Phonological Awareness in Arabic among Early Grade Teachers

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Abstract: *Early-grade teachers' ability to incorporate high-quality explicit phonological awareness (PA) instruction into the classroom helps children succeed in early reading endeavors and significantly reduces reading difficulties among children at risk for reading problems. Teachers' deep knowledge of teaching PA is expected to affect their reading instructional practices inside the classrooms. This study aims to gain perspective on early grade teachers' perceptions, knowledge, and practices related to teaching PA skills in the Arabic language. To this end, a modified survey instrument was completed by 109 Arabic language teachers at kindergarten and primary grade levels. Results reveal that although teachers recognize the significance of PA for reading development, many show poor knowledge of certain PA fundamentals and do not formally assess PA or provide adequate and explicit PA instruction in their classrooms. Furthermore, results show that teachers with more teaching experience provide their students with more chances to complete PA activities in the classroom. These findings suggest a need to provide Arabic language teachers with adequate knowledge and training as well as assessment and teaching materials to enable them to provide the required PA skills, as a crucial reading skill, in the classroom.*

1. Introduction

Teachers play a vital role in helping students achieve literacy skills essential for their academic and vocational success. The first years of formal education greatly determine a student's ultimate reading level (Francis et al. 1996). Broad evidence asserts that incorporating high-quality explicit phonological awareness (PA) instruction into classrooms helps children succeed in early reading endeavors (Boudreau and Hedberg 1999; Ehri and Roberts 2005; Al-Tamimi and Rabab'ah 2007) and significantly reduces, or even prevents, reading difficulties among children at risk for reading problems (Knoop-van, Segers and Verhoeven 2018; Kjeldsen, Saarento-Zaprudin and Niemi 2019). PA is the ability to identify and manipulate spoken language sounds in a word at the syllable, onset, and rhyme level

(Armbruster et al. 2009). PA consists of several sub-skills, including phoneme deletion, phoneme segmentation, phoneme categorization, syllabic awareness, rhyme awareness, and sound blending. Examples of PA skills include separating words into their constituent sounds, recombining the sounds of words, and judging whether two words have similar sounds. There is an impressive number of studies investigating PA's various influences on the English language; however, such research is limited in the Arab World, particularly in Jordan.

The few studies on PA in the Arabic language confirm that PA skills have a direct effect on reading abilities among young learners in Kuwait (Al-Sulaihim and Marinis 2017), Egypt (Elbeheri and Everatt 2007; Tibi and Kirby 2019), Saudi Arabia (Taibah and Haynes 2011; Rakhlin, Aljughaiman and Grigorenko 2019), Bahrain (Mannai and Everatt 2005), and the United Arab Emirates (Elhoweris et al. 2018). Furthermore, studies indicate a significant positive effect of teaching PA explicitly compared to implicit teaching in early learners of the Arabic language, regardless of the presence or absence of a reading disability (Elmonayer 2013; Dallasheh-Khatib, Ibrahim and Karni 2014; Makhoul 2017; Layes, Lalonde and Rebai 2019). In Jordan, the prevalence rates of reading difficulties among primary school students are around 20–25% (Abu-Hamour and Al-Hmouz 2016). According to a national Early Grade Reading Assessment of the Arabic language in Jordan, most second-grade students lack the foundational reading skills typically taught in first grade, and only 17% of second- and third-grade students are at grade level in reading fluency and reading comprehension (Brombacher et al. 2012). These findings have prompted a one-year intervention program to explore the effects of explicit daily practice of foundational skills, including phonological knowledge, on reading abilities in the Arabic language. Results show that the number of children with grade-level reading abilities nearly doubled after the intervention (Brombacher et al. 2015). The results of the intervention led the Ministry of Education, with the cooperation of the United States Agency for International Development, to launch a countrywide initiative, the "Early Grade Reading and Math Project," to provide early grade students with the fundamental skills they need to advance in the Arabic language and math through developing Arabic learning materials and curricula and training teachers to provide more effective reading and math instructions.

A recent study comparing literacy skills in children learning English, French, German, Dutch, and Greek indicates that PA influences reading abilities differently for each language studied (Landerl et al. 2019), suggesting that the results of studies conducted on language learning should be carefully compared across different languages. Accordingly, to better understand the process of learning to read Arabic, the linguistic specificities of the Arabic language should be taken into consideration given that they could present beginning readers with challenges. Specifically, children are first exposed to their local dialect at home and need to learn Modern Standard Arabic when they enter school. Although the two versions of Arabic share a restricted subgroup of words, they are somewhat different phonologically, semantically, morphologically, and syntactically. For example, vowel diacritics and other phonological annotations found in local dialects are usually omitted in written

