



Development and Validation of *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition) of the Filipino Reading Achievement Test

Ryan Francis O. Cayubit
Lyka Ilonah D.C. Chua
Emerald Ann S. David
Therese Monique D.G. Gutierrez
Shiara Marriz T. Marquez
Niko A. Mendoza
Emille Joyce P. Palogan
Reniel B. Tiu
University of Santo Tomas

Abstract

The objective of this cross-sectional exploratory study is to develop and standardize two subtest for the proposed Filipino Reading Achievement Test. Subtests measuring *Pagbabaybay* or Spelling in Filipino and *Pagkilala sa Binasa* or Word Recognition was constructed. The focus of the study is assessing the validity and reliability of these instruments in order to justify its use in assessing the reading abilities of Filipino children. Assessing reading ability is essential because reading has been considered as one of the most important skill an individual needs to develop in order to succeed both in school and in the world of work. The study followed the standard scale development procedures of item analysis, reliability and validity testing. Implications of the findings are discussed.

Keywords: reading, spelling, word recognition, achievement test, Filipino children

Introduction

Learning is a never-ending process that is spurred by man's desire to acquire more knowledge and experience. There are several ways to learn and

one of this is through reading. Reading is a linguistic skill that gives meaningful interpretation to printed or written verbal symbols (Tinker & McCullough, 1975). The goal of which is to transfer ideas from written text to the human mind by integrating all materials in order to arrive at something meaningful (Tinker & McCullough, 1975). This unique human skill is acquired after one has gained substantial aptitude in oral language (Muter, Hulme, Snowling, & Stevenson, 2004) and is believed to be enhanced by formal training and education.

One characteristic of reading that sets it apart from other literacy skills is its automaticity (Schwartz, 2003). Reading automaticity is a fast, accurate and effortless word identification process where an individual reads quickly and automatically while simultaneously keeping a flow of thoughts and ideas that will enable him to generate inferences and establish connections within the text that was read (Hook & Jones, 2002; Warrington, 2006). Although seemingly simple at the surface, a deeper understanding of reading would lead one to realize that it actually requires an instantaneous understanding of the text presented without having to pause for conscious efforts to decode the letters and put them together to ascribe meaning to the words, sentences and ultimately, the entire text presented. This implies that the reader has the ability to use the different components of reading like vocabulary knowledge (understanding of the meanings of individual words), word recognition (the immediate identification of common words), and spelling (the ability to relate sounds to symbols in both familiar and unfamiliar words), among others (Muter et al., 2004). These components make up what is known as the reading achievement of an individual.

The theoretical underpinning of reading appears vast and it seems that reading can be best understood if it is not constricted by just one theory. For instance, Piaget's theory of intellectual development, when used side by side with the interaction model of reading leads to a better understanding of reading performance at specific developmental stages (Graves, Watts-Taffe & Graves, 1999; Karlin, 1973). Piaget's theory of intellectual development posits that from the age of 7 to 11, a child has already acquired the skill to logically organize cognitive activities as characterized by the processes important to this stage like composition, associativity, identity, reversibility, and seriation. Composition allows the child to view parts and represent them as contained in the whole, while associativity gives the child the ability to arrange and rearrange elements of what is presented to him in various ways. Identity, on the other hand, lets the child maintain a perception of the original so that he can return it to that

condition when changes take place and reversibility enables the child to coordinate or compare the alterations made among the elements of a group. Finally, seriation allows the child to sequence elements depending on some criterion. All of these falls under what Piaget calls the concrete operational stage (Boyd & Bee, 2015; Karlin, 1973; Santrock, 2017) and are necessary for reading to take place. Meanwhile, the interaction model of reading introduced by Rumelhart in 1977 explains that not only is reading influenced by the child's ability to manipulate what is presented to him but is also affected by the text itself (Graves et al., 1999). This means that an interaction seems to exist between reader characteristics (as presented in Piaget's developmental theory) and properties of the text being read (supplemented by Rumelhart's interactive model). This theoretical interaction is what produces meaning ascribed to the material read by an individual.

