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**Challenges in the Acquisition of  
Reading in Arabic: Linguistic and  
Didactic Aspects**

**Baha Makhoul**

**PhD, Lecturer, Researcher and Head of the Arabic  
Section at CET (Center for Educational Technology)  
Oranim Academic College, The Hebrew University and  
University of Haifa  
Israel**

Athens Institute for Education and Research  
8 Valaoritou Street, Kolonaki, 10671 Athens, Greece  
Tel: + 30 210 3634210 Fax: + 30 210 3634209  
Email: [info@atiner.gr](mailto:info@atiner.gr) URL: [www.atiner.gr](http://www.atiner.gr)  
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## **Challenges in the Acquisition of Reading in Arabic: Linguistic and Didactic Aspects**

**Baha Makhoul**

**PhD, Lecturer, Researcher and Head of the Arabic Section at CET  
(Center for Educational Technology)**

**Oranim Academic College, The Hebrew University and University of Haifa  
Israel**

### **Abstract**

The Arabic language presents the first graders with unique difficulties when s/he begins acquiring reading skill. The difficulties derive from multiple features of the Arabic language, especially:

- 1) Its diglossic nature;
- 2) The orthographic depth of its writing system;
- 3) The visual complexity of the Arabic orthography.

Often, a fourth element further aggravates the difficulties – the socio economic background of the learners might be low, resulting in only limited exposure to the written language in the home prior to attending school (those children are defined as At-linguistic risk). Accumulative data have indicated significant gaps between Arab and Jewish pupils in reading skills acquisition in the Israeli school system.

The current article describes a special learning program "Arabic is our Language", which was developed by the Arabic section at CET<sup>1</sup> (Center for Educational Technology). The pedagogical considerations underlying this project will be presented accompanied by a study. The program is built on the principals of the interactive model for reading acquisition (Adams, 1991); the language curriculum for Arabs in Israel (2009) and taking into account the special features of Arabic and studies in the field of reading acquisition.

The study results show on initially gaps between children who came from medium-high socio economic background (named: Heterogeneous Group-HG) in comparison to At-Linguistic risk (LR) children. Throughout working in the learning programs, at the end of the year both groups were progressed and no gaps were found between them. In reading tests, the HG group outperformed their counterparts on LR, but on comprehension tests, no differences were found.

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<sup>1</sup>The Center for Educational Technology (CET) is an Israeli, nonprofit organization, dedicated to the advancement of the education system in Israel. For more information visit <http://cet.org.il/pages/Home.aspx>

Any curriculum or learning program intended to cope with the difficulties mentioned above, requires careful planning in terms of the linguistic and the didactic specifications.

**Keywords:** Arabic, Reading Acquisition, First Grade, Learning Program, At-Linguistic Risk.

**Corresponding Author:**

## The Features of Arabic and the Diglossic Phenomenon

Arabic is one of the Semitic languages that have similar morphological and phonological structure (Holes, 1995). One of the salient features of Arabic is "Diglossia", which refers to an existing gap between spoken and written Arabic, in: Vocabulary, grammar, syntax, linguistic and expression forms (Ayari, 1996; Saeigh –Haddad, 2005; Khamis-Dakwar & Froud, 2007). While the spoken Arabic (*A'miya*) is acquired spontaneously from the close environment, the written Arabic (*Fusha*) acquired from direct instruction at school (Ferguson, 1959). In fact, Arab children use written Arabic only in school and when they return to their homes, they are exposed mainly to the spoken system.

Researchers argue that although the combined use of the two systems of Arabic, yet they maintain a relation of first (spoken Arabic) and second language (Written Arabic) (Maamouri, 1998; Ibrahim & Aharon-Peretz, 2005). Before entering the school, most Arab children are exposed to the spoken language. As a result, they will have difficulties acquiring reading skills and difficulties in reading comprehension (Ministry of Education, 2001). Thus, early exposure to written language positively affects linguistic skills and literacy in written Arabic. Nevertheless, basic processes in written language do not reach to a proper and satisfactory level (Saiegh - Haddad, 2008).