form. Moreover, Hamdan and Amayreh (2007) report that the Arabic consonants, in their standard form, which are not acquired by first-grade Jordanian children, are the ones that have dialectal forms. Accordingly, the authors recommend targeting consonants that have dialectal variants at an earlier stage to promote first graders' ability to acquire reading and writing skills. Therefore, for some children, the transition to school where they learn Modern Standard Arabic can be similar to learning a second language (Ayari 1996). In this area, Hamdan and Al-Hawamdeh (2020) propose that Arabic-speaking children may be disadvantaged when it comes to formal schooling based on their dialectal heritage, which may be due to reading miscues and therefore requires more effort by teachers in schools. Another source of difficulty is that written words in Arabic tend to be similar both visually and phonologically when they share the same root, which may cause morphological errors while reading (Abu-Rabia and Taha 2006). Eviatar and Ibrahim (2014) indicate that these characteristics of the Arabic language explain their findings that reading acquisition in Arabic is slower and harder than in other languages. These challenges faced by Arabic-speaking children require more practice and particular instructional effort, demonstrating the need for qualified and skilled teachers.

Central to the current study is the notion that teachers' instructional practices in reading are dependent on their deep understanding and knowledge of teaching underlying skills, including PA (Cunningham et al. 2004; Hindman and Wasik 2008). Tibi (2005:61) states, "it is of crucial importance to note that teachers need to have positive perceptions about the role of systematic instruction in PA and possess knowledge and skills about one's native language structure." Previous studies show that many early-grade English language teachers lack general knowledge of PA and are unsure of how to appropriately support its development in young children (Moats 1994; Moats and Foorman 2003; Dickinson and Brady 2006; Phillips, Clancy-Menchetti and Lonigan 2008). In this area, Dahmer (2010) developed a survey, adapted in the current study, to investigate kindergarten teachers' PA perception in the English language. Results indicate that most teachers are aware of PA's significance to promote reading and prevent reading difficulties; however, this awareness of the significance of PA is not reflected in their teaching practices.

Based on the literature reviewed for this study, few studies have investigated teachers' knowledge and skills of PA in the Arabic language, while no studies have investigated how Arabic language teachers perceive the importance of PA and the frequency with which they provide PA instruction in the classroom. Specifically, the few studies based in the Arabian Gulf demonstrate that Arabic language teachers demonstrate weaknesses in knowledge and skills related to PA instructions in early grades (Tibi 2005; Alghazo and Al-Hilawani 2010). Additionally, results reveal that while teachers do not apply a significant portion of their knowledge and skills during their teaching, their classroom practices are affected by their PA skills (Alghazo and Al-Hilawani 2010). Surprisingly, research in Jordan on teachers' PA perception and knowledge targets English as a second language (ESL) and neglects the Arabic language. For example, Alshaboul (2018a; 2018b) findings indicate the dominance of traditional teaching beliefs, a deficiency in competence and

strategies, and a gap in PA awareness among pre-service ESL teachers. Moreover, two studies (Al-Tamimi and Rabab'ah 2007; Al-Tamimi 2016) have examined the effectiveness of explicit PA intervention in contrast with regular classroom instruction on developing PA skills and word-reading ability for Jordanian ESL first- and second-grade students. Results show that the intervention groups that received explicit PA instruction outperformed the groups that received regular classroom instruction in word reading abilities and PA skills. These results emphasize the importance of providing explicit PA intervention in the classrooms and integrating PA interventions into the basic stages' curricula.

Despite the growing interest in incorporating explicit PA instruction into Arabic reading classes, studies in the Arab World that investigate teachers' perceptions of the importance of PA in reading in addition to their knowledge and teaching practices are scarce. The current study is part of a large-scale project that aims to develop a standardized PA assessment tool in Arabic. The purpose of this study is to gain perspective on early-grade Arabic teachers' perceptions regarding PA's significance in learning to read. It also explores the teachers' practices related to teaching PA skills in their classrooms at different early grade levels.

Specifically, the objectives of this investigation are:

1) To determine how early grade teachers view the importance of PA in learning to read and eliminating reading difficulties in the Arabic language.

2) To explore how often kindergarten and primary teachers provide instructional behaviors related to teaching PA in the Arabic language in their classrooms, and whether there are differences in their instructional behaviors based on the grade level.

3) To investigate the possible relationships between early grade teachers' instructional behaviors of PA with respect to their perception, years of teaching experience, and training.

