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Learning to Read in an "Estranged" Language: Arabic Diglossia, Child Literacy, and the Case for Mother Tongue-Based Education

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Abstract

Reading proficiency of Arab students is amongst the lowest globally. Research in applied linguistics confirms the pervasive impact of Arabic language diglossia—that is the linguistic distance between the language of education, Standard Arabic (StA), and the vernacular mother tongue, Spoken Arabic (SpA)—on the acquisition of various basic literacy skills. This multidisciplinary paper argues that the current approach to education in Arab countries is not working and proposes to refocus on Mother Tongue-Based education. In a novel analysis, the paper examines through the lens of diglossia StA vocabulary in various educational materials designed to teach initial literacy to young children, including the new kindergarten Arabic textbook by the Ministry of Education of Egypt. The analysis shows that more than half the vocabulary used to teach basic reading skills, such as phonics and decoding, is unfamiliar to children, i.e., distant from their spoken language variety. A commonly proposed solution to the unfamiliarity of preschool-aged children with the language of literacy instruction is to expand their oral exposure to StA, through read-aloud and screen time, such that it is not a new language when they enter school. Drawing on findings from the fields of Arabic linguistics, Early Childhood Education, Mother Tongue-Based education, and children's literature, this paper discusses problems with this approach and deems it unimplementable. Using new survey data, the paper confirms the poor culture of reading to children in StA. It further outlines research demonstrating the limited role of screen time in developing language. Recognizing that children enter school with limited to no knowledge of StA, the paper presents evidence-based arguments for why adopting Mother Tongue-Based education—where SpA is the language of literacy instruction during the initial years of schooling—is the better pedagogical approach to teaching literacy and should be a steppingstone to learning StA.

Keywords

Arabic Diglossia, Child Literacy, Reading Acquisition, Mother Tongue Education, Egyptian Arabic Textbook

1. Introduction

"Arab children are asked to surmount obstacles that no other children in the world are asked to do—namely, learn their subjects while lacking proficiency in the language in which those subjects are written."

(Haeri, 2009).

Arabic is a classic case of diglossia in which native speakers simultaneously use two varieties of the same language in different domains and for distinct purposes (Ferguson, 1959). The High (H) variety, or Standard Arabic (StA), is based on the language of the holy book, the Quran. It is the language of education, print, and many formal and religious speeches. The Low (L) variety, or Spoken Arabic (SpA), is the de-facto language used in oral communications. While the H variety is codified and relatively uniform across Arabic-speaking nations, the L variety is not standardized, and each locality has its own unique SpA or vernacular. The vernaculars differ enough that speakers of different vernaculars may not be able to understand each other.

Language diglossia is not an uncommon phenomenon; however, diglossia in the Arabic language exhibits a unique feature that lends itself to a nuanced classification: "frozen" diglossia (Myhill, 2014). This term captures the fact that no one uses the H variety, or StA, as an everyday spoken language. In this respect, it is no one's mother tongue at present times and is almost never used at home in the Arab world. The native dialect of SpA is acquired as the mother tongue.

The academic literature confirms the sizable linguistics distance between StA and SpA across the various language domains (Haeri, 2003; Maamouri, 1998; Saiegh-Haddad & Henkin, 2014; Saiegh-Haddad & Spolsky, 2014). Consequently, there is a mismatch between Arab children's mother tongue, SpA, and StA, the latter being the language in which they acquire literacy. Learning in an unfamiliar language impacts literacy acquisition and delays the learning of academic skills, including metalinguistic awareness and word-level reading, until the language of education is mastered (Saiegh-Haddad, 2003, 2017; Saiegh-Haddad & Schiff, 2016).

The current policies of teaching StA in the Arab region are not working. The region's Learning Poverty rates, as recently reported by the World Bank, are second only to those found in the Sub Sarahran Africa region. The poor reading performance of students in the region is confirmed across various reading assessments. This low scholastic performance is not confined to lower income countries and is prevalent despite the large investments in education made by Arab nations in the past decades (World Bank, 2020).

The approach commonly discussed for addressing the challenges of child literacy advocates for early exposure of children to StA (Abu-Rabia et al., 2022; Ayari, 1996; World Bank, 2021a). The idea is to familiarize young children with the H variety such that it is not a new language when they enter school. This paper critically discusses genuine challenges to such an approach and deems it unimplementable. If StA remains the language of instruction, educational policies will need to be designed with an awareness that Arab children are acquiring initial literacy in a second language variety, that is StA.

As an alternative approach, this study argues for Mother Tongue-Based (MTB) education, a policy in general ignored (or rejected) by Arab countries. In MTB education, the children's mother tongue is used as the initial language of literacy instruction, i.e., the language used in teaching, educational print materials, and it is the language that literacy is first acquired in. The benefits of teaching children in their mother tongue extend beyond facilitating early literacy acquisition and are found to positively impact achievement scores across various subjects, such as math and sciences (World Bank, 2021b). Additionally, research on cross-linguistic transfer demonstrates that literacy acquisition skills in a first language (L1) are transferable to learning a second language (L2). In the case of Arabic, a direct cross-language transfer of skills from literacy in the SpA to literacy in StA can be expected because of the shared writing system across the two varieties, in addition to having significantly overlapping phonology and lexicon (Cummins, 1979, 1981; Koda & Zehler, 2008; Kim & Piper, 2019; Saiegh-Haddad, 2022; Schiff & Saiegh-Haddad, 2018; Wawire & Kim, 2018).

This paper takes a multi-disciplinary approach toward examining the impact of Arabic-language diglossia on child literacy and draws on research from the fields of linguistics, Early Childhood Education, Mother Tongue-Based education, and children's literature. The study presents new survey data confirming the weak culture of reading in StA to young children and thus the diminished opportunity of exposing preschool-aged children to the language of literacy instruction. It is the first study to analyze through the lens of diglossia StA educational materials designed for teaching early literacy to children and assesses the familiarity of the vocabulary used to teach basic reading skills such as phonics and decoding. While acknowledging political considerations that commonly underlie Arabic-language education policies, this study's arguments and recommendations are guided by evidence-based pedagogical findings on child literacy acquisition.

The intended audience of this paper is policymakers, international development institutions, educational entities, and anyone concerned with children's literacy in Arabic. Given this target audience, the study does not assume a thorough prior knowledge of diglossia, the intricacies of the Arabic language, or the related academic literature. To facilitate the reading of this paper, a comprehensive overview of the latter is discussed.

Two qualifications are important to note to help read the Arabic script in this

paper. First, the SpA to which StA is compared is Egyptian SpA; a variety spoken by 100 million people who constitute about 25% of the Arab population. Like many nations, Egypt possesses multiple regional dialects. Fahmy (2011) notes that the two most divergent dialects are the northern (from Cairo northwards) and the southern (from Giza southwards); however, the Cairene dialect is the dominant and mainstream dialect of all Egyptians. As Fahmy states, "The spread of colloquial Cairene Arabic as the 'unofficial' national colloquial dialect…was a natural by-product of the overwhelming cultural production emanating from an ever-expanding and increasingly urban north" (p.10). This paper uses the Cairene Egyptian dialect as the reference SpA. The second qualification is modelled after Fahmy (2011) where StA and SpA text is transcribed in this paper according to a simplified system based on the International Journal of Middle East Studies (IJMES). However, the paper follows transliteration simplifications adopted by Fahmy. It employs (') for the hamza (ء) and (ʿ) for the 'ayn (ع). For the doubling sound of a letter, represented by the diacritic mark *shaddah*, the letter is doubled (e.g. دَبّوس/*dabbūs* for the word "pin"). For the letter *jim* (ج), the paper uses (g) instead of (j), the former being the Cairene pronunciation of this letter in both StA and SpA. Furthermore, two vowels particular to SpA pronunciation are introduced to the transliteration. The first is the vowel sound *ē*, such as in the SpA pronunciation of the word بيت/*bēt* for "house", whereas in StA it is said with a diphthong, *bayt*. The second is the vowel sound *ō*, such as in the SpA pronunciation of the word موت/*mōt* for "death", while in StA it is said with a diphthong, *mawt* (see Saiegh-Haddad & Henkin, 2014 for a wider discussion). Finally, the definite article, ال, is transliterated as *al-*. For simplification, this is used for both StA and SpA, and with both sun and moon letters.

This paper is composed of 10 sections:

- Section 2 introduces the phenomenon of language *diglossia* and explains how it pertains to Arabic.
- Section 3 demonstrates some examples of the distance between StA and SpA across various language domains.
- Section 4 outlines basic aspects of the Arabic writing system relevant to literacy.
- Section 5 summarizes various literacy indicators and reading assessment results, demonstrating the poor performance of Arab students irrespective of their country's income level. It further critically examines two studies commissioned to provide policy recommendations to remedy this situation.
- Section 6 presents a thorough literature review of research in applied linguistics that examines the impact of Arabic diglossia on the development of various literacy skills in children, such as phonological awareness, morphological awareness, phonological representations, word decoding, reading fluency, and letter naming.
- Sections 7 addresses common misconceptions regarding the level of familiarity of preschool-aged children with the language of education, StA, and challenges the commonly suggested approaches to familiarize young children

with StA.

- In a novel analysis, Section 8 examines through the lens of diglossia various educational materials used to teach children initial literacy skills. The books studied are published by four Arab publishers from 3 different countries: Egypt, Lebanon, and UAE, and include an analysis of the new kindergarten Arabic textbook by the Ministry of Education of Egypt. The objective is to assess the extent of children's familiarity with the StA vocabulary used to teach basic literacy skills, such as phonics and decoding.
- Acknowledging that children enter school lacking the adequate knowledge of StA that would enable a smooth path toward literacy acquisition, Section 9 highlights the theory, practice, and potential successes of Mother Tongue-Based education. It extends the discussion to show how adopting SpA as the language of literacy instruction in the initial years of schooling can serve as a bridge to learning StA. The section further argues for the role of SpA in children's literature to bolster the culture of reading to young children and to develop emergent literacy skills that serve in learning StA.
- Finally, Section 10 concludes and provides short-term implementable policy recommendations, in addition to suggestions for future research.

2. Diglossia in the Arabic Language

The classic definition of language diglossia, as introduced in Ferguson (1959), entails a functional differentiation between two varieties of the same language, used in different domains and for distinct purposes. Broadly speaking, they comprise a Low (L) language variety representing a colloquial or vernacular used in informal contexts; and a High (H) variety that represents the formal or literary standard used in official settings.

Arabic is a case of classic diglossia where Arabic native speakers simultaneously use two varieties of the language. The H variety is known as Modern Standard Arabic (MSA), Classical Arabic (CA), Literary Arabic, or *fusha*, and it is the official language in 22 Arab states. The H variety is used in education and is the de-facto language of print for newspapers, novels, poetry, and children's books. In this respect, it is standardized and codified, and it is the language that dominates literary and scholarly readings and writings. However, its oral use is confined to few formal interactions, such as some official functions, political speeches, religious sermons, and news broadcasting. While some academic literature distinguishes between CA, as the language of the Quran, and MSA, as a so-called modernized version of CA, this paper does not differentiate between them because the difference does not impact the discussion of children's education and early literacy. In this study, the H variety is referred to as Standard Arabic, StA hereafter.

In the Arab world, the L variety is the spoken vernacular or colloquial dialectal Arabic, referred to as Spoken Arabic, SpA hereafter. SpA is used in all oral communications: at home, at work, in the streets. It is also used in most TV talk

shows, movies, songs, soap operas, and it is often used in national political speeches of some Arab countries. SpA is the default language spoken by all segments of an Arab country's population regardless of demographic factors such as age, gender, and socio-economic class.

Despite the widely accepted use of SpA as a form of speech, it is generally stigmatized as a literary form. Traditionally, print media in the Arab world allows for minimal writings in SpA. Egypt has been an exception where writing for adults in SpA is becoming increasingly accepted. In the 60s and 70s, writing SpA was mostly confined to renowned folk poets such as Salah Jahin, Bayram Al-Tunisi, and Ahmed Fouad Negm, or to dialogues in a few novels such as by the writer Ihsan Abdel Quddous. However, in the past decade or more there has been a surge in SpA writings. Novels by young authors, written in SpA or a mix of SpA and StA, have become bestsellers with many adapted to TV series and movies. A few examples are أنا عايزة أتجوز (*I Want to Get Married*) by Ghada Abdel Aal, هيبتا (*Hepta*) by Mohamed Sadek, الفيل الأزرق (*The Blue Elephant*) by Ahmed Mourad. Interestingly, in 2019 the novel المولودة (*The Newborn*) by Nadia Kamel, fully written in the Egyptian SpA, won the prestigious Egyptian Sawiris Literature Award. Apart from the genre of adult fiction, other recent examples of adult books written in SpA are the bestselling self-help books by the psychologist Professor Mohamed Taha and religious books based in Islamic faith, titled قصص الأنبياء (*Stories of the Prophets*) and السيرة النبوية (*The Life of the Prophet*). In 2021, the iconic Egyptian jewelry designer Azza Fahmy chose to write her autobiography in Egyptian SpA, أحلام لا تنتهي. Most recently in 2022, the French classic "L'Étranger" by Albert Camus was translated to Egyptian SPA, الغريب. It is worthwhile to note that all these publications have been championed by different Egyptian private publishing houses. Additionally, the novel بالختم الكيني (*By the Kenyan Stamp*) by Shirin Hilal was published in SpA in 2022 by the government entity, the General Egyptian Book Organization (GEBO). Despite this surge in SpA writings, print media in the dialect remains a smaller segment of overall print and does not extend to children's literature.

While StA is largely uniform across the Arabic-speaking countries, SpA differs from country to country. The vernaculars of different Arab country can vary considerably, and speech can be challenging to comprehend across different nations (Bassiouney, 2020; Said, 2002). Versteegh (2001) categorizes SpA into five regional groups and concludes that "It is fair to say that the linguistic distance between the dialects is as large as that between Germanic languages and the Romanic languages, if not larger." Bassiouney (2020) demonstrates differences across SpA of five Arab nations and StA. She contrasts her findings with differences between German and Dutch, both being Germanic languages. Bassiouney notes, "The examples make one wonder about the differences between different languages and different varieties and whether terms like 'language' and 'variety' are political terms rather than linguistic ones." She further states, "Left to their own devices, linguists could claim each of the national varieties as a separate,

distinct language."

Some effort has been made to assess the extent of the difference between the various SpA vernaculars and StA. Kwaik et al. (2018) exploit different methods to measure the overlap among various dialects and find Palestinian SpA to be closest to StA. Abunasser (2015) compares Gulf, Levantine, Egyptian and Moroccan SpA and concludes that Gulf and Levantine Arabic seem to be the closest to StA. Harrat et al. (2015) compare five dialects, two from Algeria, Tunisian, Palestinian and Syrian SpA, with the StA variety and find Palestinian SpA to be the closest. Nonetheless, it is important to note that the spoken language in some regions of a few Arab countries is distinct from Arabic, such as Amazigh and Tamazight in some North African counties and Kurdish in Iraq (World Bank, 2020).

As noted, SpA does not have a standardized (or codified) writing system. A recent report addressing this issue, titled "*The State of the Arabic Language and its Future*", was published in 2020 (in Arabic) by The Ministry of Culture and Knowledge Development (MCKD) of the United Arab Emirates (UAE). The report was compiled by a large team of academics, researchers, and experts from various Arab universities. The report recognizes the role of SpA in adult print media and advocates for its standardization. The authors note a vision for a single Arabic language and propose developing a system for SpA writing and allowing it to enter the Arab linguistic system instead of its current state of disarray. This report is the first government initiative to call for the standardization and codification of spoken Arabic vernaculars.

Language diglossia is not an uncommon phenomenon; however, diglossia in the Arabic language does exhibit a unique feature. A nuanced definition that better represents Arabic diglossia is a term introduced in Myhill (2014): *frozen diglossia*. Frozen Diglossia is defined as a type of diglossia in which the H variety ceases to be orally used as an everyday language by anyone. Rather, the H variety is based upon texts written in the fairly distant past which are believed to be the "correct" version of the language. Consequently, StA is a non-native language for native speakers of SpA and is thus no one's mother tongue at present times. Maamouri's (1998) seminal paper notes, "All children painlessly and inevitably learn the local vernacular or colloquial dialect of Arabic … Fusha is nobody's mother tongue and is rarely or almost never used at home in the Arab world." As explained by Myhill, the "frozen" categorization stems from the sense that the written standard represents a preserved version of the language as it was spoken long ago.

The "frozen" form of diglossia is better understood when contrasted with the more common form, referred to in Myhill as *external diglossia*. Under the latter, the H variety is spoken as the mother tongue of people in a different country or community. An example of external diglossia is the Swiss diglossic context where Swiss-German is spoken as the L variety whereas the official H variety is the High Standard German which is the native spoken language in Germany. Another example is the L variety of French Creole spoken in Haiti versus the

formal H variety of Standard French, the latter being the mother tongue in France. Many other examples are from Nigeria (spoken Hausa, Igbo, and Yoruba versus the country's official English language), Peru (spoken Quechua versus the official Spanish language), India (spoken Tamil versus the official languages Hindi and English). In all these examples, while a diglossic situation exists in one country, the H variety is a mother tongue elsewhere.

Myhill argues that the greater linguistic distance between the H variety and the spoken L variety in frozen diglossia compared to external diglossia is likely to make the acquisition of the H variety, and of literacy, harder. The reason is that in the frozen diglossia setting, the H variety is based on artificial grammatical rules which prescriptive grammarians have devised. In contrast, the H variety in the external diglossia setting is based upon naturalistic everyday grammar.

Some like to debate the extent of the "frozen" feature of StA due to the acceptance of some modern vocabulary in some StA dictionaries. Nevertheless, as Haeri (2009) mentions, "There are no native speakers of Classical Arabic just as there are no native speakers of Latin, however, 'modernized' a version one would like to consider." The study further notes, "Arab children cannot observe or listen to those who speak their language of instruction as their mother tongue because they do not exist." There is certainly a sizeable portion of SpA vocabulary that has not been added in the formal StA dictionary. Moreover, the basic language structure of StA has not been allowed to change or freely evolve in line with changes happening in SpA.

3. Examples of the Linguistic Distance between Standard Arabic and Spoken Arabic

There is agreement among linguists that a significant disparity exists between both language codes and that it manifests itself across several linguistic domains: lexicon, phonology, syntax, and grammar (Eviatar & Ibrahim, 2014; Haeri, 2003; Maamouri, 1998; Myhill, 2014; Saiegh-Haddad & Spolsky, 2014; Saiegh-Haddad & Henkin, 2014). Studies suggest that StA and SpA have the status of two separate languages in the cognitive system of adults and that learning StA is more like learning a second language than like learning a formal register of one's native language (Eviatar & Ibrahim, 2014; Ibrahim & Bentin, 2000; Ibrahim & Aharon-Peretz, 2005; Ibrahim, 2009). In support of this view, Khamis-Dakwar & Froud (2007) show that the electrophysiological response to language variety switching between StA and SpA is similar to those found in bilingual switching. Comparing StA to the Egyptian SpA, Haeri (2003) demonstrates how the two varieties differ on fundamental syntactic grounds and notes that becoming proficient in StA requires several years of formal schooling.

A full review of the disparities between StA and SpA is beyond the scope of this paper, but it should be noted that there are fundamental differences in phonology, lexicon, morphology, and syntax, including: differences in consonants and vowels, the extent in overlap in vocabulary, differences in the application of

gender and number agreement, the loss of the case ending system (إعراب/ ʾiʿrāb) in SpA, differences in word order…etc (see Haeri, 2003; Maamouri, 1998; Saiegh-Haddad & Henkin, 2014 for a wider discussion). **Table 1** illustrates some of these divergences with examples from comparing StA to Egyptian SpA.

Table 1. Examples of the disparity between StA and Egyptian SpA.

	StA	Egyptian SpA	English
Inflection, Case Endings, Word Order & Verb Conjugation	أكَلَ الولدُ('akala al-waladu) الولدُ أكلَ(al-waladu 'akala)	الوَلَد أكَل(el-walad 'akal)	the boy ate (past tense)
	أكلَ الوَلَدان('akala al-waladān) الوَلَدان أكَلا(al-waladān 'akalā)	الوَلَدين أكَلوا(el-waladēn 'akalū)	the two boys (past)
	أكلَ الأولادُ('akala al-'awlādu) الأولادُ أكَلوا(al-'awlādu 'akalū)	الأولاد أكلوا(el-'awlad 'akalū)	the boys ate (past)
	أكلَت البِنتُ('akalat al-bintu) البِنتُ أكلَت (al-bintu 'akalat)	البِنت أكَلِت(el-bint 'akalit)	the girl ate (past)
	أكلَت البِنتان('akalat al-bintān) البِنتان أكَلتا(al-bintān 'akalatā)	البِنتين أكَلوا(el-bintēn 'akalū)	the two girls ate (past)
	أكلَت البَناتُ('akalat al-banātu) البناتُ أكَلن(al-banātu 'akaln)	البَنات أكلوا(el-banāt 'akalū)	the girls ate (past)
	كُلا(kulā) كُلوا (kulū) كُلْنَ(kulna)	كُلوا(kulū)	eat (imperative for a pair) eat (imp. for plural) eat (imp. plural female)
Adjectives/Noun Agreement	ولَدانُ طَويلان(waladānu ṭawīlān) بنتان طَويلتان(bintān ṭawīlatān) بناتٌ طَويلات(banāton ṭawīlāt)	ولدين طوال(waladēn ṭuwāl) بنتين طوال(bintēn ṭuwāl) بنات طوال/طويلة(banāt ṭuwāl/ṭawīla)	two tall boys two tall girls tall girls
Phonology	ذرة(dhura)/ثعلب(tha'lab) قرد(qird)/ظل(ẓill)	درة(dura)/تعلب(ta'lab) إرد('ird)/ضل(ḍill)	corn/fox monkey/shadow
Identical Words*	أسَد('asad)/باب(bāb)	أسَد('asad)/باب(bāb)	lion/door
Cognate Words*	أُرجوحة('urgūḥa)/سُلَّم(sullam)	مُرجيحة(murgēḥa)/سِلِّم(sillim)	swing/stairs
Unique Words*	أثاث('athath)/دَلو(dalū)	جَردَل(gardal)/عفش('afsh)	bucket/furniture
Personal Pronouns	أنتمْ('antum)/نحنُ(naḥnu)/هُن(hunna)	إنتو('intū)/إحنا('iḥnā)/هُمَّ(humma)	you(plural)/we/ they (female)
Relative Pronouns	الذي(al-ladhy)/التي(al-latty) اللذان(al-ladhān)/اللتان(al-latān) اللاتي(al-lāty)/اللذين(al-ladhīn)	اللي('illy)	that (singular & plural)
Negation Structure	لا يكتُبُ(la yaktubu) لَن يكتُبَ(lan yatuba) لم يكتُبْ(lam yaktub)	ما بيكتِبش(mā biyektibsh) مِش هيكتب(mish hayektib) ما كتَبش(ma katabsh)	he does not write he will not write he did not write
Question Words & Formations	ماذا يأكُلُ(madhā ya'kul) أين('yn)/كيف(kayf)	بياكُل إيه(biyakul'ēh) فين(fēn)/إزّاي('izzāy)	what is he eating? where/how

Source: the examples have been developed by the author.

* *identical words:* keep an identical lexico-phonological form; *cognate words*: keep partial overlapping phonological forms; *unique words:* have a unique lexico-phonological form in SpA completely different from StA.

Despite these differences, psychologically, there is the widespread notion amongst Arabs not to think of StA and SpA as different languages. Most are not aware of the phenomenon of language diglossia. Arabs consider themselves to be monolingual; speaking and writing *one* Arabic language—اللغة العربي/*al-lughah al-ʿrabiyyah*—(Bassiouney, 2020; Saiegh-Haddad & Henkin, 2014). For instance, the lack of awareness of diglossia and its impact is shown in the "*Arab Reading Index*" (Arab Reading Index, 2016) report commissioned by UNDP and Al-Makhtoum Foundation of the UAE. The report assesses adult reading practices in 22 Arab countries and seeks to identify the obstacles to reading. It also attempts to identify pre-requisites for improving the environment in which children are raised with a predisposition to love or hate reading. Nevertheless, the Arab Reading Index report does not once refer to Arabic diglossia as an existing phenomenon relevant to reading or affecting literacy acquisition.

It is only recent that an Arab government has acknowledged Arabic diglossia and the need to address it. The previously mentioned UAE 2020 report, "*The State of the Arabic Language, and its Future*", takes a pragmatic and pluralistic approach to what constitutes the Arabic language. It moves away from the singular view that Arabic is either StA only or SpA only and endorses a broader and more diverse vision of a continuum of the various levels of the language that needs to encompass all national varieties of SpA. In recognizing the wide Arab audience that interacts and relates with SpA, the report accepts that there is a suitable time, place, topic, and audience for each of the varieties. However, this progressive and inclusive discussion of accepting SpA as a legitimate medium of print is muted in the report's relevant chapters on children's literature and education policy. Most recently, in October 2021, an acknowledgement of the relevance of Arabic diglossia in child education was iterated by the Jordanian government through the Queen Rania Foundation's newly published report titled "*A Report on The Effect of Arabic Language Diglossia on Teaching and Learning*." (Queen Rania Foundation, 2021).

4. Basic Aspects of the Arabic Writing System Relevant to Literacy Instruction

The Arabic language has an alphabetic writing system comprising 28 consonant letters. Three of the letters also represent long vowels (ا/*ā*, و/*ū*, ي/*ī*). Additionally, Arabic orthography has a system of optional diacritics that are added above or below the letters known as تشكيل/*tashkīl* (particularly the فتحة/*fatḥah*, كسرة/*kasrah*, ضمّة/*ḍammah*, شدّة/*shaddah*, and سكون/*sukūn*). These diacritics have two different functions. The first is "*phonemic diacritics*" (Saiegh-Haddad & Henkin-Roitfarb, 2014) which act as short vowels that map phonemic short vowels and thus enable accurate identification of the written text. The second, "*morpho-syntactic diacritics*" (ibid), also known as إعراب/علامات *iʿrāb endings*, appear only at the end of a word to map grammatical forms or rules like modal ending for verbs and case endings for nouns. While *phonemic diacritics* can be necessary for lex-

ical access, word identification and understanding, *morpho-syntactic diacritics* are largely not required for word identification or comprehension (Saiegh-Haddad & Henkin-Roitfarb, 2014).

Arabic orthography is considered highly transparent (or shallow) when diacritics are included. This means that there is consistency between letters and the sounds they represent. In other words, there is a one-to-one mapping between the graphemes (written letters) and the phonemes (phonological representation). This feature of Arabic script contrasts with languages of opaque (or non-transparent) orthography such as English, where phoneme and letter correspondences are less regular (e.g. night, when, boat, laugh, are). However, Saiegh-Haddad & Henkin (2014) highlight that from a psycholinguistic point of view, StA orthography is not transparent because it does not map the language structure that native Arabic speakers are familiar with, i.e. SpA. Taking for example the word for "hat", it is orthographically transparent in StA and may be thus easily read (قُبعة/*qubbaʿah*) however the familiar SpA word is (بُرنيطة/*bornēṭah*). In turn, diglossia or linguistic distance was further presented as a dimension of orthographic depth in Share & Daniels (2016) and Daniels & Share (2018).

Another characteristic of Arabic is that it is a homographic language. Many words are similarly written but are pronounced differently and carry different meanings. This is a challenge that presents itself when diacritic marks are omitted. When Arabic is written without the short vowel marks, the orthography becomes less transparent, and readers rely on experience and contextual cues to be able to read accurately. For example, the Arabic words for "leg" and "man" are written with the same letters; however, they are pronounced differently owing to diacritical marks (رِجل/*rigl* versus رَجُل/*ragul*). As described in Ayari (1996), "Arabic requires the reader to scan the whole sentence, go through more grammar decoding, and utilize guessing strategies before arriving at the correct semantic interpretation of words. In other words, reading in Arabic involves, among other things, the reader's alertness to the thematic role of words that have the same graphemic representation in order to resolve the great number of alternative interpretations."

While diacritics have a critical role in supporting reading accuracy and deciphering homographs, they are commonly omitted from most adult written material. This reduces the visual or perceptual overload attributed to diacritical marks. Extensive diacritics are an impediment for skilled readers because they can slow down reading speed, ultimately impacting comprehension. Conversely, beginner readers and children learn to read Arabic with vowelized text. In general, the transparency of the writing system is found to be a facilitator in word decoding and learning to read. This relationship was also confirmed for Arabic (Abu-Leil et al., 2014; Abu-Rabia, 2019; Eviatar & Ibrahim, 2014; Ibrahim, 2013a, 2013b; Saiegh-Haddad & Schiff, 2016; Saiegh-Haddad & Henkin, 2014; Taha, 2016).

Aside from the level of transparency of Arabic orthography, the writing sys-

tem possesses other unique features that can make it challenging in the early stages of letter identification and reading. First, the *similarity between letters* where many share the same basic form but differ by the number of dots and their placement above, below or within the letter, such as (ب/*b*, ت/*t*, ث/*th*, ن/*n*, and ي/*y*) or (ج/*g*, ح/*ḥ*, and خ/*kh*). Second, the *presence of emphatic sounds* where some letters share a phonological similarity with another phoneme in Arabic but are represented by two different graphemes/letters, such as س/*s*, د/*d*, and ت/*t* versus ص/*ṣ*, ض/*ḍ*, and ط/*ṭ*, respectively. Empathetic sounds can be particularly challenging because many of these sounds that persist in StA have been dropped from SpA. An example is the word for "glue" which is pronounced سَمغ/*samgh* in Egyptian SpA compared to its more emphatic pronunciation in StA, صَمغ/*ṣamgh*. Third, some *letter sounds have been dropped from SpA speech*, particularly the dental fricatives ث/*th*, ذ/*dh*, and ظ/ẓ and the uvular plosive ق/*q*. For example, words for "snake" "corn" "shadow" and "monkey" in StA are ثعبان/*thu'bān*, ذرة/*dhurah*, ظل/*ẓill*, and قرد/*qird*, whereas in SpA they are pronounced تعبان/*ti'bān*, درة/*dura* ضل/*ḍill*, *and* ارد/*'ird*. Finally, *letter connectivity*, where the basic shape of letters change depending on their placement in a word. Many letters have four shapes depending on where they come in a word; in the beginning, middle, end of a word, or if not connected. For example, the letter ت/*t* has four forms: *starting-position form* تـ, *middle-position form* ـتـ, *final-position form* ـت, *and stand-alone form* ت (Asaad & Eviatar, 2013; Eviatar & Ibrahim, 2014; Khateb et al., 2013; Saiegh-Haddad & Henkin, 2014; Taha & Khateb, 2013).

5. The State of Literacy of Arab Children

To put the challenges of teaching Arabic into perspective, this section shares literacy assessment results for several Arab countries. The discussion does not claim a causal relationship between Arabic diglossia and weak literacy. However, the findings shed light on the challenge facing Arab children in performing tasks as basic as reading in their "native" language, which is a cornerstone to learning.

5.1. Reading Assessments: The Learning Poverty Indicator

The Learning Poverty (LP) indicator is a measure that draws on data developed in 2019 by the World Bank in coordination with the UNESCO Institute for Statistics (World Bank & UNESCO, 2019). The measure introduces the concept of Learning Poverty, defined as *being unable to read and understand a simple text by age* 10, that being the age at which all children should be able to read. Based on the LP indicator, a computed Below Minimum Proficiency (BMP) indicator measures the share of school children below minimum reading proficiency.

Table 2 compares the BMP indicator across a sample of countries with different income levels. A BMP figure of 34% for Qatar means that 34% of pupils are below the minimum proficiency level in reading at the end of primary

school. Group (1) countries are the wealthy Arab economies. The BMP figures range from a high of 49% for Kuwait to a low of 31% for Bahrain. The group average of 36.6% implies that 36.6% of students in these countries do not achieve the minimum level of reading proficiency at the end of primary grades. These figures are alarming when compared to countries with similarly high-income levels, reported in Group (2). The latter group of countries demonstrates significantly lower levels of BMP, averaging only 2.7%. Strikingly, high-income Arab states perform significantly worse than poorer countries reported in Group (4), such as Malaysia, Turkey, and Bulgaria. In fact, the rich Arab countries in Group (1) are performing at the level of countries such as Iran and Indonesia, with income levels 75% lower. Group (3) shows lower-income Arab states with an average BMP as high as 59%. Egypt marks the highest percentage of struggling students with 69% of fourth graders not achieving the minimum level of reading proficiency.

Table 2. Cross-Country Learning Poverty indicator.

Country	BMP Indicator	BMP year	GDP Per Capita (in PPP terms)	Country	BMP Indicator	BMP year	GDP Per Capita (in PPP terms)
Group 1 - Arab High-Income Economies				**Group 2 - Comparable High-Income Economies**			
Qatar	34%	2016	$93,771	Ireland	2%	2016	$89,551
UAE	32%	2016	$71,151	USA	4%	2016	$65,280
Kuwait	49%	2016	$51,962	Netherlands	1%	2016	$59,675
Saudi Arabia	37%	2016	$48,948	Germany	5%	2016	$56,285
Bahrain	31%	2016	$47,228	Sweden	2%	2016	$55,338
				United Kingdom	3%	2016	$49,334
				Italy	2%	2016	$44,951
AVERAGE	**36.6%**			**AVERAGE**	**2.7%**		
Group 3 - Other Arab Economies				**Group 4 - Other Economies**			
Oman	41%	2016	$28,541	Korea, Rep	0%	2015	$42,849
Egypt	69%	2016	$12,261	Portugal	3%	2016	$36,945
Algeria	67%	2007	$12,009	Poland	2%	2016	$34,233
Tunisia	65%	2011	$11,900	Hungary	3%	2016	$33,962
Jordan	50%	2015	$10,497	Malaysia	12%	2017	$29,623
Morocco	64%	2016	$7856	Turkey	18%	2015	$27,303
				Bulgaria	5%	2016	$24,707
AVERAGE	**59%**			Iran	35%	2016	$12,913
				Indonesia	34%	2011	$12,312

Source: GDP per capita: is Gross Domestic Product expressed in current US$ (2019) converted by purchasing power parity (PPP) - from World Development Indicators. The BMP Indicator are reported in the World Bank Country Learning Poverty Briefs.

5.2. Reading Assessments: PISA

Reading literacy is the main subject assessed by The Program of International Student Assessment (PISA) administered by the Organization of Economic Co-operation and Development (OECD). PISA defines reading literacy as understanding, using, evaluating, reflecting on, and engaging with text. The PISA (OECD, 2018) assessment was taken by 15-year-old students (approximately Grade 8) from 77 countries. Six Arab counties participated in the test, namely: UAE, Jordan, Qatar, Saudi Arabia, Morocco, and Lebanon.

Table 3 displays the students' performance in a select sample of the countries that took the test. As demonstrated, all the Arab countries score below the OECD average score of 487. This confirms previous findings, where high-income Arab countries fail to match the performance of countries with comparable income levels in Group (2), as have been identified in the previous section. Moreover, Arab countries perform much worse than the non-Arab lower-income economics in Group (4).

Table 3. PISA reading results.

Country	Mean Reading Score	Ranking
Ireland	518	8
Korea	514	9
Poland	512	10
Sweden	506	11
USA	505	13
UK	504	14
Germany	498	20
Portugal	492	24
Netherlands	485	26
Italy	476	32
Hungary	476	33
Malta	448	44
Turkey	466	40
UAE*	432	46
Bulgaria	420	54
Jordan	419	55
Malaysia	415	56
Qatar*	407	60
Saudi Arabic*	399	65
Morocco	359	73
Lebanon	353	74

Source: PISA (OECD, 2018) Report. Group (1) countries are marked with *.

5.3. Reading Assessments: PIRLS

The Progress in International Reading Literacy Study (PIRLS) is another international reading assessment led by Boston College's Lynch School of Education. The test evaluates the reading achievement of young students in fourth grade. Eight of the 50 countries that took the PIRLS (2016) assessment were Arab nations. **Table 4** shows students' performance in a sample of the countries that took the test. All Arab states rank at the absolute bottom. Again, the results show a sizable difference between reading performance in rich Arab countries (Group 1) compared to countries with comparable income levels (Group 2).

The weak performance of students from wealthy Arab states is in line with the argument made in Myhill (2014) against the claim of attributing low literacy rates in Arabic-speaking countries to their relative poverty. Using literacy data, Myhill ranks GDP per capita in 16 Arab countries and shows that every Arab state has lower literacy rates than would be expected given its per capita income level. Myhill notes that this situation cannot be due to exceptionally low funding for primary education as the figures show an above-average spending rate. The author argues that the enormous literacy problem in Arabic-speaking countries is likely due to the radical difference between the spoken vernacular, SpA, and the official written language taught in schools and used for all academic materials, StA.

Table 4. PIRLS reading achievement.

Country	Average Scale Score	Ranking
Ireland	567	4
Poland	565	6
England	559	10
Sweden	555	12
Hungary	554	13
Bulgaria	552	14
USA	549	15
Italy	548	17
Netherlands	545	20
Germany	537	26
Portugal	528	30
Malta	452	40
UAE*	450	41
Bahrain*	446	42
Qatar*	442	43
Saudi Arabia*	430	44
Iran	428	45
Oman	418	46
Kuwait*	393	47
Morocco	358	48
Egypt	330	49

Source: PIRLS (2016) Report. Group (1) countries are marked with *.

Considering these low reading levels, it is no surprise that Arab students equally perform low in math and science in the PISA 2018 and the TIMSS 2015 assessments. The negative impact of not being able to read does not only affect proficiency in the subject of Arabic but affects all subjects taught in the language. There is compelling evidence on a robust, near-perfect correlation between student proficiency in reading and their achievements in other subjects (Cromley, 2009; Dempster & Reddy, 2007; Mullis & Martin, 2013; O'Reilly & McNamara, 2007; Reed et al., 2016; World Bank, 2021a, 2021b; World Bank, 2020).

5.4. Reading Assessments: USAID-EGRA for Egypt 2013 and Jordan 2012

This section takes a deeper look at literacy skills in Grades 3 in Egypt, based on findings from the USAID's Early Grade Reading Assessment (USAID & RTI, 2013). Data on Jordan is presented for comparison purposes (USAID & RTI, 2012). Egypt's EGRA for Grade 3 was implemented in March 2013 on a nationally representative sample of 200 schools from five subnational regions, totaling to a sample of 1992 students. Third grade is a critical age to assess reading skills, being the age when children are expected to start mastering reading and graduate from learning-to-read to reading-to-learn.

The USAID's EGRA instrument measures basic skills that a child must have to eventually be able to read fluently and with comprehension. It comprises a variety of subtasks designed to assess foundational reading skills, namely: letter-sound identification, non-word reading, oral reading fluency, reading comprehension, and listening comprehension. All components of the EGRA were conducted in StA; the assessor used SpA only to give verbal instructions to explain to children each subtask.

Table 5 summarizes the results of the assessment. The benchmarks displayed in the table were proposed by the Ministry of Education of Egypt to best guide future policy and decision-making. The findings show that most Grade3 students had limited pre-reading skills. Results from the basic task of *Letter Sound Identification* demonstrate that 18.3% of children could not identify *any* of the sounds of the letters of the alphabet, and only 30.3% could identify 27 (the benchmark) of the 28 Arabic alphabet letters. On the *Non-Word Reading* task, 27.4% of students fail to read a single word correctly. With regards to *Oral Reading Fluency*, 21.6% of Grade 3 children could not correctly read a single word from the passage, and only 15.5% performed above the set benchmark of reading 45 correct words per minute (cwpm). To compare the latter benchmark with reading in English, Hasbrouck and Tindal (2017) report an Oral Reading Fluency norm of 83-112 cwpm for the 50% percentile of students in Grade 3, the level being dependent on the time of academic year.

Students' limited mastery of foundational reading skills, such as letter sounds, contributes to very low scores in *Non-Word Reading* and *Oral Reading Fluency*. As one would expect, students Reading Comprehension scores were extremely low, with 35.4% of students not able to answer a single comprehension question

correctly. Only 8.7% of students met the benchmark of correctly answering five of the six questions. The relationship between students' foundation reading skills and reading fluency indicates that their knowledge of letter sound and decoding skills needs to be significantly strengthened to improve their oral reading fluency and comprehension. Boyle and Salah (2018) note that EGRAs administered in Iraq, Jordan, Morocco, and Yemen also show that children in those countries are not learning to read well enough to learn across the curriculum.

Table 5. Summary of USAID-EGRA average scores for Grade 3.

	Egypt (2013)				Jordan (2012)	
	% of Students with zero Scores	Grade 3 Average Score	Proposed Benchmark	% of students performing at or above benchmark	% of Students with zero Scores	Grade 3 Average Score
Letter Sounds Identification (clpm)	18.3%	18.8	27	30.3%	24.1%	26.3
Nonword reading (cnonwpm)	27.4%	5.9	14	10.9%	47.1%	7.0
Oral Reading Fluency (cwpm)	21.6%	21.9	45	15.5%	20.2%	23.7
Reading Comprehension (max.6)	35.4%	1.9	5	8.7%	24.4%	2.9
Listening Comprehension (max. 7)	13.3%	3.2	6	18.3%	11.8%	2.9

Source: USAID - EGRA reports for Egypt (2013) and Jordan (2012).clpm: correct letter sounds per minute; cnonwpm: correct sounding-out of non-words per minute; cwpm: correct words per minute.

5.5. Research Examining the Reading Assessment Results.

As a follow-up to the low assessment scores reported for Arabic-speaking countries, two studies were commissioned to examine ways to improve this reading situation: Boyle & Salah (2018) and Abadzi (2017).

Boyle and Salah (2018) undertook an in-depth review of the 2011 Grade 2 Arabic textbook published by the Ministry of Education (MoE) of Egypt. The review of the textbook was conducted along five components: phonemic awareness, letter sounds (phonics), vocabulary, comprehension, and textbook characteristics. While acknowledging that "factors specific to the Arabic language, such as diglossia and vocalization, must be considered in any discussion of the teaching and learning of reading," the authors' analysis and recommendations are silent on the relevance and implication of language diglossia on the textbook content. For example, the paper highlights challenges to reading related to textbook vocabulary that reflects abstract concepts (such as words related to "failure" "alone" "responsibility") or vocabulary borrowed from foreign languages (e.g. تِلِيفون *tilīfōn* for "telephone," صالون *sālōn* for "salon," and بِلاستِك *bilastik* for "plastic"). However, the study overlooks the relevance of language familiarity and oral language comprehension as necessary prerequisites to learning to read. In this regard, the paper does not assess nor quantify words in the textbook that are "foreign" to children due to the diglossic situation. To illustrate an example of such vocabulary; a child faced with illustrations of common words such as

"ear" "mouth" and "nose" would identify them in Egyptian SpA as ودِن/*widn*, بُوز/*bu'*, and مناخير/*manakhīr* respectively, which are completely different from their StA synonyms that would be presented in the textbook as أُذن/*'dhun*, فَم/*fam*, and أنف/*'anf*. While Boyle & Salah mention the importance of early oral exposure of children to StA given its unfamiliarity, there is no discussion on how implementable such a recommendation is considering the limited exposure of children to StA in their daily lives. Additionally, the paper makes no references to the ample research on Mother Tongue-Based education, which highlights the importance of employing the child's mother tongue during the early stages of teaching literacy and using it as a bridge to teach a second language, be it a standard variety or a foreign language.

The second study, by Abadzi (2017), is a policy paper commissioned by Al Qasimi Foundation for Research Policy of the UAE. The paper notes that all Arab states participating in PISA, PIRLS, and TIMSS assessment "are at the bottom of the worldwide distributions in reading, math, and science, with fourth grade students showing particularly low achievement. Low performance is particularly pronounced in Arabic-language assessment results." The paper acknowledges aspects related to diglossia as being among the key challenges in Arabic-language instruction, such as: learning to read through StA, learning vocabulary and expression that differ from various vernaculars, and learning several sounds that are not used in the vernaculars. The author rightly mentions that "adults who already understand the etymological relationship between standard and spoken Arabic may find the transition easy and assume that students will 'pick up' the forms, but young children have little experience with dialectical variations and may perceive StA as an entirely different language. Years may pass before students become proficient." The wider impact of Arabic diglossia, beyond reading proficiency, is also stated in the paper: "Inability or delay in understanding texts written in StA inhibits the acquisition of knowledge from texts. Thus, deficient Arabic comprehension may affect performance in other subjects."

Abadzi (2017) suggests reforms focused on reading fluency and language command in early grades, particularly in Grade 1. The policy paper recommendations entail daily intensive individual reading practice in class; explicit oral instruction in StA; teaching grammar in early grades; in addition to repurposing subjects via focusing on the teaching of StA in Grade 1 and moving some subjects like technology, science, and social studies to Grade 2 or even above. Similar to Boyle and Salah (2018), there is no mention of leveraging the Arab child's mother tongue, SpA, during the initial years of literacy instruction. The paper's understating of the extent to which diglossia impacts orthographic transparency and literacy acquisition shows in the claim: "It should be possible for a child at the end of Grade 1 to read vowelized text as fluently as a child in another country with transparent orthography."

To sum up, this section outlined the poor reading levels of Arab students

across various literacy indicators and reading assessments. This weak performance is irrespective of the country's income level. Both studies commissioned to provide policy recommendations to remedy this situation understate the impact of Arabic diglossia. They have also ignored the literature on Mother Tongue-Based education and the potential role of teaching literacy in SpA as a steppingstone to learning StA.

6. Empirical Evidence on the Impact of Arabic Diglossia on Child Literacy

Numerous studies in applied linguistics argue that the widespread low reading performance in Arabic-speaking countries is partially attributed to diglossia or the fact that children learn to read in a language in which they are not fluent—a language that is in fact unfamiliar to them. The linguistic distance between SpA and StA impacts the development of a wide range of language and reading-related skills and tasks, including phonological processing in memory and phonological awareness (a skill developed in spoken language that encompasses the ability to recognize and work with sounds), morphological awareness (the understanding of how words can be broken down into smaller units of meaning such as roots, prefixes, and suffixes), word reading accuracy, and reading fluency.

A growing body of research shows a relationship between reading acquisition and oral language. For instance, the Simple View of Reading Model emphasizes the role of oral and aural linguistic comprehension skills on the development of reading in a child's first language. The model assumes that children have acquired sufficient knowledge of their language before embarking on learning to read in it. This assumption does not apply to Arabic diglossia (Saiegh-Haddad, 2003). In Arabic, children communicate and express themselves in SpA but are taught to read in StA. Accordingly, at the start of learning to read they are asked to simultaneously acquire an unfamiliar linguistic auditory system in addition to an orthographic-visual system. In other words, Arabic-speaking children grow up hearing and speaking SpA, and thus acquire oral and aural comprehension skills in a language variety structurally distinct from the language of education. (Abu-Rabia et al., 2022; Khateb et al., 2013; Saiegh-Haddad, 2003, 2004; Saiegh-Haddad & Spolsky, 2014; Saiegh-Haddad & Haj, 2018; Saiegh-Haddad et al., 2020; Saiegh-Haddad, 2022).

This section highlights key findings from various empirical studies that investigate the impact of the pervasive linguistic distance between SpA and StA on various literacy skills. The dialect examined in this literature is the Palestinian SpA as all studies were conducted with Palestinian children. Nevertheless, the results can be extended to apply to other Arabic vernaculars.

Eviatar and Ibrahim (2000) explore *the effects of the relationship between children's exposure to two languages* (*bilingualism*) *and metalinguistic abilities*. The study examines two groups of bilingual children from kindergarten and first

grade. The first group is Arab children who have been exposed to both language varieties, StA and SpA. The second group is Jewish children exposed to the two languages of Russian and Hebrew. The study compares both these groups to monolingual children who only knew and spoke Hebrew. The paper tests the children's metalinguistic skills through language arbitrariness tasks (such as word substitution), phonological awareness tasks (such as identifying first and last sounds of words and manipulating syllables), and size of vocabulary (where children are presented with different words and asked to explain them). The results show that the Arab children's performance with regards to StA and SpA mimics those of the Russian-Hebrew bilinguals, implying that exposure to literary Arabic (StA) may require the same intensive language analysis as done for children who are exposed to two distinct languages. Consequently, this suggests that children entering school process StA more like learning a second language than learning a formal register of one's native language. Follow-up studies using repetition priming experiments on 11th and 12th-grade students find that despite the commonly assumed degree of similarity between StA and SpA, the two varieties have the status of two separate languages in the cognitive system of Arabic speakers (Ibrahim & Peretz, 2005; Ibrahim, 2009).

At the lexical level (vocabulary & meaning), Saiegh-Haddad and Spolsky (2014) quantify the extent of the linguistic distance between StA and SpA from a child's perspective. The authors analyze a corpus of 4500 word-types derived from a pool of 17,500 word-tokens collected from 5-year-old native speakers of the Palestinian SpA. Words collected were classified into three groups:

- **identical words** that keep an identical lexico-phonological form in the Palestinian SpA and StA (e.g. باب/*bāb* for "door");
- **cognate words** which keep partially overlapping phonological forms;
- **unique words** that have a unique lexico-phonological form in SpA completely different from StA (e.g. أريكة/*ʾarīkah* versus كَنَبَة/*kanaba* for "sofa").

Regarding cognate words, the phonological distance is exhibited across different parameters, such as consonant substitution (e.g.ثّلج/*thalg* versus تّلج/*talg* for "ice"), glottal stop deletion (e.g. سماء/*samāʾ* versus سما/*sama* for "sky"), vowel change (e.g. ضِفدع/*ḍifda*' versus ضُفدع/*ḍufda*' for "frog"), and vowel insertion (e.g. رَجُل/*ragul* versus راجِل/*rāgil* for "man"). The study shows that only 21.2% of the words in the child's spoken lexicon are identical, whereas the remaining words were approximately evenly divided between cognate words and unique words. