Spencer et al. (2011) results showed that students without phonetics

coursework had the lowest scores of the four groups. Students with phonetics coursework performed better than the other educators, but their scores were lower than those of the SLPs. Experience with phonetics coursework positively correlated with students' performance on an explicit phonemic awareness task.

Measuring explicit phonemic awareness is important for understanding levels of participants' skills because those with explicit knowledge will provide better explicit phonemic awareness instruction to students who struggle than those without explicit knowledge (Moats, 1994; Moats & Lyon, 1996). SLP graduate students and practicing SLPs have prerequisite coursework that aids in explicit phonemic awareness compared to students without language development coursework and other practitioners (Spencer, et al., 2008; Spencer, et al., 2011). Currently, there is no study to date that has examined pre-professional students' or practitioners' explicit knowledge of syntax. Schuele and Boudreau (2008) argued that effective phonemic awareness instruction relies heavily on practitioners' explicit phonemic awareness skills, and that implicit phonemic knowledge was not enough. It may be that to provide effective syntax instruction, practitioners also need explicit syntax knowledge. This study focused on pre-professional students. Thus, the purpose of this study was to create a measure of explicit syntactic knowledge a) to determine pre-professional students' level of explicit knowledge of syntax, b) to determine whether experience with language development coursework affects performance on the task, c) to determine whether late developing syntactic forms are more difficult than early developing syntactic forms, and d) to determine if an expressive and receptive subtest set is harder than a counting and matching subtest set.

Research Questions

1. How do pre-professional students perform on an explicit syntactic knowledge task?

2. Do pre-professional students with language development coursework perform better than pre-professional students without language development coursework on an explicit syntactic knowledge task?

3. Is explicit knowledge performance on late developing syntactic forms less proficient than explicit knowledge performance on early developing syntactic forms?

4. Is explicit knowledge performance on the expressive and receptive subtests less proficient than performance on the counting and matching subtests?

Hypotheses

It was hypothesized that pre-professional students with language development coursework would perform better on the task than pre-professional students without language development coursework. Further, I hypothesized that pre-professional students' explicit knowledge performance on late developing syntactic forms would be less proficient than explicit knowledge performance on early developing syntactic forms. Lastly, I hypothesized that explicit knowledge performance on the expressive and receptive subtests would be less proficient than performance on the counting and matching subtests.

Methods

Participants

Participants included 170 undergraduate and graduate pre-professional students from Texas Christian University, Abilene Christian University, University of Virginia, or elected not to disclose their school. Their education levels ranged from undergraduate freshman to more than two years of graduate school. Participants identified their areas of study as follows: speech language pathology, early childhood education, MBA/EDD business/education (one participant),

elementary/middle school math, science education, education leadership, education, special education, and curriculum studies. See Table 1 for frequency ranges and percents.

Of the 170 pre-professional students who opened the link to the optional survey (described in further detail below), 150 elected to proceed with the survey. Ninety-eight participants answered the pre-task demographic questions, but only 56 participants continued to the syntax tasks that followed. The results from those 56 participants were the results used in data analysis (N=56). Of those 56 participants, 46 finished the entire survey (82.1%) and ten did not (17.9%).

Of the 56 participants, four were male (7.1%), 51 were female (91.1%), and one did not disclose (1.8%). Participants also identified whether or not they were multilingual, and what languages they spoke. Forty-six participants were monolingual English speakers (82.14%), and ten participants were bilingual (17.86%). Of those ten bilingual speakers, eight were English/Spanish bilinguals, one English/Mandarin/Japanese speaker, and one English/French speaker. Two students (3.6%) identified that they receive accommodations through their school's student disability service. Of the 56 participants, 36 had taken language development coursework (64.3%) and 20 had not (35.7%).

Table 1
Participants' Education Information

Participants' Education Information	Frequency	Percent
School		
Undisclosed	13	23.2
Texas Christian University	38	67.9
Abilene Christian University	3	5.4
University of Virginia	2	3.6
Total	56	100.0

Education Level			
Freshmen	5	8.9
Sophomore	7	12.5
Junior	6	10.7
Senior	9	16.1
First year graduate	10	17.9
Second year graduate	9	16.1
Graduate + (more than 2 years)	10	17.9
Total	56	100.0
Area of Study			
Speech language pathology	36	64.3
Early childhood education	2	3.6
MBA/EDD business/education	1	1.8
Elementary/middle math	5	8.9
Science education	2	3.6
Education leadership	6	10.7
Education	2	3.6
Special education	1	1.8
Curriculum studies	1	1.8
Total	56	100.0

Procedures

A HIPPA-compliant survey platform called Qualtrics was used to distribute the survey anonymously to the participants. The link to the Qualtrics survey was sent to chairs and directors of Communication Sciences and Disorders and Education departments at four universities in the United States whose contact information was available on their schools' websites. Those chairs were asked to forward the link to their pre-professional students studying communication sciences and disorders and education.