2. Methodology

2.1 Participants

Participants in this study were Arabic language teachers who taught early grades (kindergarten 1 to second grade) in Amman, Jordan. The participants were divided into two groups: A kindergarten (KG) group that included kindergarten one (KG1) and kindergarten two (KG2) teachers and a primary group that included first- and second-grade teachers. In the beginning,115 teachers participated in this study; however, six participants were excluded from the analysis given that a large portion of their responses was missing. Accordingly, the analysis included 109 participants. Of all participants, there were 28 KG teachers (KG1: $n = 13$ and KG2: $n = 15$) and 81 primary teachers (first grade: $n = 39$ and second grade: $n = 42$).

In both groups, 99% of the participants were females, and 57.8% had more than seven years of teaching experience. Most of the teachers (77%) had a bachelor's degree, 60% of the KG group had a KG-teacher specialty, and 81.5% of the primary group had a home-teacher specialty. Most of the KG group schools were private (78.6%), given that KG education in Jordan only became mandatory

in September of 2020. Most of the primary group schools were public (56.8%). More teachers in the primary group (55.6%) reported receiving specialized training to teach reading compared to the KG group (39.3%), with most of the teachers in both groups reported receiving the "Early Grade Reading and Math Project" training (KG group: 90%; primary group: 85%).

2.2 Survey instrument
The current survey instrument is a modified version of the Likert-type survey developed by Dahmer (2010) to assess kindergarten teachers' perceptions and behaviors concerning PA usage in their classrooms. The survey developed by Dahmer (2010) consisted of demographic questions and three sections related to PA, of which the items in section 3 consolidate data obtained in section 2. For the current study, the survey instrument items were rephrased to suit all targeted grade levels and translated into Arabic by the primary author. The translations were reviewed by two Ph.D. holders, three Master level students of speech therapy, and an Arabic language teacher. All those involved in translating and reviewing the survey instrument are native speakers of the Arabic language.

The survey was piloted among ten early grade teachers (KG: $n = 2$; primary: $n = 8$), and questions were rephrased accordingly. Three items in section 3 were removed because they did not add value to the survey outcomes. In addition, to achieve an acceptable internal consistency in section 1, item 12 in the original survey, "Reading difficulties cannot be identified until grade one or two," was excluded. The Cronbach's alpha measure was used to test the reliability of this survey instrument. Results indicated high reliability for section 1 (18 items; $\alpha = .85$) and section 2 (10 items; $\alpha = .90$), with a single subsection acceptable reliability ranging between .75 and .78 for section 1.

The modified survey instrument contained three distinct sections for obtaining descriptive data. *Section 1*: *PA Perceptions* (18 items) focused on the perceptions and knowledge of early-grade teachers on PA use (7 items) and significance (11 items). Questions in this section were a 5-point Likert scale to rate the agreement level for several statements ranging from strongly agree (score 1) to strongly disagree (score 5). *Section 2*: *PA Behaviors* (10 items) focused on early-grade teachers' perceptions concerning their behaviors related to teaching PA exhibited in the KG and primary classrooms. Questions in this section were a rating scale (i.e., daily, once a week, 1–3 times per month, and never) to indicate the level of frequency for several instructional items related to behaviors. *Section 3*: *Reading Instructions* (2 items) focused on teachers' behaviors regarding their PA instructions in the classroom.

2.3 Data collection
The survey was sent to 12 randomly selected public ($n = 6$) and private ($n = 6$) schools located in four different areas/governesses in Amman, the capital of Jordan. The governesses are Wadi Alseer, Aljamaah, Marka, and Alqwesmeh. Participants were asked to complete the survey anonymously and assured that their responses would only be used for research purposes.

2.4 Analysis

The statistical software SPSS version 20.0 (2011) was used for managing the data and conducting descriptive statistics, group comparisons, and correlation analysis. Mann-Whitney U tests were conducted to compare the differences in responses between the two groups (KG and primary) on each survey item because the homogeneity of variance was violated, and the size of the groups was considerably different.

A p-value of <.05 indicated a significant difference between groups.

3. Results

Given that there was no significant difference on all survey items ($p > .05$) between the responses of KG1 and KG2 teachers and the first- and second-grade teachers, they were combined into two groups and are referred to as the KG group ($N = 28$) and the primary group ($N = 81$), respectively, throughout the paper.

   Objective 1. To determine how early grade teachers view the importance of PA in learning to read and eliminating reading difficulties in the Arabic language. Section 1 items (1–18) were divided into two focused sets and discussed separately to investigate this objective. *Set 1* targeted the teachers' perception of PA use in learning to read and preventing reading difficulties and included seven items (2, 4, 6, 8, 9, 10, and 14). *Set 2* targeted the teachers' perception of PA skills as a significant component of the class reading program and included 11 items (1, 3, 5, 7, 11, 12, 13, 15, 16, 17, and 18). For each of the 18 items, the count and percentage of teachers who responded were calculated. A cumulative score of "Strongly agree" and "Agree" responses was reported to reflect each item's *agreement count and percentage*. Similarly, a cumulative score of "Strongly disagree" and "Disagree" was reported to indicate *disagreement count and percentage* for each item.

