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Review Article

The Effect of phonemic awareness on EFL word recognition in a Sample of Arabic Native Preschool Children Speakers

Dalia Bedewy*

College of Humanities and Sciences, Ajman University, United Arab Emirates
College of Education, Tanta University, Egypt

***Correspondence to:** ADalia Bedewy, College of Humanities and Sciences, Ajman University, United Arab Emirates,.

Tel: 00971505552373; 0097167056025; Fax: 0097167438888

Email: Daliaab78@hotmail.com; d.bedewy@ajman.ac.ae

Abstract

This study examined the effect of phonemic awareness training on word recognition of English as a foreign language. Sixty-four children from a kindergarten (mean age 5.4 years; range: 5.5–5.9) participated in the study (n= 32) for the Experimental group, (n=32) for the control group. All participants were Arabic native speakers living in Tanta, Egypt at the time of the study and they reported a low reading ability of English language. Eight weeks of phonemic awareness training was assigned merely to experimental group (EG) whereas no phonemic intervention was assigned to control group (CG). A three subscale of Word Recognition Ability Task (WRAT) measures the changes obtained in the dependent variable. Results indicated statistically significant differences among the experimental and control groups on measures of phonemic awareness and reading. These results suggest that phonemic awareness training for low achieving beginning readers could be beneficial

Keywords: phonemic awareness, word recognition, English as a foreign language.

Introduction

Examining the contributing factors of reading difficulties, researchers made scientific effort examining the possible relationship between sound awareness and learners' ability to read (Ehri, 1997; Goswami, 2000). Phonemic awareness refers to the ability of decoding in alphabetic languages by enabling readers to extract sound information from written input; hence, it plays a fundamental role in reading skills development (Ehri et al., 2001; Engen & Høien, 2002; Nation & Hulme, 1997). Phonemic awareness decoding skills employ an accurate pronunciation of unfamiliar words and create phonological representation for those words as a means of word inference (McCandliss et al., 2003).

Word recognition refers to the processes that employ transformation of print into speech, such processes includes word identification and phonetic decoding (Coltheart, 2006; Perfetti, 1985). Individuals with good reading ability celebrate high word recognition skills, whereas; students with poor reading ability show evidence of low word recognition skills (Catts et al., 2006; Perfetti & Hogaboam, 1975). Dual-route is a theory developed by Baron, 1980 to explain how beginning readers recognize word. According to the dual- route theory, beginning readers employ one of two ways to read words, visually or phonologically. Visual route suggests a recognition of the word from its orthographic image then memory gives access to its meaning, whereas, through the phonological route, the reader uses letter- sound knowledge and decoding principles to read unfamiliar words. Ehri (1992) proposed an alternative theory to the dual-route model known as the visual-phonological process route. According to that theory a word's orthographic form and its pronunciation is connected through the process of amalgamation, a merging of the word's pronunciation and meaning. Moreover, when a reader sees a printed word, its pronunciation and meaning are automatically accessed.

Reading instruction that teaches phonemic awareness is the most effective method for promoting normal reading acquisition and for helping early reading failures (Adams, 1990). Findings of several studies show that phonemic decoding training facilitates reading acquisition in beginning readers (Casalis et al., 2004; Katzir et al., 2006; Constantinidou & Stainthorp, 2009). In the longitudinal study Catts, 2001 and his colleagues examined reading achievement of 604 preschool children, the findings reported that more than 70% of poor readers had a history of deficits in phonological awareness in kindergarten.

Mourad, 2007 examined the effect of phonemic awareness training on pre –reading skills in a sample of preschool children of mental retardation, and certain reading skills in children with learning difficulties (Mourad et al., 2006), and the findings revealed the effectiveness of phonemic awareness training. There is solid evidence that children with dyslexia exhibit problems in their phonemic awareness skills (Torgesen et al., 1997), causing difficulties in decoding written words into oral ability by applying grapheme-phoneme conversion rules (Ramus et al., 2003).