Despite the existence of theories and the importance of reading as a construct, measuring reading achievement of Filipino children, particularly if cultural characteristics is taken into account, remains a challenging task. It is challenging because most available scales may not be appropriate for Filipino children. This disparity can be traced to discrepancies in the quality of education and many other socio-cultural factors, like the lack of fluency in the English language, which may affect the results of these scales resulting to inaccurate assessment. It is in this light that the researchers deem it necessary to develop and standardize an assessment tool that would measure Filipino reading achievement.

Nature of Reading

The importance of reading is well articulated in the literature. Reading is important because it provides the learners with access to a great quantity of future experience of the language and it presents a window onto the normal means of continuing one's personal education (Stevens, 1977). It is also through reading that learners would be able to develop a sufficient language base that enables them to produce the spoken or written messages, which they are eager to communicate to others (Rajabi, 2009). In addition, Roe, Smith and Burns (2005) stated that some educators regard reading as a set of interrelated sub-skills that children must master and integrate.

According to bottom-up theorists, reading is a linear process by which readers start with the written text and decode the text word by word, linking the words into phrases and then sentences (Gove as cited in Roe et al., 2005; Gray

& Rogers as cited in De Dabat, 2006; Gunning, 2003; Phakiti, 2006). The bottom-up theory focuses on how readers extract information from the printed page, claiming that readers deal with letters and words in a relatively complete and systematic fashion (Treiman, 2001). A complex task like reading is broken down into their component skills (Gunning, 2003) such as word recognition, spelling, morpho-phonemic processing and morpho-syntactic parsing (Phakiti, 2006). In this view of reading, readers assume a passive role and more focus is given on the printed symbols or text. Reading processes are considered to be completely under the control of the text and had little to do with the information possessed by a reader or the context of discourse (Gao, 2006).

Another theory sees reading as a top-down process and emphasizes the role of the reader (Gao, 2006) and his background knowledge (Bai, 2007; De Dabat, 2006) in the process of extracting meaning. According to this view, reading is not just obtaining meaning from the text but a process wherein the reader connects his background knowledge in deriving and predicting the meaning of the text. Reading is not a passive mechanical activity but purposeful and rational, dependent on the prior knowledge and expectations of the reader. It is a matter of making sense of written language rather than decoding print to sound (De Dabat, 2006). Readers approach the text with existing knowledge, and work down to read the entire text (Gao, 2006). The reader proves his active role in the reading process by bringing to the interaction his/her available knowledge of the subject, knowledge of and expectations about how language works, motivation, interest and attitudes towards the content of the text. Through the use of cues, the reader forms hypotheses about which words he will encounter and take in only just enough visual information to test his hypotheses.

More recent theories on reading view the process as a combination of the bottom-up and top-down approaches. This interactive model of reading states that reading happens because the reader extracts meaning from the text but that meaning is not only because of the text alone but is attributed to the interaction between the text and the characteristics and knowledge of the reader reading (Erten & Karakas, 2007; Gao, 2006).

Word Recognition and Spelling

Measuring reading achievement involves summing up an individual's performance in the different facets of reading. This is often done in the educational setting where results are used to judge the ability of the student and

as basis for interventions. Two common facets of reading is word recognition and spelling.

Learning to read requires the operation of recognition. Word recognition allows the reader who recognizes a word to match the full print array of that word with an orthographic-phonological representation of that word which was previously stored in memory (Erickson et al., 2008). Word recognition has several aspects. One is the decoding ability of the reader, which involves the use of knowledge in phonics (Gillet, Temple & Crawford, 2008). In decoding, the reader must apply his general knowledge in determining how the letters and clusters of printed words encode sounds (Erickson et al., 2008). Successful word recognition attaches a pronunciation or equivalent phonological representation stored in memory to an orthographic memory of the whole printed word. When word recognition happens very quickly, with no effort exerted, it is called sight word reading or “automatic” word recognition (Ehri, 2005; Erickson et al., 2008). According to Castles and Coltheart (as cited in Muter et al., 2004), a close relationship exists between the development of word recognition skills and phonological awareness. Phonological awareness, also known as phonological sensitivity, includes the ability to recognize, identify, or manipulate any phonological unit within a word (Ziegler & Goswami, 2005). Numerous studies have shown that possessing good phonological awareness skills characterize good readers, whereas possessing poor phonological awareness skills is evident in poor readers (Brady, 1991; Goswami & Bryant, 1990; Scarborough 2001; Wagner & Torgesen, 1987).