   Results of the Mann-Whitney U tests showed that groups were similar in their perception of all the items ($p > .05$), except for item 10. Therefore, researchers merged the two groups' results to understand the perception of early-grade teachers on PA for all items, excluding item 10, as shown in the results below.

Set 1. The teachers' perception of PA use in learning to read and preventing reading difficulties. Instrument items 2, 4, 6, and 10

Table 1. Count and (percentage) of teachers' responses for items related to perception of PA use in learning to read and preventing reading difficulties

Instrument items	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Missing	P value
2. PA instruction can be used to prevent future reading difficulties.	61 (55.5)	40 (36.4)	5 (4.5)	1 (.9)	0	2 (1.8)	.24
4. Reading difficulties in early grades are often the result of no PA instruction.	42 (38.2)	47 (42.7)	16 (14.5)	3 (2.7)	0	1 (.9)	.76
6. Young students who experience reading difficulties would benefit from PA instruction.	58 (52.7)	44 (40)	4 (3.6)	2 (1.8)	0	1 (.9)	.13
8. Reading difficulties cannot be prevented in early years of learning.	32 (29.1)	39 (35.5)	23 (20.9)	6 (5.5)	4 (3.6)	5 (4.5)	.55
9. Daily PA instruction is useful for predicting reading difficulties.	40 (36.4)	53 (48.2)	10 (9.1)	2 (1.8)	0	4 (3.6)	.34
10. Explicit PA instruction can decrease or eliminate early reading difficulties.	KG 15 (53.6)	11 (39.3)	1(3.6)	0	0	1 (3.6)	.02*
	Primary 28 (34.1)	35 (42.7)	12 (14.6)	4 (4.9)	0	2 (2.4)	
14. PA instruction in early grades has an impact on reading in the later grades.	60 (54.5)	46 (41.8)	3 (2.7)	0	0	0	.99

*   Count and percentage (%) of the responses of the KG and primary groups (*N*=109) together on all items, but item 10, given that the difference was not significant between groups
*   P value was reported based on Mann-Whitney U tests to compare groups, *p* <.05 indicated significant difference.

corresponded to PA's use as a prevention strategy of reading difficulties. The findings of these items showed that most teachers agree that PA can prevent future reading difficulties. Specifically, 91.9% of teachers agreed that the use of PA instruction prevents future reading difficulties (item 2), 80.9% agreed that reading difficulties in early learning years are often the result of no PA instruction (item 4), and 92.7% agreed that young students who experience reading difficulties would benefit from PA instruction (item 6). Additionally, most teachers in both groups (KG: 92.9%; primary: 76.8%) agreed to item 10, stating that explicit PA instruction can decrease or eliminate early reading difficulties. However, a Mann-Whitney U test indicated a significant difference between the groups ($U = 779.5$, $z = 2.26$, $p = .024$). Specifically, the KG group scores were significantly lower (toward strongly agree; $Mdn = 1$) than the primary group scores (toward agree; $Mdn = 2$).

Item 8 states that reading difficulties cannot be prevented in the early years of learning, contradicting the responses for items 2, 4, 6, and 10. A considerable number of participants (64.6%) agreed with the statement from item 8, which did not reflect the intended contradiction. However, this agreement percentage to item 8 was not as high as for the contradicting items, indicating uncertainty among some teachers; 21% of participants were undecided, and 5% did not answer. The focus of survey items 9 and 14 corresponds to the use of PA as a prediction strategy. Results from item 9 (84.8) and item 14 (96.3) indicate that most teachers agreed that PA could be used as a prediction strategy. Table 1 displays the count and percentage for instrument items in Set 1.

Set 2: The teachers' perception of PA skills as a significant component of the class reading program. Instrument items 1, 5, 13, 17, and 18 correspond to PA's significance as an early reading skill. In general, participants' responses displayed a favorable agreement to these items. Expressly, 94.5% of the respondents agreed that PA is an essential reading skill in early learning years (item 1), and 93.7% of participants recognized the significance of students knowing how sounds connect to letters to read correctly (item 5). Similarly, 94.3% of the respondents agreed that daily PA instruction and activities are necessary for learning in early grades (item 13). Also, results indicated that most respondents agreed with the importance of two PA skills as essential reading skills in early learning years, precisely, sound isolation in words (item 17; 90%) and blending sounds (item 18; 93.6%).

The statements in instrument items 7 and 15 pertained to PA's significance through explicit instruction rather than incidental instruction. The findings showed that most teachers agreed with the significance of teaching PA explicitly (item 15; 81.8%) and incidentally in the classroom (item 7; 74.5%).