English reading process includes two components, word recognition and comprehension. Word recognition refers to the ability to the ability to convert letters into recognizable words, and comprehension imply the ability to access meaning of the unit (Hoover & Gough, 1990). Hence, recognizing words is a necessary precursor to good comprehension; it employs a less involvement of cognitive resources in lexical retrieval (Perfetti, 2007). The proposed hypothesis that phonology plays a role in early spelling is confirmed by several studies of English, as an alphabetic language, and of other non-alphabetic languages (Varnhargen et al., 1997; Sprenger-Charolles et al., 2003; Abu-Rabia & Taha, 2006).

Phonemic ability is not a natural developing ability, but rather requires deliberate opportunities of practice (Phillips et al., 2008). Contradicted findings about the role phonemic awareness in literacy are documented. Studies revealed significant effect of phonemic training on reading and spelling (Treiman & Baron, 1983; Cunningham, 1990); on the other hand, other studies showed none significant effects (Brady et al., 1994; Brennan & Ireson, 1997). The same controversy occurred

in the EFL field about phonemic awareness training and its effect on word recognition and comprehension (Kozminsky & Kozminsky, 1995; Castles & Coltheart, 2004).

The cross-linguistic difference in cognitive processes employed while reading reveal certain implications for L2 readers' acquisition of reading skills. One way to see it is that the readers tend to transfer the cognitive strategies established in their L1 to L2 reading (Commissaire et al., 2014). Foreign languages word recognition studies has confirmed the influence of L1 word recognition processes among different L2 readings' levels (Hamada & Koda, 2010). L1 cognitive processing transfer to L2 reading would show certain negative effects; L1 transfer is supposed to function in a positive way when the required written input processing is similar between L1 and L2, but in a negative way when they show dissimilarity (Holm & Dodd, 1996). Koda, 2007 suggested that differences in orthographic complexity between languages require different processing techniques.

Though very few, there are studies that explored the phonemic awareness skills of the native language contributing to the development of the skills in the foreign language (Chikamatsu, 1996; Cisero & Royer, 1995). Wagner et al., (1989) explained that phonemic awareness would transfer between the native language and the foreign language even if the two languages do not share the same orthographic system, like Arabic and English.

In Egypt, English is a mandatory course from elementary public school to the university. In Arabic-based studies, little research is available to support the effectiveness of phonemic awareness training on reading skills in low achieving reading preschool children (Tibi 2010). In light of literature theories and empirical researches, this study takes up the following research question: Does phonemic awareness have an effect on L2-English word recognition among L1-egyptian Arabic preschool children readers? The researcher examined this question by including a phonemic awareness training for a sample low achieving readers.

Objectives

The study aims to examine the effect of phonemic awareness training on word recognition of English as a foreign language in a sample of Arabic native speakers' kindergarten students who report low reading achievement in their English language class. The phonemic awareness decoding ability employs a path of an accurate pronunciation of unfamiliar words and adopt phonological representation of unknown words. Decoding skills supported by PA foster the accurate pronunciation of unfamiliar words and help readers create phonological representations of unknown words as a means of word inference

Method

Participants

Sixty-four children from a kindergarten (mean age 5.4 years; range: 5.5–5.9) participated in the study (n= 32) for the Experimental group, (n=32) for the control group. All participants were Arabic native speakers enrolled in international kindergarten since they were accepted at the age of four in Tanta, Egypt at the academic year 2017/2018. Participants showed evidence of normal visual, auditory, and motor abilities. The two groups (EG&CG) had minimal word recognition ability as determined by their performance on the word recognition ability Instrument specifically developed for this study.

Word Recognition Ability Test

The test consists of three components: 1- exact letters similar word recognition test: students should match the given word with its exact one from a list of choices (4 items). 2- Two letters similar word recognition test: students should match the given word with others that shares two letters (6 Items). 3- Three letters similar words recognition test: students should match the given word with others that shares three letters (5 Items) 4- reverse letters word recognition test: (students should choose the reverse letters word of a given word (5 items). Appendix I.

