

## A Phonological Awareness Test in Arabic Language for Young Learners: Validation Study

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### ABSTRACT

A wide variety of tests measures phonemic and phonological awareness in different languages. There are very few tools of phonemic and phonological awareness in Arabic language. Such tools help to identify students' weaknesses and strengths especially in early stages of their schooling for better instruction and intervention. Although Arabic phonetically maps between letters and sounds, it is not an easy language to read because of challenges inherent to the structure of the language itself. This paper explores a validation study of Arabic phonological awareness tests for kindergartners and first graders in Oman. Two different tests of phonological awareness and common skills were developed for two samples: kindergartners ( $n = 113$ ) and first graders ( $n = 70$ ). Results support the validity and reliability of the two tests and suggest that they can be used as diagnostic tools to identify children with low phonological awareness and help initiate appropriate reading intervention programs for them.

**Key words:** Phonological Awareness, Arabic Language, Young Learners, Validation, Oman

### INTRODUCTION

Phonological awareness has gained momentum in the field of literacy in the past few decades. It is defined as awareness of the sounds of language, including syllables, onsets and rhymes, and phonemes (Sensenbaugh, 1996; Layton, Deeny, Upton & Tall, 1998; Gillet, Temple & Crawford, 2004). Recent investigations in language acquisition have addressed the relationship between phonological awareness and reading ability (Ehri, 1991; Olofsson & Niedersoe, 1999; Goswami, 2000). Reading in either the mother tongue or a foreign language is a complicated process that entails a number of processes and skills, including phonological awareness.

Although schools are responsible for teaching reading skills to children, most children come to school with different levels of preparedness for learning to read. Some come from rich reading and writing environments, whereas others have not been provided with sufficient preparation (Swanson, 2015). Kern and Friedman (2009) showed that children's reading abilities in their early years predict their future reading achievement. For example, 5–10% of children who do not read well in their first year of school might face some reading difficulties in the following years as well. McCardle, Scarborough, and Catts (2001) found that 65–75% of initial poor readers continue to be poor readers in their later school years.

Children who suffer from reading difficulties can neither segment nor blend the sounds of spoken words. To investigate the causes of reading difficulties in children, appropriate diagnostic assessment tools are needed. If these assessments are not developed, suitable interventions cannot be implemented, and children will continue to struggle with reading (Johnson et al., 2005; Hsin, 2007; Aaron, Joshi, Gooden, & Bentum, 2008).

Although a wide variety of tests and tools measure phonological awareness in different languages, norm-referenced tests in Arabic are scarce. Therefore, research in Kuwait and Saudi Arabia has highlighted the need for more standardized tests in Arabic (Ayyad, 2011; Al-Shaboul, Asassfeh, Alshboul & Altamimi, 2014; Al-Sulaim & Theo, 2017). The few measures that have been developed to identify phonological awareness skills in Arabic have no established psychometric properties (Elbeheri & Everatt, 2007; Saiegh-Haddad, 2007; Levin, Saiegh-Haddad, Hende & Ziv, 2008; Taibah & Haynes, 2011; Tibi, 2010). In addition, we could not find any test that had been developed using Standard Arabic. This is surprising, as Arabic is spoken by more than 400 million people worldwide: It is an official language in more than 20 Arab countries and a second language for almost a quarter of a billion people (Gordon, 2005). In addition it is the language of the Quran, the Holy Book of more than 1 billion Muslims around the world.

Evidence supports the major role that phonological awareness plays in early reading acquisition. Phonemic awareness in particular, as well as letter knowledge more generally, is a significant predictor of reading; these two skills are closely related. Similarly, studies on phonological awareness skills and reading in Arabic have revealed results and developmental patterns similar to those seen in other languages.

Consequently, there is a need to develop a tool that can help educators assess Arabic learners' phonological awareness to identify their weaknesses and strengths in developing reading skills. This paper reports the findings of an investigation into the psychometric properties of phonological awareness tests in Arabic for kindergartners and first graders in Oman. The study intended to answer the following research questions:

- What are the psychometric properties (validity and reliability evidences) of a phonological awareness test for children at the kindergarten level and first-grade level?
- To what extent do the results of phonological awareness tests for children at the kindergarten and first-grade levels differ in relation to their parents' education level?