Items 3, 11, 12, and 16 were associated with PA's significance compared to phonics. Items 11 and 12 were designed to support favorable perceptions of the significance of PA. The results of item 12 showed that

Table 2. Count and (percentage) of teachers' responses for items related to perception of PA skills as a significant component of the reading program

Instrument items	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Missing	P value
1. PA is an essential reading skill	60 (54.5)	44 (40)	4 (3.6)	0	0	1 (.9)	.85
3. PA and phonics instruction teach the same reading strategies	35 (31.8)	57 (51.8)	12 (10.9)	2 (1.8)	0	3 (2.7)	.73
5. Students need to know how sounds connect to letters to be able to read	83 (75.5)	20 (18.2)	2 (1.8)	1 (.9)	0	3 (2.7)	.11
7. PA instruction should occur incidentally in the classroom	35 (31.8)	47 (42.7)	22 (20)	4 (3.6)	0	1 (.9)	.49
11. PA instruction focuses only on the sounds in words	16 (14.5)	49 (44.5)	26 (23.6)	13 (11.8)	2 (1.8)	3 (2.7)	.54
12. PA and phonics should be taught together	41 (37.3)	55 (50)	10 (9.1)	2 (1.8)	1 (.9)	0	.22
13. Daily PA instruction is necessary in early learning grades	52 (47.3)	55 (50)	1 (.9)	0	0	1 (.9)	.70
15. PA should be explicitly taught	45 (40.9)	45 (40.9)	14 (12.7)	2 (1.8)	0	3 (2.7)	.21
16. Phonics should be taught before PA	38 (34.5)	51 (46.4)	11 (10)	4 (3.6)	2 (1.8)	3 (2.7)	.63
17. Isolating sounds in words	44 (40)	55 (50)	8 (7.3)	2 (1.8)	0	0	.06

18. Blending sounds to form words	60 (54.5)	43 (39.1)	3 (2.7)	3 (2.7)	0	0	.94
* Count and percentage (%) of the responses of the KG and primary groups (*N*=109) on all items * P value was reported based on Mann-Whitney U tests to compare groups, *p* <.05 indicated significant difference.							

87.3% of the respondents agreed that PA should be taught alongside phonics. The responses on item 11 indicated that only 59% of the respondents agreed that PA instruction focuses only on the sounds in words, while 23.6% were undecided and 13.6% disagreed, reflecting a poor understanding of PA. The results of items 3 and 16, which contradicted the statements of items 11 and 12, suggested that most teachers do not understand the difference between PA and phonics. Specifically, for item 3, 83.6% agreed that PA and phonics instruction teaches the same reading strategies, and for item 16, 80.9% agreed that teaching phonics precedes PA. Table 2 displays the count and percentage of responses for instrument items in Set 2.

Objective 2. To explore how often kindergarten and primary teachers provide instructional behaviors related to teaching PA in the Arabic language in their classrooms, and whether there are differences in their instructional behaviors based on grade level. To address this objective, researchers calculated data from the rating scale for each participant in the following three main areas:

1. Formal PA assessment practices in which teachers were asked how often they formally assessed PA skills (item 19).

2. PA instruction practices reflecting intentional teaching related to segmenting, deleting, blending, rhyming, and syllabication in which teachers were asked how often they taught the targeted PA skills (sum of items 20–24).

3. PA center practices related to the same PA skills in which teachers were asked how often their students completed activity centers relating to the targeted PA skills (sum of items 25–29).

The scoring method for the items in this section included assigning a score of four for a daily response; a score of three for a once-a-week response; a score of two for a one to three times per month response; and a score of one for a never response. Accordingly, each participant had three scores corresponding to the main areas. A median of the areas with a sum of scores that is closer to 5 indicated "never" responses, 10 indicated "1–3 times a month" responses, 15 indicated "once a week" responses, and 20 indicated "daily" responses.

For the analysis of this section, participants with missing data for one or more items were removed. Accordingly, three participants from the KG group (*N* = 25) and three from the primary group (*N* = 78) were excluded from the analysis of PA instruction practices (items 20–24). Moreover, one participant from each group (KG: *N* = 27; primary: *N* = 80) was removed from the analysis of PA center practices (items 25–29).

The results of the Mann-Whitney U tests showed similar formal PA assessment practice (item 19) in the KG group (*N* = 27, *Mdn* = 1) and the primary

group ($N = 74$, *Mdn* = 1; $U = 825$, $z = -1.48$, $p = .14$), reflecting that most of the teachers in both groups did not formally assess PA. Figure 1 represents the results of teachers' behavior associated with PA assessment.