Test reliability

The researcher developed a 20-item test to measure word recognition among preschool children. Experts (n=12) participated in a formal validation process of the instrument before it was administered to (n = 100) both male and female students. Internal consistency reliability for the instrument was .86 (Cronbach's alpha) and there was 89% overall agreement between experts about the relevance of the instruments' items to measure word recognition for preschool students, providing evidence for content validity.

Phonemic awareness training

The phonemic awareness-training program began in late September 2017 and lasted for seven weeks. The researcher met with each participant individually twice a week, and each session lasted for 20 minutes. The training program was designed with reference to:

a- Yopp's (1988) findings related to simple and compound phonemic awareness.

b- Cunningham's (1990) results concerning the phonemic awareness skills training sessions.

Eight weeks phonemic skills sessions gave students intensive training in both simple phonemic awareness (segmentation) and compound phonemic awareness (phoneme deletion, and phoneme substitution). An overview of the fourteen phonemic skill sessions used for training is represented as Appendix Ⅱ.

Each session provided practice in a single phonemic skill using a "skill and drill" versus a "conceptual" (Cunningham, 1990) approach. Hence, the training session did not provide subjects with a conceptual connection between the phonemic skill and decoding or reading. The sessions used of the following phoneme conditions:

a- A three-box frame to represent the phonemes from left to right in a three-phoneme, consonant-vowel-consonant (CVC) word.

b- A picture to represent a three-phoneme, CVC word.

c- No representation.

During the sessions, students manipulated the phonemes orally or by marking a corresponding box, or picking a corresponding picture. Appendix Ⅲ represents the Stimuli for the phonemic awareness training.

On the other hand, children in the control group received no training sessions. The control group was included in this study primarily as a benchmark against which to compare changes in the findings occurs within the training group.

Results

Table 1. Shows data on means and standards deviation of EG and CG on both conditions (pre-training and post-training). Table 1 reveals that PA measurements showed significant differences between EG and CG on all four sub-scales of phonemic awareness test.

Table 2 shows data on Pre-test mean, standard deviation, t-value and significance level for EG, and CG on reading ability test scores. The

Table 1. Phonemic awareness means and standards deviation for each group (control, experimental, pre and post training)

Group	Measurement	Phonemic Awareness Test							
		segmentation		deletion		phoneme substitution		Total	
		M	SD	M	SD	M	SD	M	SD
Experimental Group	Pre-test	45.81	6.61	42.03	6.23	43.90	6.69	44.12	3.82
	Post-test	87.46	3.28	86.21	4.34	87.09	4.53	86.46	2.25
Control Group	Pre-test	42.93	6.13	44.40	4.79	42.12	7.19	42.03	3.80
	Post-test	50.50	17.73	51.96	15.83	48.87	15.77	43.09	3.96
Group	Measurement	Phonemic Awareness Test							
		segmentation		deletion		phoneme substitution		Total	
		M	SD	M	SD	M	SD	M	SD
Experimental Group	Pre-test	45.81	6.61	42.03	6.23	43.90	6.69	44.12	3.82
	Post-test	87.46	3.28	86.21	4.34	87.09	4.53	86.46	2.25
Control Group	Pre-test	42.93	6.13	44.40	4.79	42.12	7.19	42.03	3.80
	Post-test	50.50	17.73	51.96	15.83	48.87	15.77	43.09	3.96

Table 2. Pre-test mean, standard deviation, t-value and significance level for EG, and CG on word recognition test scores

Variable	**EG (N=32)**			**CG (n=32)**			**T**	**P**
	M	SD	n	M	SD	n		
Word recognition Test	34.67	3.81	32	34.58	3.87	32	0.08	-

Table 3. ANCOVA analysis for the differences in post- test mean scores between experimental and control groups in word recognition test scores