Spelling, on the other hand, is a related operation to word recognition that utilizes the process of production. The ability of the reader to read words usually surpasses his ability to spell the words correctly. Similar to word recognition, phonemic awareness or phonemic segmentation and orthographic representation are also key components of spelling (Gillet et al., 2008). It is an essential and complex skill that revolves around the use of one’s visual memory, phoneme-grapheme awareness and orthographic and morphophonemic knowledge (Abler & Walshe, 2004; van Hell, Bosman, & Bartelings, 2003). There are two measures of spelling: spelling dictation and spelling recognition. Spelling dictation involves the ability to produce the graphemes corresponding to pronounced words. This type of spelling appears to be associated with good knowledge of sound–symbol correspondences and phonological analysis skills. In contrast, spelling recognition requires children to visually analyze alternative spelling patterns and choose the real word pattern, a skill that might rely more heavily on orthographic or letter pattern knowledge (Ziegler & Goswami, 2005).

Both word recognition and spelling tap into orthographic and phonological representations, but possibly with dissimilar demands on the precision of those representations. However, successful word recognition often requires only partial orthographic and phonological representations, whereas spelling requires that complete representations be accessible in order to successfully spell a word (Friend, De Fries, Wadsworth, & Olson, 2007). In describing the relationship between word recognition and spelling, Friend et al. (2007) found that the pattern of phonological errors and orthographic accuracy in spelling was similar to the pattern of errors in word recognition. This would mean that those judged as poor spellers are often poor readers and good spellers are often good readers.

Measures of Reading Achievement

There appears to be a limited number of researches devoted to the development of scales that could be used to assess reading achievement. One such test is the Test of Word Reading Efficiency developed by Torgeson, Wagner and Rashotte in 1999 (Hayward, Stewart, Phillips, Norris, & Lovell, 2008). The test deals mainly on two important aspects of “word level” reading ability, that of sight word reading and phonemic decoding. The rationale of the test is to measure the student’s word level reading efficiency. Gentry (2007) developed another instrument designed to measure spelling. It is a brief developmental spelling test of 5 to 10 chosen words designed to measure the strategies used by children in spelling. The strategies are scribbling, random letter, letters for beginning sounds, a letter for each sound and spelling in chunks of phonetic patters.

The Present Study

Recognizing the importance of reading, this study is an extension of a previous work that developed a vocabulary and reading comprehension subtests for the Filipino Reading Achievement Test (Cayubit, 2012). To complete the battery, the present study revolves around the work and procedures used in developing and standardizing the spelling and word recognition subtests. The specific research questions are as follows:

1. What is the composition of the preliminary and polished forms of spelling and word recognition subtests?

2. How valid are the preliminary forms of spelling and word recognition subtests based on exploratory factor analysis?
3. How valid are the polished forms of spelling and word recognition subtests based on the confirmatory factor analysis?
4. How reliable are the preliminary and polished forms of the spelling and word recognition subtests?

Method

Research Design

This research project is cross-sectional exploratory in nature. A cross-sectional exploratory research involves data gathering from respondents in a single point in time with the purpose of developing an instrument that would measure a phenomenon and at the same time explaining the nature of the said phenomenon (Johnson, 2001). The current project aimed to develop and validate an instrument that would measure specific domains that would form part of a pupil's reading achievement. The said domains are *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition). In addition, this is a descriptive normative research endeavor. As explained by Ariola (2006), the descriptive normative method is a type of descriptive research that describes the status of events and people as they exist through the use of standardized instruments with established norms. Applied to the study at hand, it made use of the newly developed instrument on the research respondents to test its usefulness and likewise describe their current condition as regards their achievement in both *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition).

Participants

A total of 1,290 grades 3 and 4 pupils participated in the study. 160 participated in the development of the preliminary form and 1,130 participated in the validation of the polished form. The participants who responded to the preliminary form were from schools in Antipolo, Parañaque and Laguna, while those who responded to the polished form were selected from various schools within Metro Manila. All respondents were selected using convenient sampling.