## LITERATURE REVIEW

Al-Shaboul et al. (2014) explained that Arabic is not an easy language to learn. It has two forms: Modern Standard Arabic and Spoken Arabic. Modern Standard Arabic dominates written and formal contexts, whereas Spoken Arabic dominates the informal, everyday communication of Arabs. The Spoken colloquial Arabic differs from one Arab country to another, whereas all Arab countries share Modern Standard Arabic as their official language. Arab children learn to use the Spoken Arabic used in their communities, and their first encounter with Modern Standard Arabic begins only when they start formal schooling. Thus, when first graders are introduced to Modern Standard Arabic, they invariably find it as difficult as learning a new language in terms of writing, reading, and speaking (Abu Rabia, 1995). This diglossia poses a major challenge to beginners, especially in reading and writing Standard Arabic (Farghally & Shaalan, 2009).

Words in Arabic are formed from a root of typically three consonants separated by two vowels. Vowel changes and affixes alter the meaning of the word. For example, the consonants d-r-s denotes the idea of studying. When vowels and affixes are added, new words like *student*, *teacher*, *studies*, *school*, *lesson*, and so on, are produced. Arabic consists of 28 letters, which are all consonants. Letters of the Arabic alphabet change shape depending on their position as well as the neighboring letters in the word. Some letters have three different shapes for when they appear at the beginning, middle, and end of a word. Recognizing these letters and their position-based writing rules, together with the complexity of recognizing different vowels, place a considerable cognitive demand on the learner (Abu Rabia, 2001). This is a challenge that all early readers of Arabic have to face.

Furthermore, Arabic has six vowel sounds: three short and three long vowels. Unlike English, Arabic does not have dedicated letters to represent short vowels. Short vowels are represented by diacritics, which are marks put above or

below letters. These diacritics have started to disappear from contemporary writing, and readers are expected to figure out the missing short vowels based on their knowledge of the language. This presents a challenge of automatic processing of the language for young learners.

Although Arabic is a phonetic language with one-to-one mapping between letters and sounds, it is not an easy language to read because of challenges inherent to the structure of the language itself. In addition to diglossia, other challenges include the lack of dedicated letters to represent short vowels, changes in the form of a letter based on its position in a word, and the absence of strict rules for both capitalization and punctuation (Farghally & Shaalan, 2009).

In a study of phonological processing skills, Al Mannai and Everatt (2005) examined the reading and spelling skills of children in grades 1–3 who spoke Bahraini Arabic. Children were tested on their single word reading skills, spelling ability, nonword reading, as well as phonological awareness of Modern Standard Arabic. The purpose of the research was to identify the best predictors of literacy among early Arabic readers. The researchers used two measures of phonological awareness to assess rhyme awareness and a measure of nonword reading to assess the influence of decoding novel letter strings on early literacy. Findings showed that word and nonword rhyming predicted both reading and spelling. They also revealed the potential importance of phonological awareness skills as a predictor of early literacy among young learners in the study.

Other evidence of the importance of phonological awareness for learning to read Modern Standard Arabic comes from a study by Saiegh-Haddad (2003), who examined phonological awareness among 65 North Palestinian-Arabic-speaking children (23 kindergartners, 42 first graders) from a local public school. Two phonemic awareness tasks were developed to examine the ability of the children to isolate initial and final phonemes in both the spoken dialect as well as Modern Standard Arabic. There were three important results: (1) First graders performed better than kindergartners, (2) children found it more difficult to isolate phonemes in Modern Standard Arabic than in the spoken dialect and (3) isolating final phonemes was easier than isolating initial phonemes. The author concluded that the manipulation of phonemes in Arabic is different from their manipulation in English.