The Arabic orthography consists of 34 phonemes: 28 consonants and six vowels. All letters are represented by consonantal phonemes, except "*Aleph*" which has several uses (Holes, 2004). In addition, three letters ("*Aleph*", "*waw*" and "*iaa*") can be consonants or long vowels. More diacritical signs add to the orthographical complexity of the Arabic script, such as "*Tanween*" and "*Mada*". Additionally, Arabic script can be vowelized (especially for novice readers), or non-vowelized (for skilled readers). Although, vowelized script considered being a shallow orthography, yet non-vowelized script considered being a deep orthography because of the ambiguity and complexity of the grapheme-phoneme correspondence as a consequence of all the complexities mentioned above.

The visual complexity of the orthography adds another layer to the difficulties mentioned above. First, the shapes of the letters change according to their positions in the word (Abd El-Minem, 1987): initial (e.g. →), medial (e.g. ↗), final (e.g. ↘) or separated (e.g. ↙). Second, some letters share the same shape, and differ only in the number of dots or\and in the dots position (e.g. ح \_ خ \_ ح). Third, the letters are written from right to left, in a cursive style (e.g. "عُصْفُورٌ" = bird). Nowadays, researchers have shown the negative affect of the complications in the Arabic orthography on reading fluency (accuracy and reading rate) (see Eviatar, Ibrahim, & Ganayim, 2004; Ibrahim, Eviatar & Aharon-Peretz, 2002; Abu-Rabia, Share & Mansour, 2003). The conclusion is that the Arabic Orthography poses a major load on the visual memory, which affect in return reading fluency and reading comprehension (Ibrahim, 2002). Researchers agree that proper visual memory needed in reading vowelized script (Meyler, 1993; Meyler & Breznitz, 1998; Shatil &

Share, 2003). All these features make it difficult to acquire knowledge about Arabic letters. In order to develop orthographical skills, children must cope with the challenges mentioned above.

In light of the above, the accumulative data indicates on meaningful failures in reading tests and on clear disadvantages among children from different backgrounds, and among Arabs pupils in comparison to Jewish pupils (The national feedback of the ministry of education, 1996). The findings of the Progress in International Reading Literacy Study (PIRLS) in 2001 show that Arabic speakers achievements in Israel placed them in the 31<sup>th</sup> place out of the rest 35<sup>th</sup> countries participating in the study (Olshtein & Zozovsky, 2003). Similar findings were on PIRLS study in 2006, in which the achievement averages of Arabic-speaking children puts them in 40<sup>th</sup> place in the ranking of 45 countries and regions participated in the study (Ministry of Education, 2007). Although the place is low, yet it is higher than other Arab countries such as Qatar, Kuwait and Morocco. PIRLS 2011 shows similar results, while the Jewish pupils' achievements place them at the second place between the 45 participating countries and states, the Arab pupils is at 35<sup>th</sup> place (Mullis, Martin, Foy & Drucker, 2012). Therefore, one can conclude that the nature of the language poses many difficulties for Arab children when they arrive at first grade and begin to acquire reading skills.

### **Literate Background**

Educational and environmental factors create reading acquisition difficulties and gaps between sectors and statuses. The first factor is the early literacy and the quality of fostering it among preschoolers (Aram & Levin, 2001; Bus, van IJzendoorn, & Pellegrino, 1995; Pressley, 1998; Scarborough & Dobrich, 1994; Sénéchal, LeFevre, Thomas, & Daley, 1998). As is the case in other populations, also in the Arab society there is a great significance to socio-economic background and to the exposure level to written literature before attending school. Children, who are defined as being At- Linguistic Risk, start first grade with a low level of phonological awareness and with little exposure to written literature (Makhoul, 2006; 2012). Study and practicum show the tight relationship between phonological awareness and success in learning to read. The second factor focuses on the first reading phases and fluency construction, by teaching reading and writing at early grades (Snow, Burns & Griffin, 1998; Langenberg et al., 2000). The third factor is related to mature reading, fostering reading comprehension and habits of reading books during the school years.

All these systematic factors are added to the difficulties in reading acquisition among those who have congenital disabilities.



## **Reading Acquisition**

Reading is defined as a process of transformation of written signs into spoken ones (Perfetti, 1997). Deciphering the text is done in parallel and its ultimate purpose is to understand the words that are read.