Measures

To complete the study, four instruments (preliminary and polished forms of *Pagbabaybay* and *Pagkilala sa Salita*) were developed in consultation with teachers who are experts in Filipino and Reading. Items of both tests were written in Filipino and were designed to be suitable for Grades 3 and 4 pupils. The items in the preliminary form were based on the results of the content validation performed by Filipino and Reading teachers while the items of the polished form were based on the analysis of the data from the preliminary form. More specifically, an item will be included in the polished form provided it met the following conditions: (a) factor loading of at least 0.30 in the exploratory factor analysis; (b) index of item discrimination of good or very good; and (c) index of item difficulty in the optimum level. A detailed description of the scales is found in Table 1.

Table 1

Description of test instruments

Type of Test	No. of Items	Description
<i>Preliminary Form Pagbabaybay</i>	59	<i>Ang pagsusulit na ito ay sumusukat sa kakayahan ng sumasagot na magbaybay ng pantig ng salitang Filipino Ang mga salitang ito ay karaniwan sa mga mag aaral o bata sa ikaw tatlo at apat na antas.</i>
<i>Preliminary Form Pagkilala sa Salita</i>	70	<i>Ang pagsusulit na ito ay sumusukat sa kakayahan ng sumasagot na kilalanin ng tama at walang hirap ang mga salita.</i>
<i>Polished Form Pagbabaybay</i>	27	<i>Ang pagsusulit na ito ay sumusukat sa kakayahan ng sumasagot na magbaybay ng pantig ng salitang Filipino Ang mga salitang ito ay karaniwan sa mga mag aaral o bata sa ikaw tatlo at apat na antas.</i>
<i>Polished Form Pagkilala sa Salita</i>	28	<i>Ang pagsusulit na ito ay sumusukat sa kakayahan ng sumasagot na kilalanin ng tama at walang hirap ang mga salita.</i>

Procedure

Data gathering started with documentary analysis using textbooks on Reading and Filipino, the purpose of which is to generate initial items that would make up the preliminary form. Available reading tests were also reviewed to see how test items were constructed and how they were administered. This was followed by item construction using the common sight words in Filipino as basis. In addition, Piaget's theory of intellectual development and Rumelhart's Interaction Model of Reading also guided the item construction. The initial sets of items were then reviewed by selected experts for content validation. The preliminary forms of *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition) were then administered, scored and collated to determine their initial psychometric properties. The initial psychometric properties served as a guide in revising the preliminary form, items were then retained, revised and discarded based on the criteria mentioned in the previous section. The polished form was administered to a larger group of participants to determine its final reliability and validity.

Data Analysis

To determine the psychometric properties of the *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition) subtests, the following statistical techniques were used: item difficulty index, item discrimination index, KR 20, Exploratory Factor Analysis and Confirmatory Factor Analysis.

Results

Contents of the preliminary and polished forms

The preliminary forms of *Pagkilala sa Salita* (Word Recognition) and *Pagbabaybay* (Spelling) consisted of 70 and 59 items respectively. Data from the participants who took the two forms were subjected to item analysis to determine item difficulty and discrimination. This served as the initial screening for the items, the purpose of which was to have a mixed pool of items for the polished form with at least a good level for both discrimination and difficulty. Table 2 presents the discrimination indices of the two subtests. For the items to be included in the polished form, they need to have a discrimination index of at

least .20 for *Pagkilala sa Salita* (Word Recognition) while the minimum index for *Pagbabaybay* (Spelling) was .30. The difference in the cut-off scores is due to the different nature of the two subtests.

Table 2

Item discrimination of Pagkilala sa Salita (Word Recognition) and Pagbabaybay

Item Number	Discrimination Indices	Description
<i>Pagkilala sa Salita (Word Recognition)</i>		
15 items: 5, 7, 13, 14, 18, 27, 29, 38, 44, 50, 51, 52, 54, 63, 65	.40 and above	Very Good
20 items: 2, 4, 8, 9, 10, 12, 15, 16, 25, 26, 32, 37, 39, 40, 41, 42, 47, 49, 60, 66	.30 to .39	Reasonably Good
25 items: 3, 6, 11, 17, 19, 20, 22, 28, 30, 31, 33, 34, 36, 43, 45, 46, 48, 53, 55, 56, 59, 64, 67, 68, 69	.20 to .29	Marginal Item
10 items: 1, 21, 23, 24, 35, 57, 58, 61, 62, 70	.19 and below	Poor
<i>Pagbabaybay (Spelling)</i>		
41 items: 1, 6, 9, 10, 11, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 45, 47, 48, 52, 53, 54, 56, 57, 58	.40 and above	Very Good
8 items: 2, 7, 14, 26, 27, 46, 49, 55	.30 to .39	Reasonably Good
6 items: 3, 16, 24, 44, 50, 51	.20 to .29	Marginal Item
4 items: 4, 5, 8, 59	.19 and below	Poor

