

Relationships between LINUS Teachers' Knowledge of Basic Language Constructs, Teaching Experience and Perceived Teaching Abilities

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Abstract The purpose of this study was to examine LINUS teachers' knowledge of basic language constructs and the relationships between LINUS teachers' knowledge of basic language constructs, teaching experience and their perceived abilities to teach reading to LINUS students. 121 LINUS teachers teaching English literacy from 31 Johor Bahru national primary schools participated in this survey research study. Findings indicated that LINUS teachers scored a mean percentage of 61% on the total knowledge of basic language constructs. Teachers were strongest at phonological awareness items (82%), followed by phonemic awareness items (63%), morphology items (51%) and phonics items (46%). Results showed that LINUS teachers with 1-5 years of experience teaching English significantly predicted whether they gave higher ratings of perceived abilities to teach reading to LINUS students as compared to LINUS teachers with less than 1 year of experience teaching English ($p = .04$). However, as scores of total knowledge increase, LINUS teachers with less than 1 year of experience teaching English are more likely to give higher ratings of perceived abilities to teach reading to LINUS students than LINUS teachers with 1-5 years of experience teaching English ($p = .03$). The findings highlighted the importance of teacher content knowledge in increasing perceived teaching abilities as opposed to teaching experience per se. Future research should be done on more samples of LINUS teachers for more generalizable results.

Keywords LINUS Teachers, Basic Language Constructs, Teaching Experience, Perceived Teaching Abilities, English Literacy, Teacher Content Knowledge, Primary School English Teachers, Reading Instruction

1. Introduction

Studies have proposed that in order for children to read

fairly well, the school environment and teachers play an active role [1-3]. Besides that, Jennings *et al.* [1] also proposed two ways how some school practices can actually impede the child's reading progress. Firstly, students with reading problems often have unsatisfactory relationships with teachers in the schools. It was found that teachers often identify poor readers as aggressive, lacking self-discipline, and unmotivated. Secondly, reading instruction that does not meet a student's needs can also contribute his or her reading problem. For example, when immature children are given formal reading instruction before they can profit from it, they may become frustrated and develop reading problems. On the other hand, if children do not receive sufficient instruction in critical skills, they may fail in the initial stages of learning to read. Thus, where reading is concerned, it is crucial to provide teachers with the knowledge, time, support and resources in order to effectively implement reading instructions in its many forms throughout the curriculum [4].

However, in contrast to Mathematics and Science, the study of teachers' content knowledge in reading has not been a major area of inquiry until the past decade. Phelps and Schilling [5] proposed three reasons. Firstly, reading is not a discipline hence no scholars have identified what is to be known about the subject. Secondly, people are less concerned about teachers' content knowledge in reading as compared to Mathematics and Science because most teachers are assumed to be competent readers. Thirdly, research on teacher preparations has largely focused on teaching methods, knowledge of curriculum or the psychology of reading. Despite so, there is a growing interest of content in the area of reading by the measuring of knowledge of language and text needed to teach children to read or decode words [6].

In Malaysia, as part of improving reading and numeracy literacy skills among primary students, the Ministry of Education (MOE) implemented a remedial program - the Literacy and Numeracy Screening (LINUS) programme, to

ensure that students master basic literacy and numeracy at the end of 3 years of primary education [7]. LINUS is targeted at students who have difficulties in 3Rs, i.e. Reading, Writing and Arithmetic (PEMANDU, 2014). These students who are falling behind their peers will be grouped together during the relevant classes, taught according to their needs and when they are able to catch up, they will be transitioned back to the mainstream curriculum [8]. The teachers who teach these LINUS students are therefore called the LINUS teachers. To date, research on LINUS programme has been done on school leaders and teachers' perceptions as well as challenges with the implementations of LINUS [9,10]. However, there seems to be a lack of research done on important teacher factors such as teacher's perceived teaching ability, teacher's content knowledge, and teaching experience which will aid LINUS teachers in their teaching of reading.

Having said that, the teacher's perceived teaching ability or teacher efficacy is an important factor in predicting that the teachers not only persevere on in their teachings but are also motivated to help especially students who are difficult to handle or struggle academically as compared to their peers [11,12]. According to Soodak and Podell [13], low teacher efficacy could be either due to teacher's lack of confidence in their skills or a sense of futility regarding the impact of their work. As mentioned before, LINUS students are students who could not pass the basic literacy and numeracy tests, and it is expected that these students are those who struggle with reading and even recognizing prints as well as basic calculations. Therefore, it is important to examine teachers' perceived abilities to teach reading to LINUS students as perceived competence will determine the teacher's willingness to persist with students who are struggling academically [14] and also gauge the teacher's confidence level of their teaching skills and their teaching tasks.

Besides that, it is also important to understand the sources of teacher's perceived teaching abilities in order to know how prepared the teachers feel they are for teaching reading. One of the proposed sources is the teacher's content knowledge of reading. While it seems that teachers' quality through training and certifications has been found to have positive effect on students' achievements, it has little to do with formal teacher preparation [15]. This is because most measures of teacher quality are indirect or proxy measures such as degree attainment, counts of college course, or teacher certification, and these variables do not directly represent what teachers know or can do [15]. Thus, recent research has focused on more direct measures such as teachers' knowledge to study teacher preparation for effective teaching [6,15,16]. In accordance with that, some reading research also focused upon teacher's knowledge of basic language constructs, which is the specialized content knowledge required to teach reading in English, and perceptions of dyslexia [6]. It was found that

on average teachers were able to display implicit skills related to certain basic language concepts (i.e. syllable counting), but failed to demonstrate explicit knowledge of others (i.e. phonics principles) [6]. On the other hand, it was also found that many teachers' knowledge of basic language concepts and dyslexia seemed poorly equipped to teach reading or spot dyslexia [17,18]. These researches suggest a need to examine teachers' knowledge of basic language concepts in order to reflect the teacher's perceived abilities to teach reading in classrooms and especially to students who are struggling to read.