Participants could complete the survey using personal computers or any other computer available to them. The computers needed a valid internet connection to enable participants to check their e-mail and click the link to the Qualtrics survey. Before participants completed the

survey, they were given information regarding the expected time frame of the survey (about 35 minutes), the completion of the survey was voluntary and at any time they could withdraw from the survey, and the contact information for the TCU Institutional Review Board and Research Integrity Offices. Those who agreed to complete the survey were presented with a series of demographic questions concerning school, major, year of study, and coursework experience. They then began the syntax subtests.

Explicit Syntax Measure

The survey included four subtests: a matching task, a counting task, an expressive task, and a receptive task. All 52 questions were multiple choice. Before starting the first question, participants were given the definition of a clause and an example (i.e., *a clause is a group of words containing a subject and a predicate. For example, the clauses in the following sentence are underlined: Sally drank water and Becky drank tea.*)

The matching subtest was designed to measure participants' explicit syntax knowledge and how they apply that knowledge to answer questions. The matching subtest required participants to match clause types given a target sentence and four multiple-choice options. Directions for the subtest were: *Read the sentence. Then, choose the answer choice that contains a clause structure that matches the underlined clause structure in the sentence above*. There were 20 questions in the matching subtest. The questions were divided to include ten early developing syntactic form questions and ten late developing syntactic form questions. The earlier acquired syntactic structures include infinitives, wh-clausal complements, and conjoined clauses; later developing syntactic structures include relative clauses, subordinating clauses, participle clauses, and full propositional complements (Retherford, 2000). Full propositional complements appear early when used with the cognitive state verb "think" but then do not re-emerge until

much later with other cognitive state verbs (e.g. Nordquist, 2014; Schuele, 2009). Therefore, full propositional complement was used as both an early and a late developing form. The questions that qualified as early developing forms were written with the cognitive state verb "think", and the late developing forms were written with other cognitive state verbs such as "guess" and "wonder". The clause types that were selected and classified as early and late developing forms were based on Paul (1981), Schuele's (2009) complex syntax manual, Quirk, Greenbaum, Leach, and Svartik (1985) comprehensive grammar text.

The counting subtest was also designed to assess participants' explicit syntax knowledge and how they apply that knowledge. Pre-professional students were required to read sentences and identify how many clauses were in each sentence. The directions for this subtest were*: Count the number of clauses in each of the following sentences.* There were a range of one to six clauses in each sentence with an average of three clauses per item. Items contained a range of between one and four types of clauses. There were ten questions in this subtest. See appendix for a counting example item.

The expressive subtest was designed to measure participants' explicit syntax knowledge as it relates to students' errors in written language. The subtest gave participants a short sample of writing with an error, and asked the participants to make a judgment about that error. The directions for this subtest were: *The following are samples of a student's writing. Read each sentence. Determine if the student made an error because he/she did not use correct grammar rules* (syntax)*, or did not use correct sound rules* (phonology)*, prefix/suffix rules* (morphology)*, or meaning rules* (semantics)*.* There were 13 questions in the expressive subtest. See appendix for an expressive example item.

Lastly, the receptive subtest was also designed to measure participants' explicit syntax knowledge and judge errors in comprehension of syntax. It required participants to read samples from a student's reading comprehension test. Each item contained a short reading passage, and the student's responses to yes/no reading comprehension questions were shown below. The directions for the subtest were: *The following are samples from a student's reading comprehension task. The student's responses to reading comprehension questions are shown below. Determine if the student was incorrect because he/she misunderstood the grammar in the paragraph (syntax), or because he/she did not understand the sounds (phonology), prefixes/suffixes (morphology), or vocabulary (semantics) in the passage.* There were nine questions in the receptive subtest. See appendix for a receptive example item.

Scoring

Responses were collected through the Qualtrics data collection system. Correct answers were given a value of "1" and incorrect answers were given a value of "0." Results were reported from a direct download from Qualtrics on an Excel spreadsheet without any identifying information given about the participants.

Data Analysis

Using SPSS version 21 (SPSS, Inc., 2012), three independent samples *t*-tests were conducted to analyze the data. The dependent variable for the second question was the total score on the explicit syntax task. The dependent variable for the third research question was the total score from the matching subtest only. The dependent variable for the fourth research question was the composite score of the expressive and receptive subtests and the composite score of the counting and matching subtests. Effect size, Cohen's *d* (1998), was calculated using the pooled

standard deviation and was interpreted using the conventional standards of small, medium, and large (Rosnow & Rosenthal, 1996).

Results

The first research question was: How do pre-professional students perform on an explicit syntactic knowledge task? Pre-professional students' total survey performance was approximately 47.25% correct. Pre-professional students performed best on the the expressive subtest (59%), followed by the matching subtest (54%). They performed lower on the receptive subtest (46%) and lowest on the counting subtest (30%). See Table 2 for total performance statistics.

Table 2
Total Performance on the Task

Total Performance on the Task	N	Mean	Std. Deviation
Total Matching (20)	56	10.86	3.630
Total Counting (10)	56	3.02	2.203
Total Expressive (13)	55	7.73	2.752
Total Receptive (9)	54	4.15	1.975
Total Survey (52)	56	25.46	7.452

Note: Numbers in parentheses represent the total number of items for each subtest.

The second research question was: Do pre-professional students with language development coursework perform better on the explicit syntax task than pre-professional students without language development coursework? There was not a significant difference in total score for pre-professional students with language development coursework (N=36, $M = 26.1$, $SD = 6.89$) and pre-professional students without language development coursework (N=20, $M = 24.3$, $SD = 8.42$), $t(1, 54) = .870$, $p = .388$, $d = .23$. Both groups demonstrated similar performance regardless of coursework experience.

The third research question was: Is explicit knowledge performance on late developing syntactic forms less proficient than explicit knowledge performance on early developing syntactic forms? Pre-professional students' performance on matching items with early developing syntactic forms ($N = 10$) were compared to performance on matching items with late developing syntactic forms ($N = 10$). There was not a significant difference between early developing forms ($M = 28.50$, $SD = 12.669$) compared to late developing forms ($M = 32.30$, $SD = 10.688$), $t(1, 18) = -.725$, $p = .478$, $d = -.32$. My hypothesis was not supported. Pre-professional students demonstrated similar performance on items with early and late developing syntactic forms. However, they performed slightly better on late developing forms than early developing forms.

The fourth research question was: Is explicit knowledge performance on the expressive and receptive subtests less proficient than performance on the counting and matching subtests? Pre-professional students' performance on counting and matching ($N = 30$) items were compared to pre-professional students' performance on the expressive and receptive items ($N = 22$). There was not a significant difference in scores between the counting and matching items ($M = 25.90$, $SD = 13.265$) and expressive and receptive items ($M = 29.50$, $SD = 12.787$), $t(1, 50) = -.982$, $p = .331$, $d = -.28$. Pre-professional students actually performed better on the expressive and receptive items compared to the counting and matching items, which did not support the last hypothesis.

Discussion

The current study examined the explicit syntactic knowledge of pre-professional students. Prior research has shown that practitioners with explicit knowledge of phonetics provide more effective instruction in phonetics than practitioners without explicit knowledge (Spencer, et al.

2008; Spencer, et al., 2011). Those studies have also shown that having coursework experience was a positive predictor of pre-professional students' and practitioners' performance on a measure of explicit and implicit phonetics knowledge. However, there has not yet been a study which has examined pre-professional students' explicit syntax knowledge.

It was hypothesized that that pre-professional students with language disorders coursework would demonstrate better performance on the explicit syntax knowledge task. My results indicated that pre-professional students with language development coursework demonstrated similar performance to pre-professional students without coursework experience. These results are very different from those of Spencer, et al. (2011), which indicated that coursework experience positively predicted better performance on the phonemic awareness task. It may be that language development coursework, as it is structured now, does not provide enough information about the structure of language, or at least not at the level that could provide students with explicit syntax knowledge. The coursework may focus more on patterns of language development rather than incorporating language science such as a linguistics class might do. More research needs to be done to examine what kind of coursework would positively influence students' performance on an explicit syntax knowledge task. Currently, communication sciences and disorders degree programs require at least one course on the study of phonetics/phonology. Morphology may be incorporated into other classes, such as language development and language disorders, primarily with the study of Brown's morphemes, and how to subdivide words into morphemes to calculate mean length of utterance (MLU) in language sample analysis. However, on the subject of complex syntax, courses may not be going into enough detail about clause types and development of syntax in language sample analysis.