The Mann-Whitney U tests showed that groups were significantly different in terms of their PA instruction practices, reflecting their intentional teaching (sum of items 20–24) and their PA center practices (sum of items

Figure 1. Frequency of the KG group and the primary group behavior associated with formal PA assessment (item 19)
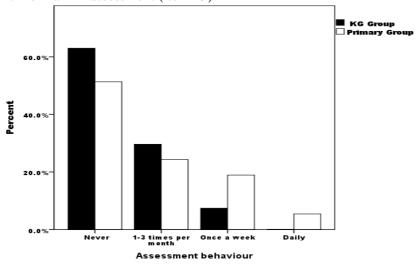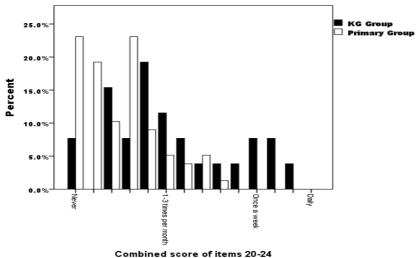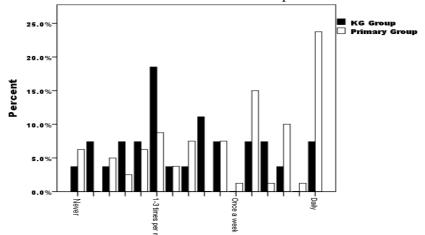

Figure 2. Summary of responses of the KG group and the primary group for the combined measure of items 20-24 for PA instruction practices

25–29). Specifically, the KG group (*Mdn* = 12, range = 5–17, *N* = 25) demonstrated significantly more time on PA instructional practices than the primary group (*Mdn* = 7, range = 5–13, *N* = 78); ($U = 482$, $z = -4.04$, $p < .001$). In other words, the KG group tended to include one or more PA instructional practices related to segmenting, deleting, blending, rhyming, and syllabication around one to three times a month in their classrooms, while the primary group spent close to no time on PA instructional practices. Conversely, the KG group (*Mdn* = 11, range = 5–20, *N* = 27) spent significantly less time in completing PA activity centers (sum of the scores from items 25–29) than the primary group (*Mdn* = 16, range = 5–20, *N* = 80); ($U = 773.5$, $z = -2.21$, $p = .03$).

The results suggested that the primary teachers incorporated PA activity centers into their classrooms around once a week to daily, while the KG teachers tended to do so around one to three times per month. Figures 2 and 3 summarize the teachers' responses in the two groups for the combined measure of 20–24 and 25–29, respectively.

In summary, the results of this section indicate that most of the early grade teachers in both groups did not formally assess PA. However, the KG teachers spent more time teaching one or more PA skills than the primary teachers, while the primary teachers spent more time providing their students with one or more PA activities than the KG teachers.

Figure. 3 Summary of responses of the KG group and the primary group for the combined measure of items 25-29 for PA center practices

Section 3 included two questions that further investigate the behavior of teachers regarding teaching PA in the classroom. The first question states, "which reading skill would you consider the most important to teach in your classroom reading program, including phonics, fluency, PA, text comprehension, vocabulary, and

print concept awareness?" The second question states, "what type of PA skills do you formally teach in your classroom, including phoneme isolation, phoneme blending, phoneme segmenting, and phoneme deletion?" The Mann-Whitney U tests showed that groups did not differ significantly on this section's two items ($p >$ .05). However, a closer look at the results of the first question showed that more KG teachers found phonics to be the most essential reading skill (KG: 50%; primary: 25.6%), while more primary teachers found PA to be the most essential reading skill (KG: 32.1%; primary: 45%). To investigate the second question of this section, researchers calculated the total number and percentage of respondents on each choice under this question. The percentages were calculated based on the total number of responses on all choices, given that this question accepts more than one answer per participant. Results showed that most of the teachers in both groups taught PA by using phoneme segmentation (KG: 40.42%; primary: 38.31%) followed by phoneme isolation in the KG group (25.5% vs. 18.83% in the primary group) and blending phonemes in the primary group (30.52% vs. 23.4% in the KG group). As for phoneme deletion, results indicated that few teachers formally taught it in both groups (KG: 6.65%; primary: 12.34%).

Objective 3. To investigate the possible relationships between early grade teachers' instructional behaviors of PA with respect to their perception, years of teaching experience, and training. Pearson correlations were conducted to investigate whether teachers' perception in the two groups affected their behavior. Perception included perception of PA use in learning to read and preventing reading difficulties as calculated by the sum of items 2, 4, 6, 9, 10, and 14 and perception of PA skills as a significant component of the class reading program as calculated by the sum of items 1, 5, 7, 11, 12, 13, 15, 17, and 18, excluding contradicting items. As shown in Table 3, no significant correlations were found in the KG group or the primary group between the investigated variables, indicating that teachers' perception of PA did not affect their instructional practices or PA center practices.