In addition to that, there is also mixed findings on whether teaching experience influences teachers' knowledge and teacher's perceived teaching abilities. While some research found that teachers' amount of time spent on teaching relative to their overall working time predicts teachers' knowledge [19], other research found that the amount of teaching experience decreases teachers' knowledge [20]. It appears that the number of years teaching per se does not have a strong influence on teachers' gaining of content knowledge, but the amount of time spent teaching a particular subject. Unlike Bahasa Malaysia literacy and numeracy, which are supported by separate remedial teachers, English language literacy requires English language teachers themselves to act as remedial teachers [21]. Thus, LINUS teachers teaching English literacy have to be flexible in adapting their knowledge and skills to the needs of both average scoring students and LINUS students who are basically way behind their peers academically. Besides, there has also been mixed findings as to whether teaching experience increases or decreases the teacher's perceived teaching abilities. Some have found that novice teachers tend to have lower perceived teaching abilities [22], while others have found that teaching efficacy reduces with teaching experience [23].

Having said that, little is known about the relationships between LINUS teachers' perceived teaching abilities, content knowledge of reading and teaching experience. According to Feiman-Nemser [24], what students learn is directly related to what and how the teachers teach; and what and how the teachers teach depends on the knowledge, skills and experience they bring to their teaching. Hence, this study sought to look at whether LINUS teacher's perceived teaching abilities are predicted by teacher's knowledge of basic language constructs and teaching experience.

2. Objectives

The objectives of this study were as follows:

1. To identify LINUS teachers' levels of knowledge of basic language constructs, namely knowledge about phonological awareness, phonemic awareness, phonics and morphology.
2. To examine whether there are significant relationships between LINUS teachers'

knowledge of basic language constructs, years of teaching experience and perceived ability to teach reading to LINUS students.

3. Methods

3.1. Research Design

This study is a correlational study which utilized the survey research method as it involves the administration of questionnaires to a sample of respondents selected from some population [25]. In this study, a survey of basic language constructs related to literacy acquisition adapted from Washburn *et al.* [6] was administered to LINUS teachers in the Johor Bahru district and data was obtained from the completed surveys.

3.2. Population and Sample

This present study sought to focus on exploring the knowledge of basic language constructs of LINUS teachers in the primary schools of the Johor Bahru district. Therefore, the sampling technique in this study was purposive sampling whereby specifically only LINUS teachers from primary 1 to 3 and teaching only English literacy were recruited. Besides, only the Johor Bahru district was examined due to logistical and practical reasons of the researcher.

According to Pejabat Pendidikan Daerah Johor Bahru, PPDJB [26], there are altogether 96 national primary schools in Johor Bahru district, including 75 national schools (Sekolah Kebangsaan), 17 national-type (Chinese) schools (Sekolah Kebangsaan Cina) and 4 national-type (Tamil) schools (Sekolah Kebangsaan Tamil). Consequently, the quota sampling technique was used to narrow down the respondents to only English LINUS teachers from certain schools in the Johor Bahru district. As there are three main types of national primary schools, quotas of approximately one-third of each type of national primary schools in the Johor Bahru district were selected.

Specifically, 22 national schools, 7 national-type (Chinese) schools and 2 national-type (Tamil) schools were selected. This is so that there will be an approximate representation of the population of English LINUS teachers from all three types of national primary schools in the Johor Bahru district.

For this study, 121 respondents were recruited from 31 primary schools in the Johor Bahru district.

3.3. Instrumentation

The main instrument for this study was a survey of language constructs related to literacy acquisition adapted from Washburn *et al.* [6]. This survey was analyzed on its

reliability, item difficulty, and item discrimination and was found reliable in assessing teachers' knowledge of language constructs [27]. In particular, reliability for the entire survey was found to be 0.903 (Cronbach's α) and 0.743 (Cronbach's α) for the items used in the survey [8].

Based on the survey by Washburn *et al.* [8], the current survey was improvised to suit the purposes of the current study. This survey had a total of 46 items and included three parts: (1) demographics; (2) teacher's perceived teaching ability; (3) teacher's knowledge of basic language constructs.

In part 1, there were 3 items on demographical questions and were included for both descriptive and inferential statistical analyses purposes. These items included gender (i.e. male, female), highest educational attainment (i.e. teacher's diploma, bachelor's degree, master's degree, PhD, others), and years of experience teaching English (i.e. 1 year, 1-5 years, 6-10 years, 11-19 years and 20 or more years). Demographics on gender and highest educational attainment were for descriptive purposes while years of experience teaching English was for inferential statistical purposes.

In part 2, there were 6 items on teacher's perceived teaching ability. These items were adapted from the survey of language constructs by Washburn *et al.* [6]. The items from the survey by Washburn *et al.* [6] assessed teachers' perceived teaching ability of typically developing readers, struggling readers, phonemic awareness, phonics, and vocabulary on a scale of 1 to 4 (minimal to expert). However, for the scope of the present study, the items were improvised and assessed teachers' perceived ability to teach reading, phonemic awareness, phonics, phonological awareness and morphology to LINUS students. An example of the question was asked was "how would you rate your ability to teach reading to LINUS students?". Responses on the survey were rated on a 4 point Likert-type scale, with 1 being minimal, 2 being moderate, 3 being very good and 4 being expert. The reason a 4 point Likert-type scale was used was to reduce socially desirable responses and also to force the teachers to choose their most preferred option than to remain neutral by eliminating the midpoint [28].