With regard to reading comprehension, we assume that though people who understand a text generally decode it well. However, studies have shown that the opposite is not always true. Success in reading does not always end up in understanding the text, and therefore reading comprehension is partially related to efficient identification and recognition of words. That is to say, identification and recognition of words is important but it does not guarantee reading comprehension (Perfetti, 1985, 1999; Stuebing et al., 2002; Stanovich, 1982, 1991).

The literature has also emphasized the importance of spoken language capacities in reading acquisition, i.e. syntax, listening comprehension, and vocabulary. High cognitive aptitudes participate also in reading comprehension. Longitudinal studies have shown that vocabulary, working memory, assumptions and control of comprehension processes significantly contribute to the skills of reading comprehension among children aged 8-11 (Cain, Oakhill & Bryant, 2004).

While acquiring the spoken language is considered to be spontaneous due to its built-in cognitive structures, acquiring the written language is not a spontaneous process due to the lack in such cerebral structures, thus explicit teaching methods are needed in order to acquire the written language, and for that it is a complicated process (Lieberman, 1992).

Reading acquisition is a complex developmental process, which progresses in different paces and in different paths among children (Korat & Becher, 1997; Korat, 1998); it is affected by all the factors mentioned above, such as the Educational-Environmental factors.

Teaching written Arabic begins formally at first grade. Considering the linguistic-cognitive factors, using words that are not included in the vocabulary of first grader could affect negatively the efficiency of teaching. If the reader can recognize the word by sight, he will understand what he is reading, and vice versa (Shimron, 1997). But, using words that are not included in the first grader's vocabulary, thus may affect negatively the teaching efficiency.

The individual and social factors affect reading and writing acquisition. Yet, also language characteristics affect reading acquisition, especially among at-risk populations (Shimron, 2005).

### **"Arabic Is Our Language" an Innovative Program for Teaching Reading**

"Arabic is our language"<sup>1</sup> is a learning program for acquiring reading and writing at first grades. The program was developed by the Arabic department at

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<sup>1</sup>For digital version of "Arabic is our Language" visit: <http://www.school.kotar.co.il/KotarApp/Viewer.aspx?nBookID=94989726> for first book and <http://www.school.kotar.co.il/KotarApp/Viewer.aspx?nBookID=94989940> for the second book.

CET (Center for Educational Technology) (Makhoul, Iskandar, Ibrahim & Hejazi, 2010), and was approved by the Ministry of Education in Israel.

The program proposed in this article is based on the interactive model of Adams (1991), which emphasizes direct instruction of reading and writing skills in the initial stages and establishing an infrastructure for developing automated reading skills alongside the development of comprehension ability (Stahi, Duffy-Hester & Stahl, 1998). In the model, Adams suggests that reading and writing acquisition is a process demanding a parallel activation of four processors: the phonological processor (the ability to distinguish and recognize the sounds of the language before referring to the words meanings), the orthographic processor (enables phoneme-grapheme matching and reflects the reader's ability to use orthographical sequences in order to access the lexicon without phonological mediation), the semantic processor (processor of word-meaning) and the contextual processor (help the reader to read accurately by relying on the whole idea expressed in the text).

In addition, the program relies on the results of several studies on literacy development, the principles and objectives of the new curriculum published by the Department of Arabic Language Education in Israel since 2009, Arab pupils' characteristics at first grade and the unique characteristics of the Arabic language. The special features of Arabic and its rich semantic structure lead researchers to choose the interactive model to teach it (Abu-Rabia, 1999; 2000a; 2000b; 2002; 2003; Olshtein & Makhoul, 2010).

According to the learning program outline, two major phases are needed for acquiring reading and writing. At the first phase, the program focuses on acquiring decoding skills, phonological awareness developing, acquiring orthographic knowledge, developing discourse skills and listening comprehension. In the beginning, it is important to deal with the difference in literate knowledge of the children, which influences reading and writing acquisition. The gradual teaching is a core component of the program, which take into consideration the differences between children, especially their literate background that they come with.