Pearson correlations were conducted to determine the relationships between the sum of the combined measures of section 2 reflecting teaching behaviors and the years of experience of early grade teachers and their training in reading. Results showed a positive correlation between years of experience and PA center practices (the sum of the combined measure of items 25–29); r (97) = .23, p = .03, but not with PA instruction practices (the sum of the combined measure of items 20–24); r (95) = -.20, p = .05. Results indicate that teachers with more teaching experience provided their students with more chances to complete PA activities in the classroom, while teaching experience did not affect the teachers' frequency of teaching PA skills. No significant correlation was found between the training teachers received on reading and their PA instruction practices; r (99) = .01, p = .88 or PA center practices; r (102) = -.04, p = .72.

Table 3. Pearson correlations between teachers' perception of PA and behaviors associated with PA teaching

Teachers' PA Perception	Group	Correlations	Teacher's behaviors associated with PA teaching	
			Instruction practices (Sum of items 20-24)	PA center practices (Sum of items 25-29)
Perceptions of PA Use in Learning to Read and Preventing Reading Difficulties	KG	Pearson Correlation Sig. (2-tailed) N	.157 .486 22	.061 .778 24
	Primary	Pearson Correlation Sig. (2-tailed) N	-.013 .914 73	.168 .161 71
Perception of PA Skills as a Significant Component of the Class Reading Program	KG	Pearson Correlation Sig. (2-tailed) N	-.361 .091 23	-.182 .384 25
	Primary	Pearson Correlation Sig. (2-tailed) N	.144 .217 75	.036 .762 73
Sig.= significance level based on p-value; critical p-value < .05; Correlation is significant at the 0.05 level (2-tailed).				

4. Discussion

There is a general concern regarding Arabic language learners' reading level across the Arab World (Hammud and Jarrar 2017). Students' reading levels can be influenced by their teachers' ability to provide quality reading instruction, including PA, in the classroom. This study provides a descriptive profile of early grade teachers' perception, knowledge, and behaviors associated with PA in teaching reading in Arabic. This investigation is necessary given that teachers' perception and knowledge of PA are expected to influence their instructional behavior in the classroom. The areas investigated in this study are scarcely explored in the Arabic language, particularly in Jordan.

Results reveal that although KG and primary teachers recognize PA's significance for reading development, many show poor knowledge of certain PA fundamentals. Specifically, most teachers in the two groups reported a positive perception of PA as an essential early reading skill in daily classroom activities and as a tool to predict and prevent future reading difficulties. These results confirm previous studies that used similar surveys in the English language (Dahmer 2010)

and the Iranian language (Yarahmadzehi, Rezaee and Kogani-Baharvand 2017). Nevertheless, the teachers' responses on the items that required specific knowledge of PA and phonics suggest a poor understanding of the difference between the two reading skills, which, in turn, is reflected in their classroom teaching behaviors. Specifically, many teachers in the current study did not favor explicit over implicit PA instruction in the classroom, although the benefits of teaching PA explicitly in reading are well established (Ehri and Roberts 2005; Al-Tamimi and Rabab'ah 2007; Al Tamimi 2016). Also, most teachers reported that PA and phonics instruction teaches the same reading strategies, and that phonics instruction ideally precedes PA. Furthermore, most KG teachers and many primary teachers reported phonics, not PA, as the most essential reading skill. Our findings highlight the ongoing concern that many early grade teachers lack general knowledge of PA in different languages (Phillips et al. 2008; Cheesman et al. 2009; Dirham 2010; Yarahmadzehi et al. 2017; Alshaboul 2018a), including the Arabic language (Tibi 2005; Alghazo and Al-Hilawani 2010). These results illustrate the need to better prepare teachers at the pre-service and in-service levels where PA is addressed as a crucial reading skill.

The second research objective focused on the use of instructional behaviors related to assessing and teaching PA. Assessment is an important stage for successful planning and teaching wherein teachers can identify the skills not acquired or sufficiently gained by their students. However, the current results show that most teachers in both groups never formally assessed PA in their classrooms. This finding could be explained by the observation that early grade teachers in Jordan use various methods for students' assessment for the mere purpose of obtaining grades (Brombacher et al. 2012). Another possible explanation is that standardized assessments in the Arabic language are scarce, especially those targeting PA. Therefore, to assess PA, Arabic language teachers would require adequate knowledge and skills to create assessment tools and successfully interpret the results. These requirements lead to the inquiry of how ready teachers are to formally assess PA.