Contrary to my second hypothesis, differences in scores on early developing syntactic structures and late developing syntactic structures were not statistically significant. This could have been due to the classification system of structures. Syntactic complexity development begins at the ages of two and three, with proficiency achieved around the entry to kindergarten (Bloom, Tackeff, & Lahey, 1984; Tyack & Gottsleben, 1986). However, for children with language impairments, emergence is around ages three and four, with less proficiency by kindergarten when compared to age matched and language matched peers (Arndt & Schuele, 2013). There is a paucity of research on the development of syntactic structures as it relates to a specific timeline for children. Brown has documented when certain morphemes appear in children (Brown, 1973), but not much is known about the timeline of syntactic structures. There is a thesis in the field of linguistics called the equality thesis. It states that all languages are equally complex.

Östen Dahl (2004) of Stockholm University described the different types of linguistic complexity. There are varying levels of complexity, including system complexity and structural complexity. System complexity is a measure of the content that language learners have to master in order to be proficient in the language (Dahl, 2004). Structural complexity the structure of utterances and expressions. Syntactic complexity and morphological complexity are elements of structural complexity. Linguists are not yet clear on how to measure syntactic complexity (Dahl, 2004). This is one way to account for the lack of research in syntactic complexity and development of syntactic structures over time.

Lastly, it was hypothesized that pre-professional students would perform better on the counting and matching subtests than the expressive and receptive subtests. Pre-professional students demonstrated better performance on the expressive and receptive questions, though this

number was not statistically significant. These results differ from Washburn, et al. (2011), which indicated that teachers performed best on tasks that required them to use implicit knowledge, and they performed lower on tasks that used higher levels of explicit knowledge, especially in terms of morphology. The counting and matching subtests used in the current study examined explicit knowledge, while the expressive and receptive subtests required pre-professional students to analyze students' errors. The expressive and receptive subtests were thought to examine application of explicit knowledge. Also, pre-professional students' performance pattern could have been due to their chances of guessing correctly. In the counting and matching subtests, pre-professional students were given four answer choices, or had a 25% chance of guessing correctly. On the expressive and receptive subtests, pre-professional students were only given two answer choices, meaning they had a 50% chance of guessing correctly. Participation patterns could have also contributed to this discrepancy. Their higher performance on the expressive section could also be due to their own experience with self-monitoring. Pre-professional students spend time editing papers and other writing assignments; they are likely self-monitoring and editing their own writing on a daily basis. Lastly, this discrepancy could have been due to the order in which items were presented on the survey. The counting and matching subtests were administered first, the expressive and receptive subtests were last. Some pre-professional students dropped out of the survey as it progressed. Fewer participants completed the last two subtests than the first two subtests. It could be that pre-professional students who felt more proficient in grammar persevered through the task and answered those items correctly, while pre-professional students who felt the survey was difficult may have chosen not to continue on through the survey.

Limitations and Future Directions

One of the limitations in the present study was the small sample size. Additionally, the survey was not designed for participants who acquired English as a second language. Revisions need to be made to the survey based on which questions had fewer than 25% or more than 75% of participants answer correctly. If the survey required each question to be answered rather than giving participants the options to skip or drop out of the survey once they began, there may have been more descriptive data or patterns that could have explained unexpected performance. Future directions include revising the survey and distributing it again to undergraduate and graduate pre-professional students. Although this is only a pilot study, results indicate that pre-professional students may not possess the explicit syntax knowledge that would contribute to effective instruction for future clients with language impairments. Survey revisions could include equating the number of answer choices across sections, and equating length of time and difficulty across sections.