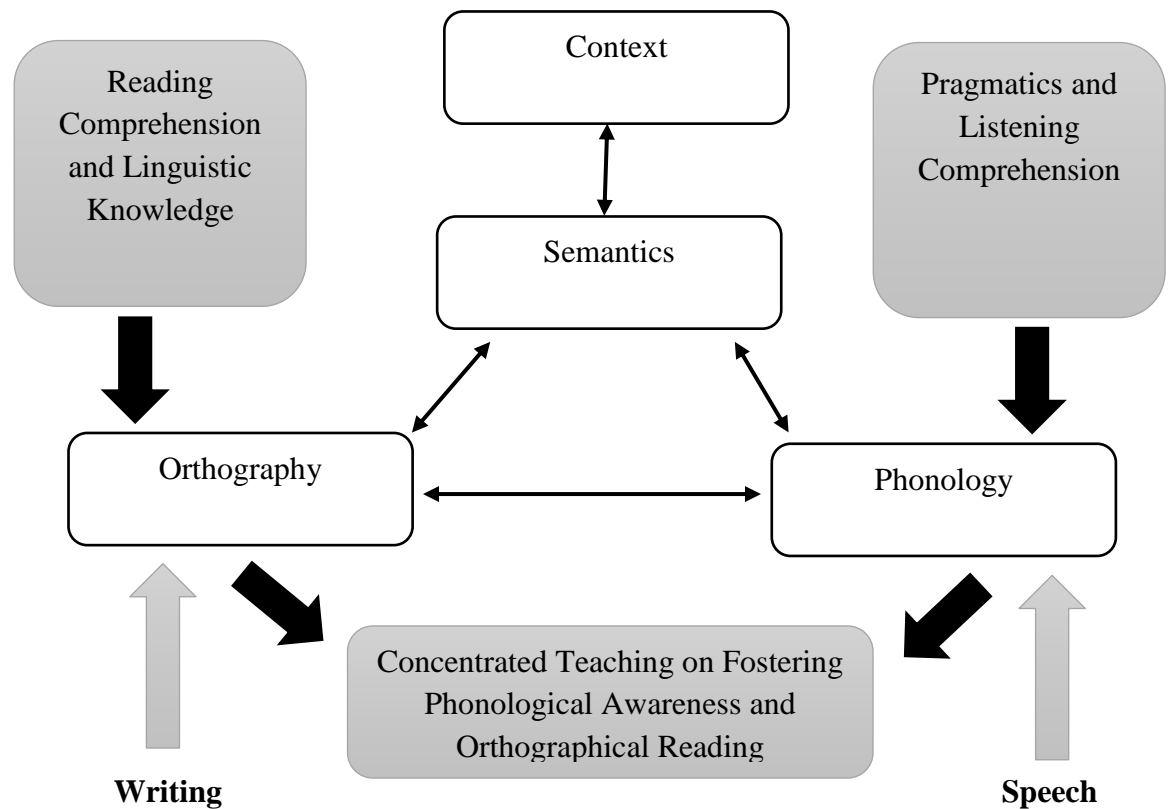
Every unit begins with an illustration from the child's world, which enables a discourse. Besides the units contains a text for listening comprehension and ends with a discourse and expression. In every unit, the children exercised acquisition of a number of consonants and one vowel (a short or a long one). The collections of letters were chosen according to the letters' phonetic and orthographic features: from easy to hard ones. Every letter is presented and exercised in its four shapes: initial, medial, final, and separated. It is necessary to establish the alphabetical principle, because it is considered to be infrastructure of reading and writing acquisition.

The second phase focuses on developing fluent reading skills without being aided by the context, developing reading and listening comprehension skills, and fostering spoken discourse and acquiring appropriate linguistic knowledge, particularly from context. Reading theories posted listening comprehension as a central ability in developing reading comprehension (Gough & Tunmer, 1986; Gough, Hoover & Peterson 1996; Hoover & Gough

1990). Due to the diglossic phenomenon, the child develops listening comprehension in spoken Arabic. This does not contribute directly to the development of reading comprehension in standard Arabic. Therefore, listening comprehension in standard Arabic should be developed independently along with reading acquisition, or even before reading acquisition. Advancing reading comprehension ability in standard Arabic and enriching vocabulary is supported by advancing listening comprehension for complicated texts.

Figure 1 presents the interactive model for reading acquisition according to "Arabic is our Language". In fact, this model is cognitive and educational.