Item difficulty was also computed. The results represent the intricacy of each of the test items as determined by their difficulty indices where the higher the index, the easier an item is. Similar to discrimination, the purpose is to have a mix pool of items that is not very easy and very hard. Table 3 contains the difficulty indices of both tests and for the items to be included in the

polished form, they need to have a difficulty index of at least .50 for *Pagkilala sa Salita* while the minimum index for *Pagbabaybay* (Spelling) was .20. Similar with the discrimination index, the difference in the cut-off scores is due to the different nature of the two tests.

Table 3

Item difficulty of Pagkilala sa Salita (Word Recognition)

Item Number	Difficulty Indices	Description
<i>Pagkilala sa Salita (Word Recognition)</i>		
9 items: 1, 21, 23, 24, 35, 57, 61, 62, 70	.91 and above	Very Easy
46 items: 2, 3, 4, 6, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 22, 25, 26, 28, 30, 31, 32, 33, 34, 36, 37, 39, 40, 41, 42, 43, 45, 46, 47, 48, 53, 55, 56, 58, 59, 60, 64, 66, 67, 68, 69	.81 to .90	Easy
15 items: 5, 7, 13, 14, 27, 29, 38, 44, 49, 50, 51, 52, 54, 63, 65	.46 to .80	Optimum
No item	.30 to .45	Hard
No item	.29 downward	Very Hard
<i>Pagbabaybay (Spelling)</i>		
1 item: 5	.91 and above	Very Easy
10 items: 2, 9, 14, 16, 23, 24, 36, 49, 55, 59	.81 to .90	Easy
33 items: 1, 6, 7, 10, 11, 15, 18, 20, 21, 25, 26, 27, 29, 30, 32, 33, 34, 35, 38, 40, 41, 43, 44, 45, 46, 47, 48, 50, 51, 53, 56, 57, 58	.46 to .80	Optimum
12 items: 12, 13, 17, 19, 22, 28, 31, 37, 39, 42, 52, 54	.30 to .45	Hard
3 items: 3, 4, 8	.29 downward	Very Hard

Exploratory factor analysis

EFA was used to determine the factorial validity of the two subtests by examining whether the items would load in their pre-determined factors. The EFA results in Table 4 (Eigenvalues) and Figure 1 (Scree plot) supported the two hypothesized factors (*Pagkilala sa Salita* and *Pagbabaybay*).

Table 4

Eigenvalues of Pagkilala sa Salita (Word Recognition) and Pagbabaybay (Spelling)

Subscales	Eigenvalues
<i>Pagkilala sa Salita</i> (Word Recognition)	36.62186
<i>Pagbabaybay</i> (Spelling)	5.61261