In part 3, there were 37 items assessing teachers' knowledge and skill of basic language constructs of literacy. In this study, "basic language constructs" included four constructs: phonological awareness, phonemic awareness, phonics, and morphology. Consequently, teachers' knowledge of basic language constructs was measured through multiple choice questions. An example of the question that was asked is "phoneme refers to..." A range of five to six choices was given for each multiple choice questions. Each item for this part of the survey was scored either 1, for right answers or 0, for wrong answers and the total number of correct items was used for the analysis along with the total number of correct items for the following grouping categories: phonological awareness,

phonemic awareness, phonics and morphology. Items are also grouped by whether they assessed knowledge or skill for further descriptive analysis, which enables both implicit ability and explicit understanding to be assessed (as an explicit understanding of such constructs is necessary in order to be able to teach it to students who need direct, explicit, and systematic instruction in early reading skills) [27]. Most importantly, this survey can be used to highlight specific areas of needed improvement [27].

3.4. Data Collection Procedure

A period of eight weeks was used to collect the data from all 33 schools. Firstly, the researcher applied for permission from the Ministry of Education (MOE) to hand out surveys in schools through the Education Research Application System (eRAS). This was done to obtain the approval letter in order to gain access to schools. Next, the researcher met up with the headmaster to get permission to hand out surveys on the school level. After obtaining permission from the headmaster, the researcher handed out the surveys to the LINUS teachers. A period of one week was given to LINUS teachers to complete the survey due to examinations and assessments period. The researcher then got the phone number of the teacher in charge of LINUS teachers to communicate the date and time for collection of all surveys. In addition to that, an informed consent letter was given together with the surveys to notify the teachers on the research objectives as well as to guarantee the confidentiality of the respondents. Besides, a small token of appreciation (i.e. two red pens) was given to the teachers for their kind help despite their busyness. The involvement of teachers in this study was strictly voluntary despite the letter of approval from the Ministry of Education and confidentiality of participation was assured.

4. Results

This study sought to answer two research questions: (1) ‘What do teachers know about basic language constructs?’ and (2) ‘Are there significant relationships between LINUS teachers’ knowledge of basic language constructs, years of teaching experience and perceived ability to teach reading to LINUS students?’. Descriptive statistics, frequency tables, and ordinal logistic regression were utilized to examine the findings.

4.1. Demographics Profile

The three items on demographics in this study were gender, highest educational attainment and years of experience teaching English. There were a total of 121 respondents in this study, with a majority of female teachers. In terms of highest educational attainment, most LINUS teachers have a bachelor’s degree, followed by teacher’s diploma, master’s degree and there was one

TESL trainee teacher. On the other hand, it appeared that about 60% of the LINUS teachers had 5 years or less of experience teaching English (not LINUS per se) while the other 40% of the LINUS teachers had about 6 to 20 years of experience teaching English. Table 1 shows the demographics profile of the respondents in this study.

Table 1. LINUS Teachers’ Gender, Educational Attainment and Years of Experience Teaching English

| Demographics | Number | Percentage (%) |
|---|--------|----------------|
| Gender | | |
| Female | 104 | 86 |
| Male | 17 | 14 |
| Educational Attainment | | |
| Teacher’s Diploma | 27 | 22.3 |
| Bachelor’s Degree | 90 | 74.4 |
| Master’s Degree | 3 | 2.5 |
| TESL trainee teacher | 1 | 0.8 |
| Years of Experience Teaching English | | |
| less than 1 year | 40 | 33 |
| 1-5 years | 33 | 27 |
| 6-10 years | 18 | 15 |
| 11-19 years | 13 | 11 |
| 20 or more years | 17 | 14 |

4.2. Knowledge of Basic Language Constructs

To answer the first research question ‘What do LINUS teachers know about the four components of basic language constructs?’ descriptive statistics and frequency tables were calculated using the SPSS software.

There were altogether 37 items in the questionnaire assessing the four components of basic language constructs – phonemic awareness, phonological awareness, phonics and morphology. Besides, each component contained assessments of theoretical knowledge as well as applied skills.

4.2.1 Phonemic Awareness

There were altogether 13 items assessing phonemic awareness. Three items (items 1, 3, 7) assessed knowledge of phonemic awareness while the other 10 items (items 2a-2g, 4, 5, 6) assessed skills of phonemic awareness (see Table 2). Overall, it has been found that the mean percentage of correct score for all the phonemic awareness knowledge and skill items was 63%.

In terms of phonemic awareness knowledge, it was found that though a majority of the teachers (87.6%) were able to correctly identify the definition of a phoneme (i.e. a single speech sound), ironically only less than half (41.3%) of the teachers correctly identified the definition of phonemic awareness (i.e. the ability to break down and manipulate the individual sounds in spoken language). In fact, slightly less than half of the teachers (47.9%)

incorrectly identified phonemic awareness as “the understanding of how letters and sounds are put together to form words”. On the other hand, almost half of the teachers (49.6%) correctly identified the phonemic awareness task (i.e. deletion), with 33.1% of the teachers incorrectly identifying the task as “segmentation”.

In terms of phonemic awareness skills, most of the teachers correctly identified the number of speech sounds (i.e. phoneme counting) for easier words such as “ship” (95.9%), “grass” (67.8%), “moon” (93.4%), “brush” (74.4%) and “knee” (73.6%). However, it was found that teachers had greater difficulties at phoneme counting for words such as “box” and “through”. Only 10.7% of the teachers got the number of speech sounds in the word “box” right while about half (48.8%) of the teachers identified the number of speech sounds in the word “through” correctly. In fact, majority of the teachers (78.5%) thought “box” has 3 speech sounds instead of 4 speech sounds. Consequently, about 33.9% of the teachers incorrectly thought there are 4 speech sounds in the word “through”.