Source	sum of squares	Mean Square	df	F	P
Pre	349.799	349.799	1	149.348	0.01
Group	19187.443	19187.443	1		
Error	7836.951	128.475	63		
Total	309198.00		64		

Table 4. Post-test mean, standard deviation, t-value and significance level for EG, and CG on phonemic awareness test

Phonemic Awareness	**EG (N=32)**			**CG (n=32)**			**T**	**P**
	M	**SD**	**n**	**M**	**SD**	**n**		
segmentation	87.46	3.28	**32**	50.50	17.73	**32**	11.59	-
deletion	86.21	4.34	**32**	51.96	15.83	**32**	11.79	-
phoneme substitution	87.09	4.53	**32**	48.87	15.77	**32**	13.17	-
Total	86.46	2.25	**32**	43.09	3.96	**32**	53.80	-

Table 5. Pearson Correlations Between PA Tests and word recognition at Test 2

PA	**Word recognition**	
	r	p (2-tailed)
segmentation	.547	.000**
deletion	.549	.000**
phoneme substitution	.540	.000**
Total	.648	.000**

data reveals that t- values did not reach significance level .This indicated that the two groups did not differ in word recognition ability. (Pre-test)

Results from table 2 reveal no differences on word recognition test the EG and CG group. The bivalent independent variable was the phonemic awareness (PA) training and it assumed two values: presence versus absence of PA training. The dependent variables were the gains in scores on Word Recognition Ability test.

Table 3 shows data on ANCOVA analysis for the differences in post- test mean scores between experimental and control groups in word recognition ability test scores. The table shows that the (F) value was (149.348) and it was significant value at the level (0.01).

Table 4 shows T test results for the differences in post- test mean scores between experimental and control groups in phonemic awareness test scores . The table shows that (t) value is significant at the level (0.01) in the favor of experimental group. The table also shows that there are differences in post- test mean scores between experimental and control groups in phonemic awareness test scores in the favor of experimental group

To examine the relationship between word recognition and sub-skills of PA, correlation analysis was conducted.

Pearson correlations were conducted on the reading recognition and PA sub-scales. Positive association was found indicating that higher reading recognition scores were associated with higher PA composite scores. Significant positive correlations among PA measures and word recognition was found.

Discussion

Yopp, 1992 raised the question about phonemic awareness and reading ability. His main question was: Is phonemic awareness a prerequisite for learning to read or does phonemic awareness develop because of being exposed to reading instruction? Literature reveals contradictive results about the issue presented. Whereas previous phonemic awareness training suggest an impact on reading ability (Ball & Blachman, 1990; O'Connor et al., 1995; Snowling ,1998; Torgeson, 2006), other findings suggest just the opposite (Byrne & Fielding-Bamsley, 1995; Lie, 1991; Fender, 2003).

One reason for the inconsistent results found with researches such as (Yaghoub Zadeh et al., 2012) is the measure used, as using the real-time word recognition speed could add another prospective of explanations. Shiotsu (2009) compared skilled and less skilled readers in real-word recognition speed. Although the skilled group obtained certain advantage in reading process, they showed no differences with the skilled group in real-word reading.

The study findings is consistent with other research conducted that supported the idea of PA as a powerful predictor of early reading achievement, moreover; this study added several significant contribution to literature. First: Motivated by the idea that differences between child and adult language learners may be generated from minor differences of language aspects, the researcher examined the phonemic awareness language feature in a sample of children. Second: the study explored English as a foreign language in a sample of Arabic native speakers and that shed light on the relationship and interference of the first language on the second language acquisition in two drastically different languages. EFL phonemic awareness has not received its due

attention (Asassfeh et al., 2012) in Cross-language transfer researches. Such findings strongly suggest that future researches should examine L1 students' performance and its impact on L2 acquisition.