**Figure 1.** A cognitive and educational model for "Arabic is our Language"



The program has two books for pupils and a teacher's guide. In the first book, there are five units that aim to prepare and refresh knowledge about the alphabetic principle. In the second book, there are another seven units. Each unit includes a preliminary discourse, reading text, listening comprehension text, alphabet board, activities, writing, rehearsal exercises and assessment exercises. In every unit, the child broadens his vocabulary by listening to the texts, all the exercises and the ongoing discourse. The child's knowledge is constructed gradually by moving from one unit to another. A following article will detail the learning program broadly.

Teachers have been trained to activate the current learning program through training of 30 hours, which was approved by the Ministry of Education. Their training continued throughout the school year and included introducing the cornerstones of the interactive model and the principles of the program.

## **The Study**

The current study was also based on Adams' Interactive Model. The following fields were assessed in the study: discourse, listening comprehension, phonology, syntax, morphology and vocabulary. These fields cover the four processors in the Interactive Model. The influence of the changes in these fields was investigated throughout the year among Arab first graders. The tools, which were used in the study, cover different aspects and were complementary to the investigated fields.

The present study was accompanied by an educational environment that integrates a built-in program for reading and writing acquisition called "Arabic is our Language" which was developed by the staff of the Arabic section at the Department of Languages Art at CET (Center for Educational Technology) (2010). Before 2010, the Arab schools had not worked in an interactive environment, and this is the innovation of the current study. Besides, there are hardly comprehensive studies in the field of reading and writing acquisition in Arabic.

Therefore, the study question was: Is the use of a learning program which is built on the basis of the Interactive Model, in addition to focusing on the different characteristics of Arabic as a complicated language, will develop and facilitate reading acquisition amongst the Arab first graders, including the group of pupils with linguistic risk?

## **Method**

### *Participants*

The study makes a follow up of the reading and writing acquisition process between two groups of Arab first graders. The first is the heterogeneous group (Called: HG), which included 181 children who came from a medium-high socio-economic background and represent the heterogeneity among the population of Arab first graders from the point of view of achievements: weak pupils, and strong pupils. The second is a group of 25 Children, which are defined as At-Linguistic Risk (Called: LR) because of the low socio-economic background.

### *Tools*

The tools that were used in this study covered the six fields that underwent intervention through the learning program "Arabic is our Language":

Discourse, listening comprehension, phonology, morphology, syntax and vocabulary. Additionally, in the end of the year, reading tests (pseudo words, real words and a text) and comprehension test (text retrieval and comprehension questions) were passed.

Some of the tests are known worldwide and for the scientific community, and some were built specifically for the study purposes and underwent a process of validity and reliability. Eight students were trained for passing the tests individually.

### *Procedure*

At the beginning of the year, a battery of tests was passed individually by the students, among the pupils who participated in the study. At the end of the year, the same battery of tests was passed again, In addition to reading tests and reading comprehension tests.

### *Analysis*

An overall scores (percent out of 100) were calculated for the six fields, one score for the beginning of the year and another for the end of it. In addition, overall scores were calculated for reading tests and for comprehension tests.

A t-test for independent groups was used to compare between the achievements of the two groups (HG and LR). A t-test for dependent groups was used to compare the achievements of each group at the beginning and the end of the year.

## **Results**

At the level of comparisons between the two groups, at the beginning of the year the results showed that the overall score of the six fields indicate on a clear difference between the groups ( $t(204) = 3.45, p < .01$ ), the achievements of HG ( $M = 63.20, SD = 11.33$ ) were better than LR ( $M = 54.90, SD = 10.81$ ). At the end of the year, there was a gap bridging between the two groups in the overall score, for that no statistically significant differences found. That is to say, that the two groups reached the same performing level in the tests that examined the mentioned fields.

At the level of comparisons within the two groups, the results indicated on statistically significant progress within HG in the overall score of the six fields ( $t(180) = 15.39, p < .01$ ). Namely, the performance of the pupils in this group was higher at the end of the year ( $M = 73.06, SD = 10.03$ ) in comparison with their performance at the beginning of the year ( $M = 63.20, SD = 11.33$ ) in the overall score.