As for our findings on instructional behavior, the two groups' profiles were significantly different, yet many teachers in both groups did not provide adequate or consistently explicit PA instructions in their classes. While there are no clear guidelines concerning the intensity of adequate PA instructions, previous intervention studies with large effect sizes implemented PA instructions daily (National Reading Panel 2000) or at least two times a week in a classroom of early English language learners with different abilities (Carson, Gillon and Boustead 2013). Regarding the instruction of the Arabic language, a one-year intervention study conducted in Jordan, known as "the Early Grade Reading and Math Project," showed that a daily practice of foundational skills, including phonological knowledge through structured and developmentally appropriate activities, can support children to read the Arabic language with comprehension in early grades (Brombacher et al. 2015). Our findings that the KG teachers allocated limited time (1–3 times a week) for PA instruction and practice in the classroom are inconsistent with the children's needs, provided that most children at this stage are non-readers

and expected to have few PA skills. Similarly, the current finding that the primary teachers hardly provide any PA instruction in their classrooms is also unexpected. That is, KG grades in Jordan are not yet mandatory, and therefore many students joining first grade may lack the PA skills required for reading development. However, the primary teachers also reported providing practice for their students in the classroom around once a week to daily, which could be controlled by curriculum-embedded practices that the students are required to finish. The national survey results in Jordan support this possible explanation, showing that teachers are more concerned about finishing the curriculum than teaching reading skills, which is expected to directly affect the students' acquisition of skills (Brombacher et al. 2012). Another finding of the current study, consistent with Dirham's (2010) findings, indicates that most of the KG and primary teachers incorporate different PA skills into their classroom reading programs, including phoneme segmentation, phoneme isolation, and blending. However, while phoneme deletion is one of the most difficult tasks for students reading Arabic (Tibi 2010; Al Ghanem and Kearns 2015), few teachers included this task in their instruction. It is recommended that Arabic language teachers follow Tibi's (2010) proposed order of the developmental hierarchy of phonological skills in Arabic—sound categorization, rhyme oddity, syllable deletion, and phoneme segmentation—to teach PA.

Finally, the third research objective investigated the possible relationships between teachers' behavior associated with teaching PA and their perception of PA, teaching experience, and training. Our results reveal only one significant correlation between teaching experience and PA teaching practices. Specifically, early-grade teachers with more teaching experience provide their students with more chances to complete PA activities in the classroom. Although our results yielding no relationships could be due to the small sample size, essential suggestions emerged. Our results may reflect the observation of the national survey in Jordan reporting that teachers are strained by completing the curriculum (Brombacher et al. 2012); therefore, their classroom instruction is not driven by their perception, training, or experience. Accordingly, this suggests that the Arabic language curriculum needs to be revised to ensure that it guides teachers toward teaching skills, including PA, and gives them the space to address each child's needs. Our finding that teachers' training did not affect their PA teaching practices is also indicated in previous Arabic language studies (e.g., Tibi 2005; Alghazo and Al-Hilawani 2010). Many teachers in the current study did not receive any training in reading or received only one training, mainly the "Early Grade Reading and Math Project," which is inadequate to equip them with the required skills. Teachers should receive systematic and ongoing professional development for adequate preparation (Crim et al. 2008; Moats 2009; Alghazo and Al-Hilawani 2010). There also seems to be a real need to investigate university graduates' readiness to teach reading in the Arabic language, an area that has not yet been investigated. However, two Jordanian studies that target pre-service English as a second language teachers concluded that they lack the necessary knowledge in PA to qualify them to teach (Alshaboul 2018a; 2018b).

While this study includes a wide range of investigated areas, it also possesses three potentially significant methodological drawbacks. Specifically, the limited number of participants in the KG group (which reflects the few KG schools in Jordan, given that KG grades were not obligatory when this study was conducted). In addition, it would have been more informative to add a section in the survey that tested teachers' deep knowledge of PA and assessed their actual knowledge effectively. This could be further investigated by testing the relationship between the teachers' PA behaviors in the classroom and their students' reading abilities. Another limitation of the study is that all the data rests on self-reports instead of teacher observations.

6. Conclusion

The current study provides insight into the perception, knowledge, and behaviors of early grade teachers regarding PA in the Arabic language and has important implications for research and practice. Our findings add to the growing body of knowledge examining the effect of PA skills on Arabic reading skills among young and native learners. The results also have important practical implications for teachers to implement the required PA skills in their classrooms, which is expected to positively affect students' reading abilities. Specifically, the results highlight the importance of providing pre-service and in-service Arabic language teachers with ongoing PA knowledge and instruction. Moreover, the results draw the Arabic curriculum designer's attention to include more drills and activities that develop the learners' competence in the PA skills by giving the teachers the space to address the individual differences between students. The results also highlight the crucial need for developing PA assessment and teaching tools in the Arabic language.

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