Another point to discuss about the current study findings is that not so many English L2 researches address phonemic awareness in preschool children's reading process. The reason could be that L2 researchers believe to some extent that phonemic awareness explains very little of the individual differences in reading ability, a concept reflected by the results of English L1 researches (de Jong & van der Leij, 2002; Catts et al., 2001). Moreover, the present study findings suggest that the impact of phonemic awareness in English reading by L1-Egyptian Arabic speaker's children learners should receive more concern. What makes it even more interesting is that both languages celebrate different script and sub lexical unit. Further research could address the potential benefits of phonemic awareness intervention for children at-risk for reading disabilities.

The present study findings confirmed the causal relationship between phonemic awareness and success in word recognition. A kindergarten phonemic awareness-training program, aimed to develop phonemic awareness had a positive effect on word recognition in English as a foreign language. Such results indicate that phonemic awareness is a cognitive developmental ability that develop prior to formal schooling, hence; lending support to earlier studies (Bradley & Bryant, 1983; Liberman et al., 1974).

The causal relationship between phonemic awareness training and success in word recognition may be explained in terms of the decoding enhancement that took place when the child grasps the principles of phonological segmentation and blending. Cognitive resources can be concentrated on the task of interpreting the Phoneme-Grapheme Correspondence (Perfetti, 1985), the moment word recognition becomes automatic and rapid (Perfetti & Hogaboam, 1975; Stanovich, 1982). Due to their phonemic training, the experimental group students showed a better ability to "break the code" and use this knowledge in order to promote their reading skills.

The study findings goes in line with Ehri, 1998 results; both indicated that children learn to recognize words through a link- forming process of connecting printed forms of words to their pronunciations and meanings.

The children tend to apply grapheme/phoneme correspondence rules available to their cognitive knowledge of the alphabetic principle by creating connections between the grapheme in the printed word and corresponding phonemes (Ehri, 1998). Future researches should explore other cognitive-linguistic factors affecting normal and reading difficulties children performing on tasks of single word reading and phonemic awareness remained.

Ehri, 1995 suggested that the contribution of phonemic awareness to different aspects of reading ability is expected to decrease with increasing fluency. The current study findings intensify the influencing of phonemic awareness on word recognition in a low- reading achieving preschool students, and future research is suggested to explore Ehri, 1995 hypothesis by duplicating the current study with another normal moderate-high reading control group. If the previous hypothesis proved to be correct, then one shall expect to find that moderate-high readers' word recognition skills would be independent of phonemic awareness skills.

The study results also indicate that ability may mediate metacognition for the low-achieving readers showed evidence to use strategies to enhance their reading ability through following phonemic skills training with a metacognitive emphasis. Such finding is consistent with what Wittrock, 1986 suggested that when students are aware of the learning strategies used, and when they practice to control these cognitive processes, their transfer of them often increases.

Limitations of the study

The study is limited to the participant sample size (n=209) from Tanta, Egypt, and the participants characteristics. The study is also limited to the data collection and data analysis methods, as well as the statistical methods used.

Conclusion

The study findings indicated that the link from phonemic awareness to word recognition suggests that phonemic awareness serves as a basis for L2-English reading among L1-Arabic Egyptians speakers. The effect of phonemic awareness on word recognition reveals that phonemic processing skills could help these readers process and comprehend written text information in their L2. Direct clinical implication of these findings could be a suggestion that English language teachers should be encouraged to make some explicit instruction on English phonemic awareness. Explicit instruction could serve to improve phonemic awareness, and be especially beneficial for those students with difficulties in both phonemic awareness and reading ability.

The study training duration lasted for seven weeks, two sessions per week, and twenty minutes each session. Despite the declaration of the National Reading Panel (NICHD, 2000a) that 5 to 18 hours of intervention is not necessarily leading to greater benefit, it should be mentioned that these findings is related to English native speakers. The author suggest that the training on EFL students may need to take a longer duration than what is suggested for the native speakers. Hence, future studies should consider the training duration and intensity as potential influence factors too.

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