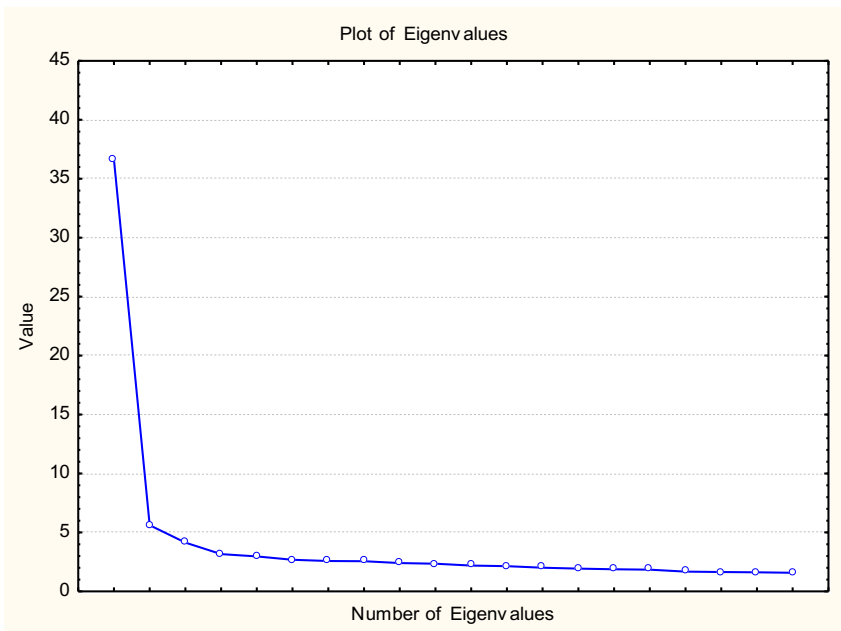


Figure 1. Scree plot of *Pagkilala sa Salita* (Word Recognition) and *Pagbabaybay* (Spelling).

Final composition of the polished form

As previously mentioned, an item can only be part of the polished form if it has a factor loading of at least .30 and acceptable difficulty and discrimination indices. Based on these criteria, only 27 of 70 items (38.57%) in the *Pagkilala sa Salita* (Word Recognition) subtest met the criteria. On other hand, in the *Pagbabaybay* (Spelling) subtest, 28 out of 59 items (47.46%) met the criteria (See Table 5).

Table 5

Difficulty, discrimination indices and factor loadings of the polished form

Item No.	Difficulty index	Discrimination Index	Factor Load
<i>Pagkilala sa Salita (Word Recognition)</i>			
3	0.872	0.255	0.521
17	0.872	0.255	0.674
18	0.802	0.395	0.396
19	0.860	0.279	0.590
20	0.872	0.744	0.729
22	0.895	0.209	0.760
25	0.837	0.325	0.761
28	0.872	0.255	0.402
30	0.895	0.209	0.676
31	0.895	0.209	0.802
33	0.883	0.232	0.642
34	0.895	0.209	0.748
36	0.883	0.232	0.681
37	0.837	0.325	0.664
41	0.837	0.325	0.711
42	0.837	0.325	0.601
43	0.883	0.232	0.542
46	0.883	0.232	0.706
48	0.860	0.279	0.357
53	0.872	0.255	0.670
55	0.813	0.279	0.490
56	0.895	0.209	0.588

59	0.883	0.232	0.568
60	0.825	0.302	0.366
64	0.872	0.255	0.467
66	0.848	0.302	0.540
67	0.860	0.232	0.553
68	0.872	0.255	0.585

Pagbabaybay (Spelling)

1	0.558	0.465	0.347
6	0.476	0.581	0.455
12	0.430	0.860	0.627
13	0.441	0.651	0.451
15	0.488	0.744	0.573
17	0.453	0.627	0.545
19	0.406	0.627	0.449
20	0.558	0.558	0.388
21	0.593	0.581	0.401
22	0.418	0.511	0.311
28	0.418	0.744	0.577
31	0.313	0.441	0.317
32	0.755	0.395	0.315
33	0.546	0.511	0.548
35	0.500	0.674	0.556
37	0.430	0.395	0.308
38	0.639	0.720	0.643
39	0.430	0.627	0.424
41	0.558	0.697	0.507
42	0.372	0.511	0.421
43	0.534	0.697	0.572
47	0.593	0.581	0.546
48	0.546	0.534	0.358
52	0.418	0.558	0.341
53	0.604	0.558	0.570
54	0.430	0.767	0.628
56	0.686	0.395	0.342

Reliability of the preliminary and polished forms

To check the reliability of the preliminary form of both *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition), KR 20 was used. Table 6 shows that both subtests are reliable. This suggests that the test items are sound, stable, and dependable. According to Friedenberg (1995), a test with high reliability is more favored over other types because it can be depended on to generate scores that are realistic estimates of the test taker's actual characteristics or knowledge.