Tibi (2010) conducted phonological awareness training for 140 readers from the first three elementary grades. The results showed a developmental progression across the three grade levels on all four tasks tested: identification of initial sounds, rhyme oddity, syllable deletion, and word segmentation. More recently, Ibrahim (2013) examined the effects of an intervention for improving phonological awareness in Arabic kindergartners in Israel. Results showed that children trained in phonological skills scored higher on tests of phonological awareness than the control group and had superior reading abilities in first grade. These results indicate that effective learning in Arabic should involve practice with various phonemic patterns combined with roots rather than a focus on single phonemes (Lyster, 2002).

## Phonological Awareness

Phonological awareness refers to an individual's awareness of the phonological (or sound) structure of words. It also encompasses the ability to hear, identify, add, delete, and move around sounds in a word. According to Gabig (2010:69), it is "a metalinguistic ability that refers to the awareness of syllables and phonemes within spoken words and the ability to manipulate the word." Gillon (2004) presented phonological awareness as a reliable predictor of more advanced reading ability. Furthermore, there is significant evidence that phonological awareness plays a central role in learning to read and a vital role in learning to spell (Vellutino & Scanlon, 1987; Liberman, Shankweiler & Liberman, 1989; National Reading Panel, 2000; Pennington & Lefly, 2001; Troia, 2004).

Phonological awareness has been the focus of much research and has been empirically investigated in many alphabetically written languages, such as English (Bradley & Bryant, 1983), French (Gillon, 2004), and Hebrew (Bentin, Hammer & Cahan, 1991; Oren, 2001). Among world languages, Arabic exhibits a dearth of research addressing phonological awareness. It is clear that Arabic shows great phonological alternation, which calls for a thorough investigation of this topic (Saiegh-Haddad, 2005).

In line with the above findings, researchers have confirmed that successful reading requires good phonological awareness and that practice in phonological awareness should start in the early stages of schooling (Castle, Riach & Nicholson, 1994; Deacon & Kirby, 2004). Spoken words are composed of segments, syllables, and phonemes (Torgesen, Al Otaiba & Grek, 2005). Research has identified the following activities as measures of phonological awareness:

- Segmentation of sentences into words
- Segmentation of words into syllables
- Segmentation of syllables into phonemes
- Fusion of syllables
- Segmentation and fusion of phonemes in one-syllable words

Children begin to read by listening to others read aloud, recognizing sounds in words, sounding words out for themselves, recognizing familiar words, and so on. Children who engage in word play learn to recognize patterns among words and use this knowledge to read and build words (Montgomery, 2004).

## The Omani Context

Oman, which is situated in the northeastern corner of the Arabian Peninsula, has a population of more than 4 million native Arabic speakers. Omani children are exposed to an Arabic curriculum from kindergarten all the way to grade 12. Besides being used to teach Arabic, Modern Standard Arabic is also used to teach other subjects, like religious studies, social studies, science, and mathematics.

Reports on global competitiveness show that although Omani children have many hours of exposure to Modern Standard Arabic, their performance in reading Arabic is below satisfactory. However, Oman's latest results of 2016

in IEA's Progress in International Reading Literacy Study (PIRLS) for grade 4 showed some improvement in performance. However, this improvement is not significant, given that Oman continues to be among the lowest performing countries.

Moreover, the results of a national assessment of Omani children in grades 4, 7, and 10 (in all subjects, including Arabic) showed similarly discouraging results (Ministry of Education & The World Bank, 2012). This is mainly attributed to the pedagogical approaches used in teaching Arabic.

From time to time, new pedagogies have been experimented with and used to teach English as a Foreign Language, but Arabic language teaching lags behind and continues to be essentially traditional. In addition, the Omani curriculum does not reinforce basic literacy skills, nor does it promote a culture of reading.