Table 2. Percentage of correct scores for phonemic awareness test items

| Brief description of items | Percentage of Correct Scores (%) |
|--|----------------------------------|
| Knowledge items | |
| 1. A phoneme refers to | 87.6 |
| 3. What type of task would the saying of the word ‘cat’ without the /k/ sound be? | 49.6 |
| 7. Phonemic awareness is | 41.3 |
| Skills items (How many speech sounds are in the following words) | |
| 2. (a) ship | 95.9 |
| 2. (b) grass | 67.8 |
| 2. (c) box | 10.7 |
| 2. (d) moon | 93.4 |
| 2. (e) brush | 74.4 |
| 2. (f) knee | 73.6 |
| 2. (g) through | 48.8 |
| 4. Identify the pair of words that begins with the same sound: (If you say the word, and then reverse the order of the sounds...) | 71.1 |
| 5. ‘ice’ would be: | 44.6 |
| 6. ‘enough’ would be: | 59.5 |

4.2.2. Phonological Awareness

Among the eight items assessing phonological awareness, one item (item 9) assessed phonological awareness knowledge while the other seven items assessed phonological awareness skills (items 8a-8g) (see Table 3). Overall, it has been found that the mean percentage of correct scores for phonological awareness items was 82%.

In terms of phonological awareness knowledge, it was found that less than half of the teachers (47.1%) correctly identified the definition of phonological awareness (i.e. the

understanding of how spoken language is broken down and manipulated). However, it is important to note as well is that about 39.7% of the teachers thought that the definition of phonological awareness was “the ability to use letter-sound correspondences to decode”.

In terms of phonological awareness skills, an assessment was made through syllable counting. It appeared that teachers were quite good at syllable counting, with a mean percentage of correct score for all the syllable counting items at 86.8%. The highest individual item was at 94.2% for “observer” and lowest at 70.2% for “frogs”. However, surprisingly there were two teachers who didn’t know what “syllable counting” was and instead counted the number of letters in the word. For example, in the word “disassemble”, there were actually 4 syllables, the teachers instead identified as having 11 “syllables”.

Table 3. Percentage of correct scores for phonological awareness test items

| Brief description of items | Percentage of Correct Scores (%) |
|---|----------------------------------|
| Knowledge items | |
| 9. Phonological awareness is: | 47.1 |
| Skills items (Determine the number of syllables for each word) | |
| 8. (a) disassemble | 73.6 |
| 8. (b) heaven | 91.7 |
| 8. (c) observer | 94.2 |
| 8. (d) salamander | 93.4 |
| 8. (e) bookkeeper | 89.3 |
| 8. (f) frogs | 70.2 |
| 8. (g) teacher | 95 |

4.2.3. Morphology

There were altogether 8 items assessing morphology knowledge and skills. One item (item 19) assessed morphology knowledge while the other 7 items (items 8a-8g) assessed morphology skills (see Table 4). Overall, the mean percentage of correct scores for all morphology knowledge and skills items was 51%.

In terms of morphology knowledge, most teachers (76.9%) were able to correctly identify the definition of a morpheme (i.e. a single unit of meaning).

In terms of morphology skills, about half or more of the teachers were able to correctly count the number of morphemes in words such as “heaven”, “salamander”, “bookkeeper”, “frogs”, and “teacher”, with a percentage of 65.3%, 56.2%, 59.5%, 47.9%, and 75.2% respectively. However, it appeared that teachers had great difficulty identifying the number of morphemes in words such as “disassemble” and “observer”, with a percentage of 12.4% and 14% respectively. Most teachers thought both “disassemble” and “observer” has 2 morphemes instead of 3, with a percentage of 68.6% and 66.1% respectively.

Table 4. Percentage of correct scores for morphology test items

| Brief description of items | Percentage of Correct Scores (%) |
|---|----------------------------------|
| Knowledge items | |
| 19. A morpheme refers to | 76.9 |
| Skills items (Determine the number of morphemes for each word) | |
| 8. (a) disassemble | 12.4 |
| 8. (b) heaven | 65.3 |
| 8. (c) observer | 14 |
| 8. (d) salamander | 56.2 |
| 8. (e) bookkeeper | 59.5 |
| 8. (f) frogs | 47.9 |
| 8. (g) teacher | 75.2 |

4.2.4. Phonics

There were altogether 8 items assessing phonics knowledge and skills. Seven items (items 11,12,14,15,16,17,18) assessed phonics knowledge in terms of phonics generalizations, syllable types (i.e. closed, open, final stable syllable), common terminology related to phonics instruction (i.e. digraph, blend, diphthong) while one item (item 10) assessed phonics skills (see Table 5). Overall, it has been found that the mean percentage of correct scores for all the phonics knowledge and skills items was 46%.