Conclusion

This was the first study to examine explicit syntax knowledge of pre-professional students. Examining explicit knowledge is important because prior research has indicated that explicit knowledge of a subject results in more effective instruction (e.g., Moats, 1994; Piasta, Connor, Fishman, & Morrison, 2009; Spencer, Schuele, Guillot, & Lee, 2008; Spencer, Schuele, Guillot, & Lee, 2011). Children with language impairments often display deficits in syntax. Syntax is a complicated language process that contributes to social, academic, and professional success (e.g., Catts, 1993; Catts, Adolf, & Weismer, 2006; Brinton, Fujiki, & McKee, 1998; Layton, Robinson, & Lawson, 1998). This study supports the hypothesis that pre-professional students' explicit knowledge of syntax will influence instruction of children with language

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impairments or other syntax deficits. Though this was only a pilot study, my results suggest that pre-professional students may lack that knowledge. This study hopes to contribute to a growing body of evidence that suggests that coursework to prepare pre-professional students for careers as speech-language pathologists should include a language science class that provides sufficient preparation to demonstrate good performance on a measure of explicit syntax knowledge.

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APPENDIX

Matching example item:

Read the sentence. Then, choose the answer choice that contains a clause structure that matches the underlined clause structure in the sentence above.
The project that Tina chose for her class was challenging.
    a. He wanted that prize for himself.
    b. We took that dog home from the pound.
    c. The project was cancelled because it was too challenging.
    d. The call that came from California was from my sister.
(answer = d)

Counting example item:

Count the number of clauses in each of the following sentences.
I remembered that I left my keys in the car because Harry reminded me.
    a. 2
    b. 3
    c. 4
    d. 5
(answer = b)

Expressive example item:

The following are samples of a student's writing. Read each sentence. Determine if the student made an error because he/she did not use correct grammar rules, or did not use correct sound rules, prefix/suffix rules, or meaning rules.
She asked me help her with her homework.
Is the error in this sentence due to grammar rules (as compared to sound, prefix/suffix, or meaning rules)?
    a. Yes, due to grammar rules
    b. No
(answer = a)

Receptive example item:
The following are samples from a student's reading comprehension task. The student's responses to reading comprehension questions are shown below. Determine if the student was incorrect because he/she misunderstood the grammar in the paragraph, or because he/she did not understand the sounds, prefixes/suffixes, or vocabulary in the passage.

George, who had to take three buses, arrived at the baseball park as the sun went down. When he got to his seat, he put on an old baseball glove and began to practice catching imaginary foul balls. George wished that he could play in the game. He told everyone sitting nearby that he had been a famous high school baseball star. In the fifth inning, the batter hit a foul ball straight to George. George said, "I'll show you how a real baseball player catches a ball." George stood up and reached for the ball while falling over the railing onto the grass. When George got back to his seat, he showed everyone sitting nearby the ball he caught.

Was George's baseball glove new?
Yes
No
Student response = YES

1. Was the student incorrect because he/she misunderstood the grammar in the paragraph? (As compared to sound, prefix/suffix, or meaning in the passage)
    a. Yes
    b. No
(answer = b)

Did George have on his baseball glove before he sat down?
Yes
No
Students response = YES

2. Was the student incorrect because he/she misunderstood the grammar in the paragraph? (As compared to sound, prefix/suffix, or meaning in the passage)
    a. Yes
    b. No
(answer = a)

Did George think he was good at baseball?
Yes
No
Student response = NO

3. Was the student incorrect because he/she misunderstood the grammar in the paragraph? (As compared to sound, prefix/suffix, or meaning in the passage)
    a. Yes
    b. No
(answer = a)

ABSTRACT

EVALUATING STUDENTS' EXPLICIT SYNTAX KNOWLEDGE

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Syntax refers to the rule system that governs how words are combined into larger, meaningful units, such as phrases, clauses, and sentences (Kamhi & Catts, 2012), and is important for communication and academic success (e.g. Chomsky, 1957; Catts, Adolf, & Weismer, 2006). Children diagnosed with language impairments have difficulty comprehending and producing syntax (Bedore & Leonard, 1998; Tomblin, et al., 1997). Piasta, et al., (2009) found that practitioners using explicit instruction showed increased reading skills in students, but the opposite was true when less knowledgeable teachers attempted explicit instruction. Spencer, et al., (2011) found that experience with phonetics coursework positively correlated with students' performance on an explicit phonemic awareness task; however, no study to date has examined the explicit syntax knowledge of pre-professional students. An explicit syntax knowledge task was constructed and distributed to department chairs of Communication Sciences and Disorders and Education undergraduate and graduate programs. That link was distributed to their pre-professional students. Overall performance on the task was about 47.25%, and results indicated that pre-professional students with language development coursework did not perform better than pre-professional students without coursework experience. Coursework may not be preparing pre-professional students adequately for the requirements of speech-language pathologists and other practitioners.