We conducted interviews with four teachers who teach Arabic in Omani basic education schools, Cycle 1 (grades 1–4). The teachers stated that they start teaching how to pronounce a letter with *fathah*, an oblique dash over a consonant pronounced as the short vowel /a/. Then they teach children the pronunciation of the letter with the short vowel /a/ in the initial, middle, and final positions of words. After that, they pronounce the letter with *dhammah*, a loop over the letter that resembles a comma and is pronounced as the short vowel /u/. Then they pronounce the letter with *kasrah*, an oblique dash under a consonant that is pronounced as the short vowel /i/. Next they start to read letters with the three long vowels. They begin by teaching children letters with the long vowel /a/, using lots of examples. Then they address letters with the long vowel /u/ with more examples and finally letters with the long vowel /i/ and examples. During this process they compare the pronunciation and writing of the diacritics of letters with short and long vowels.

A survey was conducted in the initial stages of this project to identify teachers' conceptual understanding of phonological awareness and the extent to which they apply these concepts in their teaching. The findings revealed that the majority of Arabic language teachers could not clearly explain these concepts. In practice, this approach to teaching reading was not being used in the majority of Omani classrooms (El Shourbagi, Almehrizi, Al-Zameli, Al-Kiyoumi, Al-Mandheri, Al Barwani, & Al-Sinani, 2017). Apparently this situation is not specific to Oman and seems to be prevalent in a number of other Arab countries as well (Sulaiman, 2012; Abou AlDiyar et al., 2012; Montasser et al., 2014; El Shourbagi, Al-Kiyoumi, & Al-Zameli, 2015).

## METHOD

### Sample

Two samples were used from two different grade levels. The first sample comprised 113 kindergartners ranging in age from 4.5 to 6 years from three classes in the Muscat region of Oman. This sample comprised 62 boys and 51 girls. The second sample had a total of 70 first graders ages 6 and 7 years from two basic education schools in the Muscat re-



gion. This sample had 33 boys and 37 girls from randomly selected classes.

### Instruments

Two different tests were developed to measure phonological awareness in Arabic. Both tests were administered individually on the computer. Testing took place in the classrooms of the participating schools. The computer administered the test without any intervention from the teacher. The stems of all items were presented orally, and then response options in the form of words, pictures, or numbers (depending on the skill being assessed) were presented. The student was asked to select his or her answer by pointing the mouse at the chosen answer. All demographic information on students was taken from school records.

The phonological awareness test for kindergartners consisted of 24 multiple-choice items with four response options; the total score ranged from 0 to 24. Six sets of four items each assessed different skills in phonological awareness: items 1–4 assessed the ability to link letters and sounds, items 5–8 assessed the ability to identify the final phoneme, items 9–12 assessed the ability to identify the number of words in a sentence, items 13–16 assessed word segmentation (counting the syllables in a word), items 17–20 assessed the ability to pronounce a word after deleting the initial syllables, and items 21–24 assessed the ability to identify the sound of the initial phoneme. All words used in the test were derived from vocabulary available in the Arabic language curriculum at the kindergarten level in Oman.

The test for first graders consisted of 28 multiple-choice items with four response options; the total score ranged from 0 to 28. The first 24 items on this test assessed similar phonological awareness skills as the kindergarten test but used different words appropriate for first graders. The last four items (items 25–28) assessed the ability to differentiate correct words from non-words. Similarly, the words used in the test were chosen from the Arabic language curriculum used in first grade in Oman.

### Procedure

The first-grade test was administered in Spring 2015, and the kindergarten test was administered in Fall 2016. Both tests were administered by computer under the supervision of trained teachers. Because of their age, it was difficult for children to independently record their responses to items on the computer. Trained teachers therefore recorded responses in the computer without any intervention. Once the test was complete, the computer scored the child's answers and reported his or her final score. Administering the tests by computer saved both time and effort and also standardized administration across schools and grade levels.

### RESULTS

Results were organized by the study questions as follows:

### What Are the Psychometric Properties (Validity and Reliability Evidences) of a Phonological Awareness Test for Children at the Kindergarten Level and First-Grade Level?

#### *Sampling and content validity*

Sampling and content validity provide important evidence of the validity of the phonological awareness tests (Nitko & Brookhart, 2010). Thus, the two tests were validated to ensure that they measured phonological awareness and that their content was a representative sample of possible phonological awareness skills among kindergartners and first graders. Eleven experts in the Arabic language, including faculty members in the College of Education and College of Arts and Social Sciences at Sultan Qaboos University, independently rated the content validity of the two tests. They showed 86–90% agreement with regard to the sampling and content validity of the items on both tests.