Table 5. Percentage of correct scores for phonics test items

| Brief description of items | Percentage of Correct Scores (%) |
|---|----------------------------------|
| Knowledge items | |
| 11. A combination of two or three consonants pronounced so that each letter keeps its own identity is called: | 43 |
| 12. A soft 'c' is in the word: | 61.2 |
| 14. Which of the following words has an example of a final stable syllable? | 39.7 |
| 15. Which of the following words has 2 closed syllables? | 52.9 |
| 16. Which of the following words contains an open syllable? | 26.4 |
| 17. What is the rule that governs the use of 'c' in the initial position for /k/? | 55.4 |
| 18. What is the rule that governs the use of 'k' in the initial position for /k/? | 27.3 |
| Skills items | |
| 10. If 'tife' is a word, the letter "i" would probably sound like the "i" in: | 64.5 |

In terms of phonics knowledge, it was found that the mean percentage of correct scores for all phonics knowledge items were less than half (43.7%). While more than half of the teachers (61.2%) were able to correctly identify the word with a 'soft C' sound (i.e. city), syllable types proved to be difficult for teachers with only 39.7% correctly identifying the word with final stable syllable (i.e. paddle), 52.9% closed syllable (i.e. napkin), and 26.4% an

open syllable (i.e. bacon). Besides, knowledge for two common phonics generalizations ('c' for /k/ and 'k' for /k/) was generally poor with 55.4% and 27.3% respectively. Furthermore, teachers in this study also had difficulty correctly identifying the term "consonant blend" for the meaning of "a combination of two or three consonants pronounced so that each letter keeps its own identity", only 43% were able to correctly identify the term.

In terms of phonics skill, more than half (64.5%) of the teachers correctly identified the word with the same "i" sound in the word "tife" (i.e. find). However, words with the same "i" sound like if, beautiful and sing were wrongly identified at 19%, 5.8% and 1.7% respectively.

In conclusion, it appeared that the mean percentage of correct scores for all four components of basic language constructs was 61%. Phonological awareness had the highest mean percentage of correct scores at 82%, followed by phonemic awareness at 63%, morphology at 51% and phonics at 46%.

4.3. Knowledge of Basic Language Constructs, Years of Experience Teaching English, and Perceived Abilities to Teach Reading to LINUS Students

To answer the second research question 'Are there significant relationships between LINUS teachers' knowledge of basic language constructs, years of teaching experience and perceived ability to teach reading to LINUS students?' an ordinal logistic regression was performed.

Perceived abilities to teach reading to LINUS students were entered as dependent variable. The categorical predictor variable (i.e. years of experience teaching English) was entered to the Factor box while the continuous predictor variable (i.e. total knowledge) was entered to the Covariates box. According to the case processing summary, half of the teachers rated their abilities to teach reading to LINUS students as moderate (53.7%), followed by very good (38.8%), expert (5.8%) and minimal (1.7%). It appeared that teachers perceived their abilities to teach reading to LINUS students quite positively.

Table 6. Case processing summary for perceived abilities to teach reading to LINUS students

| Perceived abilities to teach reading | Number | Marginal Percentage (%) |
|--------------------------------------|--------|-------------------------|
| 1 (Minimal) | 2 | 1.7% |
| 2 (Moderate) | 65 | 53.7% |
| 3 (Very Good) | 47 | 38.8% |
| 4 (Expert) | 7 | 5.8% |

Table 7 contains the parameter estimates table, summary of evaluations and assumptions for the model. The estimates labelled location are the coefficients for the predictor variables while typically, researchers do not report the estimates labelled threshold [29]. It appeared that LINUS teachers with 1-5 years of experience teaching English significantly predicted whether they gave higher

than lower ratings of perceived abilities to teach reading to LINUS students as compared to LINUS teachers with less than 1 year of experience teaching English, $b = 4.55$, Wald $\chi^2(1) = 4.08$, $p = .04$. This positive coefficient indicates that LINUS teachers with 1-5 years of experience teaching English are more likely than LINUS teachers with less than 1 year of experience teaching English to give higher ratings of perceived abilities to teach reading to LINUS students [29]. Besides that, the odds ratio indicates that LINUS teachers with 1-5 years of experience teaching English are $\exp(4.55) = 94.63$ times more likely than LINUS teachers with less than 1 year of experience teaching English to give higher ratings of perceived abilities to teach reading to LINUS students.

Table 7. Parameter estimates table for total knowledge, years of experience teaching English and perceived abilities to teach reading

| | Variable | Estimate | Std. Error | Sig. |
|--|--|----------------|------------|-------|
| Threshold | Perceived abilities to teach reading to LINUS students = 1 (Minimal) | -2.025 | 1.903 | .287 |
| | Perceived abilities to teach reading to LINUS students = 2 (Moderate) | 2.553 | 1.815 | .160 |
| | Perceived abilities to teach reading to LINUS students = 3 (Very Good) | 5.404 | 1.872 | .004 |
| Location | English_teaching_experience =1-5 years | 4.548 | 2.251 | .043* |
| | English_teaching_experience =11-19 years | -.289 | 3.395 | .932 |
| | English_teaching_experience =20 or more years | 3.050 | 2.801 | .276 |
| | English_teaching_experience =6-10 years | 4.305 | 3.089 | .163 |
| | English_teaching_experience =Less than 1 year | 0 ^a | . | . |
| | Total_Knowledge | .089 | .078 | .253 |
| | English_teaching_experience =1-5 years * Total_Knowledge | -.210 | .099 | .034* |
| English_teaching_experience =11-19 years * Total_Knowledge | .062 | .142 | .660 | |
| English_teaching_experience =20 or more years * Total_Knowledge | -.078 | .119 | .513 | |
| English_teaching_experience =6-10 years * Total_Knowledge | -.190 | .137 | .164 | |
| English_teaching_experience =Less than 1 year * Total_Knowledge | 0 ^a | . | . | |

* the relationship is significant at the 0.05 level ($p < .05$)

Furthermore, it was also found that the interaction between teachers with 1-5 years of experience teaching English and their scores of total knowledge significantly predicted whether they gave higher to lower ratings of perceived abilities to teach reading to LINUS students, $b = -0.21$, Wald $\chi^2(1) = 4.49$, $p = .03$. Thus, the odds ratio indicates that as the scores of total knowledge increase,

LINUS teachers with 1-5 years of experience teaching English are $\exp(-0.21) = 0.81$ times less likely than LINUS teachers with less than 1 year of experience teaching English to give higher ratings of perceived abilities to teach reading to LINUS students. In other words, as the scores of total knowledge increase, the odds of LINUS teachers with less than 1 year of experience teaching English to give higher than lower ratings of perceived abilities to teach reading to LINUS students are $1/0.81 = 1.23$ times more than for LINUS teachers with 1-5 years of experience teaching English.