Table 6

KR 20 reliability coefficients

Type of Test	Preliminary Form	Polished Form
<i>Pagbabaybay</i> (Spelling)	0.931	0.923
<i>Pagkilala sa Salita</i> (Word Recognition)	0.970	0.934

Confirmatory Factor Analysis

CFA was conducted to establish the final validity of the polished forms and confirm the factor structure of the two subtests. The following fit indices were used: Root Mean Square Error of Approximation (RMSEA), Population Gamma Index (PGI), Adjusted Population Gamma Index (AGPI), Joreskog GFI, Joreskog AGFI and the Chi-Square Model. The use of the said indices was based on the recommendations of Byrne (2010) and Hooper, Coughlan, and Mullen (2008). Results show that for both *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition), the chi square value is significant at 0.05 alpha, an indication of the departure of the data from the model. However, this may be due to the large sample size of the polished form (Anderson & Gerbing, 1998; Huang & Michael, 2000). The other fit indices indicate that the data from the *Pagbabaybay* (Spelling) met the recommended values for a good fitting level. On the other hand, the indices for the *Pagkilala sa Salita* (Word Recognition) did not meet the recommended values for a good fitting model but the obtained values can be considered as adequate. Thus, the CFA results provided further support for the factorial validity of the two subtests.

Table 7
Goodness of fit indices

Goodness of fit index	Pagbabaybay (Spelling)	Pagkilala sa Salita (Word Recognition)	Recommended Values
RMSEA	0.038	0.079	0.06 and below
PGI	0.966	0.865	.90 and above
APGI	0.960	0.844	.95 and above
Joreskog GFI	0.947	0.849	.95 and above
Joreskog AGFI	0.938	0.825	.95 and above
Chi square	9609.68 ($p < .05$)	12601.39 ($p < .05$)	$p > .05$

Discussion

The purpose of the present study was to develop and validate the *Pagbabaybay* (Spelling) and *Pagkilala sa Salita* (Word Recognition) subtests of the Filipino Reading Achievement Test. The two domains were selected because spelling is believed to be a vital component of reading as it is one of the skill that supports it the most (Moats, 2006), while word recognition is essential since one's reading skill revolves around his ability to match the word he is reading with its corresponding orthographic-phonological representation that has previously been stored in his memory (Erickson et al., 2008). These two subtests, along with the previously published subtests on Vocabulary and Reading Comprehension (Cayubit, 2012), complete the battery of the Filipino Reading Achievement Test.

All items were written in Filipino since the researchers believe that this would be the best medium to assess Filipino children's reading ability. This stems from the notion that a Filipino child may be judged as poor in reading not because the student has impaired reading skills but because of limited command of English, the language used by most reading assessment tools.

In general, the analysis of the respondents' scores provides evidence that the two subtests have sound psychometric properties and that they have adequate validity and reliability. Validity evidences are from the results of content validation, exploratory factor analysis and confirmatory factory analysis. The multiple validity measures employed reflects the desire of the researchers to ensure that both subtests will indeed measure what they are supposed to

measure. In addition to being valid, the two subtests are also reliable, an indication that the scales can be dependent on to generate stable scores consistent with the domains being measured by over a period of time. These psychometric properties gives credence to the claim that the tests developed can potentially generate data that is reflective of the current reading ability of Filipino children with respect to their ability to spell and recognize words.

Considering its initial psychometric properties, stakeholders can now make use of the new tests to assess the reading skills of Filipino children. This is important because reading is a known predictor of achievement scores among students (O'Reilly & McNamara, 2007). Thus, it is expected that pupils who can read well are more likely to succeed or do well in school compared to those who have difficulty in reading. This is because reading has been found to be positively associated with behavioral engagement in school (Guo, Sun, Breit-Smith, Morrison, & Connor, 2015). Assessing reading skills is not only important for school but is also crucial in the future success and endeavors of children (Coker Jr., Jennings, Farley-Ripple, & MacArthur, 2018; Snow, Burns, & Griffin, 1998) because of its wide range implications for later academic attainment, economic success and other adult endeavors (Sullivan, Kohli, Farnsworth, Sadeh, & Jones, 2017) since almost all human activities would involve reading (Baddeley, Logie, & Nimmo-Smith, 1985).

Aside from this, the new tests can also be used to assess reading disabilities among Filipino children since the problem of reading appears to have existed among Filipinos for some time now (Luz, 2007). According to Luz (2007), many Filipino children seem to lack the ability to read and write and this is evident in the continuous decline in literacy rate of Filipinos. This means that many Filipinos appear to be incapable of reading and writing simple messages. However, Lutz (2007) also reported that literacy rate is often determined by census rather than assessment. This underscores the importance for a valid and reliable instrument that would accurately assess the reading skills and abilities of Filipinos. When the developed tests are used, the data from the children can serve as one basis for developing intervention programs that would address the reading problems experienced by Filipino children.

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