#### *Item difficulty and discrimination*

The difficulty and discrimination indices of all items on the two tests were examined to support the claim that the items were appropriately difficult for the two samples but discriminated positively between children with high and low phonological awareness skills. The item difficulty for both tests is presented in Table 1. Item difficulty for the kindergarten test ranged from 0.2 to 0.85, with a median of 0.48. For the first-grade test, it ranged from 0.15 to 0.90, with a median of 0.45. The item difficulty showed that items on the two tests were appropriate for children of various ability levels, with an emphasis on average ability. This supports the diagnostic purpose of the two tests by showing that the items distinguished among children's different levels of phonological awareness in Arabic.

Tables 2 and 3 present two indices of item discrimination for the two tests. Table 2 presents the difference in item difficulty between two extreme ability groups (low group and high group), whereas Table 3 presents item point-biserial correlations with total scores. Both ways of estimating item discrimination showed that all items on both tests showed positive and fairly large discrimination. Items showed more discrimination at the kindergarten level than the first-grade level. In addition, item–total correlations ranged from 0.22 to 0.75 for the kindergarten test, with a median of 0.38, and from 0.15 to 0.70 for the first-grade test, with a median of 0.30.

**Table 1.** Item difficulty for phonological awareness tests in kindergarten and first grade

Item difficulty	Kindergarten		First grade	
	Number	%	Number	%
0.00-0.24	0	0	4	14
0.25-0.49	12	50	11	39
0.50-0.74	7	29	6	21
0.75-1.00	5	21	7	25
Total	24		28	

### Reliability

Table 4 presents the results of three methods of estimating the reliability of scores on the phonological awareness tests: split-half reliability, coefficient alpha reliability, and interrater reliability. Using the whole sample for each test, we found that estimates of split-half reliability were 0.63 and 0.70 for kindergarten and first grade, respectively; estimates of coefficient alpha reliability were 0.77 for kindergarten and 0.78 for first grade. These results indicate that the phonological awareness tests had acceptable internal consistency with low measurement error.

Using a subsample of 30 kindergartners and a subsample of 50 first graders, we estimated the stability of the tests over a period of 4 weeks. The results showed very high stability: 0.91 for kindergarten and 0.98 for first grade.

The results also showed that the three estimates of reliability were higher for first grade than for kindergarten. This indicates that measurements of awareness are more reliable in first grade than in kindergarten. As children grow and learn, their phonological awareness improves, becomes more stable, and can more easily be depicted through tests and other assessments.

### Descriptive statistics

It is expected that as children move to higher grades, their phonological awareness will improve as a result of the

**Table 2.** Distribution of item discrimination for phonological awareness test of kindergarten and first grade

Item Discrimination	Kindergarten		First grade	
	Number	%	Number	%
0.00-0.14	3	13	4	14
0.15-0.29	7	29	11	39
0.30-0.44	12	50	7	25
0.45-0.60	2	8	6	21
Total	24		28	

**Table 3.** Distribution of item-total correlation for phonological awareness test of kindergarten and first grade

Item-total correlation	Kindergarten		First grade	
	Number	%	Number	%
0-0.19	0	0	1	4
0.2-0.39	12	50	16	57
0.4-0.59	11	46	8	29
0.6-0.76	1	4	3	11
Total	24		28	

**Table 4.** Estimates of reliability coefficients of the phonological awareness tests of kindergarten and first grade children

Awareness test	Internal Consistency			Stability	
	N	Split-half coefficient	Alpha coefficient	N	Stability coefficient
Kindergarten	113	0.63	0.77	30	0.91
First Grade	70	0.70	0.78	50	0.98

instruction and education they receive. However, because the educational system in Oman does not include kindergarten as a formal level of education, many first graders do not have the opportunity to attend kindergarten. We may be justified in saying that the phonological awareness of first graders in Oman is no different from that of kindergartners. Table 5 presents average scores for phonemic and phonological awareness for the two grade levels. We used 24 items to assess similar phonological awareness skills across the two grades. The average score was only slightly higher for first graders than for kindergartners. First graders had an average score of 12.84, whereas kindergartners had an average score of 12.72. This difference is very small, and it indicates that children at the two grade levels have similar levels of phonological awareness. This might be because, as mentioned earlier, kindergarten is not included in Oman's system of formal education.