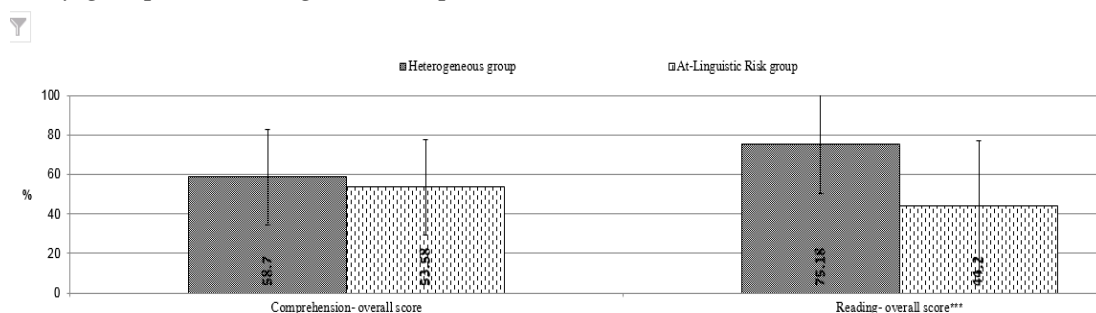
The LR group showed also a significant progress ( $t(24) = 6.47, p < .001$ ). At the end of the year, the pupils within this group show on a higher overall score ( $M = 69.17, SD = 9.56$ ) than the beginning of the year ( $M = 54.90, SD = 10.81$ ).

In spite of the progress that LR showed in the overall score and despite the fact of the gaps covering up with the HG, yet there are significant differences in their performances in reading tests ( $t(204)=5.61, p<.001$ ) this result showed on their inferiority in comparison to their counterparts in HG group.

In reading Comprehension test, which included retrieval of the text and comprehension questions, the results showed no statically significant differences between the two groups. Yet the performance of HG group ( $M=58.70, SD=24.25$ ) was higher than LR group ( $M=53.58, SD=24.03$ ).

Table 1 presents differences in performance of the study groups (HG and LR) in reading and comprehension tests.

**Figure 2.** Averages, standard deviations and differences in performance of the study groups in reading and comprehension tests



## Discussion

Arabic poses many challenges in front of its acquirers, because of the features of its orthography and the diglossic situation. In addition to this, learning to read is not simple; no brain structures are designated to this process. Also, environmental factors add to these complexities.

The current learning program help teachers and educators coping with the diglossic situation by taking in account the differences between the spoken and written systems of Arabic. At first, the program uses common features of the two system in order to facilitate the formal encounter with the written system at first grade.

The learning program takes into account the linguistic and orthographic features of written Arabic and their influence on reading and writing acquisition. In addition, the program works on fostering reading and listening comprehension for achieving mature reading and Learning features at first grade.