5. Discussion

Research findings of this study are discussed in the following sections.

5.1. Demographics Profile

The three demographics collected from this study were LINUS teachers' gender, highest educational attainment and years of experience teaching English. It was found that a vast majority of LINUS teachers were female teachers (86%). Besides, most of the LINUS teachers (74.4%) have at least a Bachelor's degree and had 5 years or less of experience teaching English (60%). The gender disparity among LINUS teachers was not surprising because it has been said that historically, the teaching profession has been women's work [30] and education statistics in Malaysia have shown that as of 2012, 69.21 % of the teachers in primary education were females [31]. On the other hand, while most LINUS teachers had a Bachelor's degree, it is of concern that out of the 60% of teachers who had 5 years or less of experience teaching English, with 33% of the teachers had less than 1 year of teaching experience while the other 27% had about 1 to 5 years of teaching experience. This was similar to what was found by [32] that the most common teachers in primary schools were not veteran teachers, but first year teachers, and by the end of the year, a quarter of the teaching force had five years or less of teaching experience.

5.2. Knowledge of Basic Language Constructs

The first research question of this study was 'What do LINUS teachers know about the four components of basic language constructs?'

Findings indicated that LINUS teachers had a mean percentage of correct scores of 61%. In terms of the various components, LINUS teachers scored the best for phonological awareness (82%), followed by phonemic awareness (63%), morphology (51%), and phonics (46%). A percentage of 60% is used as a cut-off point whereby scores below 60% would be considered low while scores between 60% - 79% would be considered average and scores of 80% and above would be considered high.

Reasons for the variance in scores of the various components will be discussed in the sections below.

5.2.1. Phonological Awareness

It was found that LINUS teachers scored the best for the component of phonological awareness, with a mean percentage of correct scores of 82%. In other words, out of the 8 items of knowledge and skills about phonological awareness, LINUS teachers on average scored a 6.55 ($SD = 1.71$). Besides that, while only about half (47.1%) of the LINUS teachers correctly identified the definition of the terminology “phonological awareness”, most of the teachers were able to display skills related to phonological awareness through syllable counting items. This was evident in the majority of the teachers correctly identifying the number of syllables in words such as “heaven” (91.7%), “observer” (94.2%), “salamander” (93.4%), “bookkeeper” (89.3%), and “teacher” (95%).

The two words which appeared to be more complex or confusing for the teachers were ‘disassemble’ and ‘frogs’. The word ‘disassemble’ has 4 syllables but surprisingly 20.7% of the teachers incorrectly answered this item has having 3 syllables instead of 4 syllables while 23.1% of the teachers incorrectly identified the word ‘frogs’ as having 2 syllables instead of 1 syllable. This could be due to the teachers’ possible lack of explicit understanding that a syllable is “a unit of speech comprising a vowel sound and usually some consonant sound/s preceding the vowel and/or following it” [33]. Besides that, teachers could also have confused syllables with morphology because theoretically speaking, both phonological and morphological awareness may be linked due to their manipulations of parts of speech [34]. This would explain why some teachers incorrectly identified ‘disassemble’ as having 3 syllables while ‘frogs’ as having 2 syllables because if the words were manipulated morphologically, ‘disassemble’ has 3 morphemes while ‘frogs’ has 2 morphemes. These findings were also reflected in the findings from [6] where most teachers had problems correctly identifying the number of syllables in the word ‘frogs’. Though teachers did relatively well for syllable counting, the lack of explicit understanding of the definition of syllables may account for the confusions of slightly complex words such as ‘disassemble’ and ‘frogs’.

Interesting to note as well, there were some teachers who did not have any idea of what a syllable was, such that instead of syllable counting, they counted the number of letters in the words. For example, there are 4 syllables in the word “disassemble”, however the teachers wrote down 11 as the answer instead. This finding is rather shocking as syllable counting is one of the basics in the English language and most teachers are assumed to know what a syllable is.

5.2.2. Phonemic Awareness

Phonemic awareness is essential for teachers because it

is one of the key foundations for developing reading skills among elementary children [35] and is also one of the targeted interventions for children with reading difficulties [36]. However, it appeared that LINUS teachers had a little bit more difficulty answering items related to phonemic awareness as compared to items on phonological awareness, with a mean percentage of correct scores of 63%. In other words, out of the 13 items on phonemic awareness, LINUS teachers on average scored an 8.18 ($SD = 2.48$).