However, children who come from different family backgrounds with different dialects and socioeconomic status show more variability in their phonological awareness skills. Instruction offered to children in kindergarten and first grade assists initially weak children and helps to reduce the variability among children in phonological awareness. Table 5 shows that the standard deviation for phonological awareness scores (obtained from the 24 items assessing common skills) was smaller for first grade ( $SD = 3.84$ ) than for kindergarten ( $SD = 4.45$ ). These results support the validity of the two tests, as they show that first graders vary less in their phonological awareness than kindergartners.

### Predictive validity

The test results showed that phonological awareness was a significant predictor of reading skill in particular and of Arabic language proficiency more generally. Table 5 shows that phonological awareness scores (obtained from the 24 items assessing common skills) correlated significantly with Arabic language achievement scores on a Ministry of Education test given to students at the end of the previous semester. The correlations were 0.30 for kindergarten and 0.32 for first graders. When the scores of all 28 items on the first-grade test were compared to achievement scores, the correlation was even higher: 0.52. These results indicate that the correlation between phonological awareness and Arabic language achievement scores is very similar for the two grades. This validates the construction of the two tests. As various Arabic language skills, including phonological awareness, are emphasized in the first-grade curriculum, improvement in children's Arabic language proficiency should be expected. Hence, the relationship between phonological awareness and Arabic language proficiency is clearly established for both kindergartners and first graders.

### To What Extent do the Results of Arabic Phonological Awareness Tests for Children at the Kindergarten and First-Grade Levels Differ in Relation to their Parents' Education Level?

The effect of parents' education level on phonological awareness was investigated and discussed as an evidence of construct validity of the Arabic phonological awareness tests. The phonological awareness of young learners is influenced by their parents' education level and involvement in their education (Layton, Deeny, Upton & Tall, 1998). The amount of time both parents spend supporting their children's learning by helping them complete homework or giving extra practice enhances children's phonological awareness. Mothers more than fathers seem to influence their children's phonological awareness, as mothers spend more time with their children and are closer to them emotionally at this age.

Table 6 presents descriptive statistics for kindergartners' phonological awareness according to their parents' education level. Table 7 presents results of an analysis of variance examining whether differences in phonological awareness scores were statistically significant according to parents' education. Results showed no statistically significant difference in phonological awareness scores for kindergartners ( $F = 2.090$ ,  $P = 0.106$ ). Similarly, as shown in Tables 8 and 9, no statistically significant difference was found in phonological awareness scores among first graders according to parents' education levels ( $F = 2.549$ ,  $P = 0.063$ ). These tables reveal that the tests were unable to show statistical effects of parents' education level on the phonological awareness of children in either kindergarten or first grade.

## DISCUSSION

Here we established the psychometric properties of tests developed to assess phonological awareness in Arabic among kindergartners and first graders in Oman. Two tests were developed and administered to two samples of children. Both tests showed acceptable psychometric properties in terms of reliability and validity of test scores, which leads us to conclude that they can be used as measures of children's phonological awareness.

Results showed that the kindergartners and first graders had similar levels of phonological awareness, contrary to the findings of Saigh-Haddad (2003). However, they still support the validity of the two tests given the role of kindergarten in the educational system in Oman. Because kindergarten is not a formal level of education in Oman, the majority of children in first grade have no prior formal exposure to Arabic. In addition, the decreases in the standard deviation of phonological awareness scores in first grade relative to kindergarten support the validity of the tests. Older children vary less in their phonological awareness than younger children. These results are consistent with previous studies (Anthony & Francis, 2005; Olofsson & Niedersoe, 1999). As children in kindergarten have different backgrounds and socioeconomic statuses, they show different levels of phonological awareness. In Oman the curriculum differs by kindergarten, whereas the curriculum in first grade is centralized.