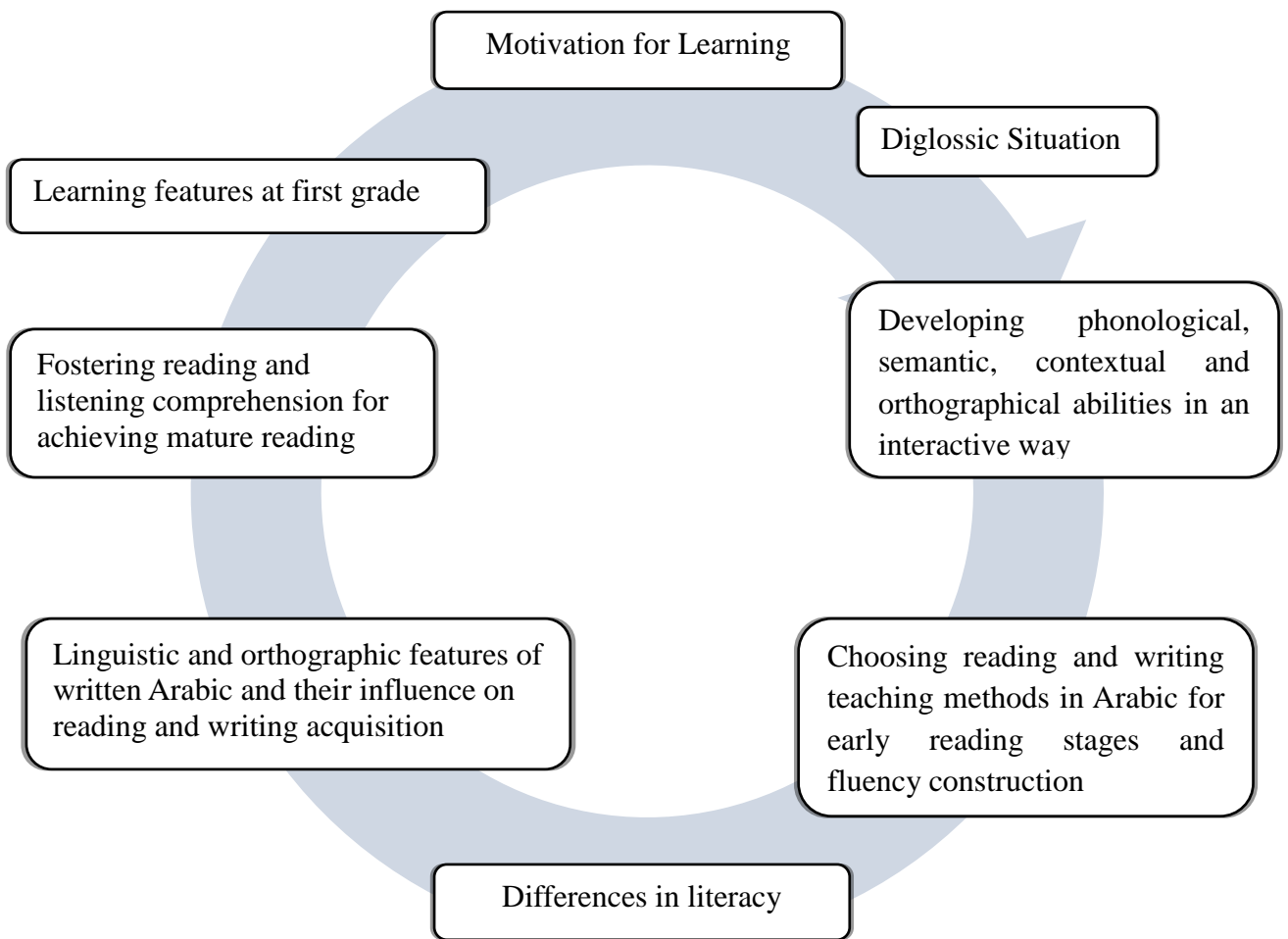
Every unit in the program includes multiple activities for developing phonological, semantic, contextual and orthographical abilities in parallel.

The first book of the program is designated for early reading stages and fluency construction, thus it includes teaching methods, which support this idea. This consideration is important especially when dealing with differences in literacy background.

It should be mentioned that the books are very friendly and colored. A character and special signs accompany the units to cope with the instructions and the activities within. The topics of the units are close to the children's world. Working in the program motivate children for learning in experiential way.

Figure 3 sums up the teachers and educators' challenges that the current learning program helps them coping with.

**Figure 3.** *Challenges of Teachers and Educators that "Arabic is our Language" helps cope with*



In the study, Arab first graders were followed up from the beginning of the year until its end. They learned in a learning program "Arabic is our Language" which are especially designed to cope with all the challenges of the Arabic as a language, considering the Interactive model of Adams (1991), updated studies in the field of reading and writing acquisition and the Language education curriculum for Arabs in Israel (2009).

The results of the study testify to the effectiveness of reading and writing teaching according to the Interactive Method for the two groups of study. This finding is added to another studies (see: Makhoul, 2006; Abu-Rabia, 1999; 2000a; 2000b; 2002; 2003; Olshtein & Makhoul, 2010; the curriculum, 2009). This method, which is embodied in the current learning program "Arabic is our Language", succeeded in advancing all the pupils in the different fields, and succeeded mainly in closing gaps between the two groups of the study: the Heterogeneous group and At-linguistic risk group.

Although bridging the gaps between the two groups, yet HG outperformed LR in reading tests. The findings showed that LR group was intensively working on bridging initially gaps with HG, yet their reading ability is lower than HG. One can think that they are on the right road but they need a more time to bridge the gap in reading. A follow up study to second grade may help us discovering this.

In comprehension tests, the results showed no significant gaps between the two groups. We can conclude that the pupils are occupied in developing their reading fluency and they had not sufficient available resources for dealing with comprehension.

The present study emphasizes the existing differences between the two groups, and paves the way for a different treatment of each group. This differential thinking becomes important when we attempt to develop teaching and learning materials for the two groups, to study them and diagnose them.

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