Similar to what other studies done in Australia and Canada found [36, 37], LINUS teachers scored better for skills related items on phonemic awareness than knowledge items on phonemic awareness. It was found that though 87.6% of the teachers were able to correctly identify the definition of a phoneme, this knowledge was not fully reflected on the teachers’ skills of phoneme counting. This finding is similar to the results found in an Australian study done among pre-service teachers on the importance of teacher knowledge in sound structure of language and its relationship to beginning reading [37]. For example, most teachers were able to correctly identify the number of phonemes in the words ‘ship’ (95.9%) and moon (93.4%). However, teachers had slightly more difficulty with the counting of phonemes in words with four phonemes such as ‘grass’ (67.8%) and ‘brush’ (74.4%). This might be due to the inherent difficulty of counting phonemes of a target word composed of four or more phonemes that also include consonant clusters (i.e. a group of two or more consonant sounds that come before, after, or in between vowels) [38]. Furthermore, teachers also seemed to have slight difficulty in identifying phonemes in the word ‘knee’ (73.6%). Similar to what Washburn *et al.* [6] found, LINUS teachers had greater difficulty with more complex word like ‘through’ (48.8%) and greatest difficulty for the word ‘box’ (10.7%). Teachers had the most difficulty identifying the (ks) phonemes for the letter ‘x’ in the word ‘box’, with 78.5% of the teachers identifying ‘box’ as having three phonemes instead of four. It appears that LINUS teachers had somewhat limited knowledge about phonemes depending on the complexity of the words.

According to Goswami [33], the development of phonological awareness begins with syllable awareness and then only followed by phonemic awareness, regardless of language. This might explain why teachers had more difficulty counting phonemes than counting syllables. In addition to that, only less than half of the LINUS teachers (41.3%) know what phonemic awareness is despite a majority knowing the definition of phoneme. This was similar to what found among first-year teacher candidates in a Canadian university as well where only about half of the teachers (51.9%) correctly identified the definition of phonemic awareness despite more teachers knowing what phoneme is [36]. Thus, it appears that though teachers have the basic understanding of what phonemes are, there seems

to be a gap between having this knowledge and translating this knowledge to phonemic awareness skills such as phoneme counting. This suggests a lack of deeper understanding of what phoneme encompasses.

5.2.3. Morphology

On the other hand, it appears that morphological knowledge seemed to not be the strengths of LINUS teachers. Out of the 8 items, LINUS teachers on average scored a 4.07 ($SD = 1.56$). While 76.9% of the teachers could correctly identify the definition of morpheme (i.e. a single unit of meaning), the percentage of teachers correctly identifying the number of morphemes in the words varied greatly, with a range of 12% to 75%. Teachers fared the best at identifying the number of morphemes in a common word like 'teacher' (75.2%), followed by 'heaven' (65.3%), 'bookkeeper' (59.5%), 'salamander' (56.2%) and 'frogs' (47.9%). Teachers had the most difficulty with identifying the morphemes in words such as 'observer' (14%) and 'disassemble' (12.4%).

These findings were similar to the study by Washburn *et al.* [6] and Moats [39], who also found that teachers had great difficulty with various aspects of morphology. This could be due to the general lack of emphasis on systematic classroom instruction on morphological structure of words [40], especially in beginning reading instructions [41]. Moreover, it has been widely established that phonological processing deficit is the cause of the difficulty faced by struggling readers [40], and that phonological awareness helps students in letter-to-sound correspondences while morphological awareness helps in the reading of more complex words, after decoding abilities have been acquired [34]. As LINUS students are beginner readers who struggle to decode words, LINUS teachers would have the tendency to focus more on creating phonological awareness among LINUS students and thus are not strong at morphological knowledge.

5.2.4. Phonics

Besides, it appears that phonics knowledge was also not LINUS teachers' strengths. Out of the 8 items on phonics knowledge, about 70% of the teachers scored 4 and below while the other 30% scored between 5 and 6 ($M = 3.7$, $SD = 1.93$). However, teachers fared relatively better at phonics knowledge items that required implicit knowledge (i.e. identifying word which has a soft 'c') and skills (i.e. identifying the word with same letter sounds item), with respectively 64.5% and 61.2% of the teachers correctly scoring the items. These findings were also supported by Washburn *et al.* [6]. One of the main reasons for the lack of explicit phonics knowledge according to Washburn *et al.* [6] was the limited daily and repeated exposure to phonics principles. In accordance with that, a study done in Malaysia among Year 1 English language teachers on phonics teaching reported that teachers faced problems regarding ways of teaching phonics, lack of phonics

knowledge and lack of training provided to teach using phonics strategy [42]. This could be due to a change in curriculum under the Malaysian Education Blueprint (2013-2025) where English language teachers of lower primary students had to include phonics teaching as a new component under the reading module. The change in curriculum demands that the teachers to change their knowledge, attitudes and instructional practices from the former program to the new program and this change is not easy [43].

5.3. Knowledge of Basic Language Constructs, Years of Experience Teaching English, and Perceived Abilities to Teach Reading to LINUS Students

The second research question of this study was 'Are there significant relationships between LINUS teachers' knowledge of basic language constructs, years of teaching experience and perceived ability to teach reading to LINUS students?'

Findings indicated that LINUS teachers with 1-5 years of experience teaching English are more likely to give higher ratings of perceived abilities to teach reading to LINUS students as compared to LINUS teachers with less than 1 year of experience teaching English ($p = .04$). However, it was found that as scores of total knowledge of basic language constructs increase, LINUS teachers with 1-5 years of experience teaching English are less likely to give higher ratings of perceived abilities to teach reading to LINUS students than LINUS teachers with less than 1 year of experience teaching English ($p = .03$). Thus, it appears that though greater number of years of teaching experience increases the likelihood of giving higher ratings of perceived abilities to teach reading, as scores of total knowledge increases, teachers with less than 1 year of experience teaching English are even more likely to give higher ratings of perceived abilities to teach reading.

Likewise, there has been contradicting findings from various studies in terms of the relationship between years of experience teaching, teacher content knowledge and teacher efficacy. While some studies found that novice teachers tend to have somewhat lower teacher efficacy beliefs than teachers with more years of teaching experience [22]; other studies found that teacher efficacy and teacher content knowledge go down with teaching experience [20,22]. Hoy and Spero [22] proposed that the reason why teacher efficacy reduces with experience is because prospective and novice teachers often underestimate the complexity of the teaching task and their abilities to manage many agendas simultaneously. Therefore, it appears that though teaching experience might increase teacher efficacy, it also depends on how teachers deal with the complexity of the teaching profession throughout the years of teaching by improving mastery experiences, vicarious experiences, verbal persuasion, and physiological arousal [44].

In this study, it appears that teachers' specialized content knowledge seemed to mediate the relationship between teachers' years of teaching experience and perceptions of teaching abilities, especially in terms of reading and teaching phonics. This is also in line with what some studies proposed that teachers' development of content knowledge and pedagogy can be a valuable way to increase teacher efficacy [45-47]. Besides that, Ball *et al.* [16] also contended that teachers need specialized content knowledge that goes beyond the common knowledge held by most adults to be able to teach and make contents or concepts learnable by students. In this study, this specialized content knowledge refers to the knowledge of basic language constructs which include phonological knowledge, phonemic knowledge, morphology and phonics. Findings from this study proposed that for novice teachers or teachers with less than 1 year of teaching experience, the level of specialized content knowledge influences teacher efficacy more than teachers with more years of experience teaching. In fact, with the alarming number of teachers leaving the profession in the first three years after graduation from a pre-service program [48], content courses for teachers which focus on how to teach the content might help novice teachers increase their sense of teacher efficacy and deal with the complexity of the teaching profession.

6. Implications

Findings of this study indicated that teacher's knowledge of basic language constructs seemed to positively influence teacher's ratings of perceived teaching abilities relative to teacher's years of experience teaching English per se. According to Bandura [49], mastery experiences or our own direct experiences are the most powerful source of efficacy. To increase efficacy, the abilities, effort, choices and strategies of the individual must be attributed for success, and not to mere luck or extensive help from others [50]. In this study, the teacher's specialized content knowledge is the teacher's knowledge of basic language constructs, which is also part of the teacher's mastery experiences. Besides, Ball's theory of content knowledge of teaching [16] also contended that the specialized content knowledge is an important subdomain of "pure" content knowledge unique to the work of teaching, and is distinct from common content knowledge needed by teachers and non-teachers alike. The knowledge of basic language constructs is the knowledge and skill unique to teaching reading and is not typically needed for purposes other than teaching. The teacher's specialized content knowledge is the teacher's asset and ability. Thus, findings of this study have supported both Bandura's theory of self-efficacy and Ball's theory of content knowledge of teaching.

On the other hand, findings of this study have also

proposed several practical implications. Firstly, it appears that there is a need to increase LINUS teacher's specialized content knowledge of reading, specifically, the knowledge of phonological awareness, phonemic awareness, morphology, and phonics. Findings of this study indicated that LINUS teachers do possess some knowledge and skills of all these four components of the basic language constructs, but might not be sufficient to translate these knowledge into skills that are required for teaching reading. As aforementioned, Ball's theory of content knowledge of teaching [16] proposed that teachers should possess the specialized content knowledge which is only useful for teaching purposes. This suggests the importance of possessing knowledge that is in-depth and particularly useful for only teaching to make the subject learnable and understandable for students who struggle in school. However, this does not mean the teachers are not up to standard or are incapable of teaching reading, findings of this study only suggests the need to improve teacher's specialized content knowledge to enhance teacher's teaching of struggling readers. Thus, this also implies a need for the Ministry of Education to provide in-service trainings focusing not just on pedagogical skills but the teaching of contents per se. While trainings have been done by Fasi LINUS on pedagogical skills and the implementations of LINUS program, there appears to also be a need for trainings which focus more on the teaching of components of reading which is important for the learning of reading. Furthermore, by enhancing teachers' content knowledge, teachers will also have higher perceptions of their abilities to teach reading to students who struggle to achieve basic literacy. As according to studies, teachers who have a realistic judgement of higher teacher efficacy will tend to persevere more with students who are difficult to teach. By enhancing teacher's knowledge, not only will the teachers feel more empowered and prepared to teach, struggling readers will also benefit from effective teaching and learning. The gist of this is, trainings which focus on specialized content knowledge of reading should be provided for teachers regardless of years of experience teaching, and even especially for experienced teachers to help teachers feel more empowered and prepared for the teaching of struggling readers.

7. Conclusions

In conclusion, findings from this study indicated the importance of the level of specialized content knowledge in the subject of reading to increase teacher's perceived abilities to teach reading as compared to number of years teaching English per se. In fact, it was found that as knowledge of basic language constructs increases, LINUS teachers with less than 1 year of experience teaching English are more likely to give higher ratings of perceived abilities to teach reading than LINUS teachers with 1-5

years of experience teaching English. This finding supports Ball's theory of specialized content knowledge that teachers should possess which is specific to the teaching of a particular content or subject and not what common adults know to increase teacher's self-efficacy in teaching students and coping with difficulties of the classroom.

Though results from this study cannot be generalized due to the limited sample size and population, it has highlighted the importance of factors such as knowledge of basic language constructs to increase perceived teaching abilities of LINUS teachers in their teachings of LINUS students. Further research should be done on more samples of LINUS teachers, to find out what challenges or difficulties LINUS teachers face while teaching LINUS students and how to help increase LINUS teachers' teacher efficacy for the empowerment of helping LINUS students achieve basic literacy skills.

This study hopes to benefit not only the LINUS teachers in terms of helping them be aware of what they know and do not know about teaching reading, but also ultimately provide data as to how to improve LINUS teachers' preparation for teaching reading to struggling readers. As Cline [51] contended, teachers need to explicitly know how language is constructed to be able to teach reading to struggling readers.

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