**Table 5.** Descriptive statistics for phonological awareness tests in kindergarten and first grade

Test	Mean	SD	Correlation with arabic
Kindergarten	12.72	4.45	0.30*
First grade (24 common items)	12.84	3.84	0.32*
First grade (all 28 items)	15.46	4.67	0.52*

\* Significant at 0.05

**Table 6.** Descriptive statistics for phonological awareness among kindergartners according to parents' education level

Parent education level	n	Mean	SD
Mother and father with basic education	31	11.13	4.33
Mother with basic education/father with higher education	25	12.76	3.81
Mother with higher education/father with basic education	11	13.18	4.31
Mother and father with higher education	46	13.65	4.72

**Table 7.** Results of an analysis of variance of phonological awareness among kindergartners according to parents' education level

	Sum of squares	df	Mean square	F	Sig.
Between groups	120.823	3	40.274	2.090	0.106
Within groups	2100.115	109	19.267		
Total	2220.938	112			

**Table 8.** Descriptive statistics for phonological awareness among first graders according to parents' education level

Parent education level	n	Mean	SD
Mother and father with basic education	8	16.75	3.77
Mother with basic education/father with higher education	14	12.50	4.78
Mother with higher education/father with basic education	13	16.08	4.84
Mother and father with higher education	70	16.11	4.43

**Table 9.** Results of an analysis of variance of phonological awareness among first graders according to parents' education level

	Sum of squares	df	Mean square	F	Sig.
Between groups	155.905	3	51.968	2.549	0.063
Within groups	1345.466	66	20.386		
Total	1501.371	69			

As a result, children with low phonological awareness might develop faster than their counterparts who have high phonological awareness, which will result in less variability among them.

Based on previous research (Anthony & Francis, 2005; Hatcher, Hulme & Snowling, 2004), we can hypothesize



that a relationship exists between phonological awareness and Arabic language proficiency. Because various Arabic language skills, including phonological awareness, are emphasized in the first-grade curriculum, children's Arabic language proficiency should improve over time. Moreover, students trained in phonological awareness should perform better on Arabic language proficiency tests (Saiegh-Haddad, 2003). Follow-up study is required to establish such a relationship between phonological awareness and reading in Arabic.

Results also showed no effects of parents' education level on phonological awareness for either grade. This can be explained by the fact that the curriculum in first grade is standardized and thus has similar effects on phonological awareness regardless of parent's education level. These results are supported by Korat, Arafat, Aram, and Klein (2012), who also found no relationship between maternal mediation in storybook reading and children's oral and reading skills.

## CONCLUSION AND RECOMMENDATIONS

To date, very little has been done in terms of assessing Arab children's reading proficiency using phonological awareness tests. This study of Omani kindergartners and first graders represents a starting point in this area. Because the two tests show high levels of dependability, they can be used to measure the phonological awareness of children in similar populations and with similar levels of education in Oman and perhaps in other Arabic-speaking countries as well. The Ministry of Education in Oman might want to consider using these tests in a larger sample of kindergarten and first-grade classes to identify areas of strength and weakness to chart out interventions that will enhance children's reading proficiency. Such interventions would require that teachers be trained in the appropriate procedures for teaching phonological awareness. Similarly, the school curriculum would need to be enhanced with relevant materials and activities, and further research would be required to develop similar tests for grades 2, 3, and 4. In this way, children's reading skills could be monitored and their reading proficiency developed over time. Moreover, the developed tests in this study require continuous investigation of their fidelity. Further research may need to be done to explore the relationship between parental education and young learners' Arabic language proficiency as measured by the phonological awareness test. Future research can track the students who participated in this study to monitor their development of reading proficiency. Because this study did not address other reading skills, such as accuracy, speed, and fluency, it may be appropriate to recommend that future research address these measures.

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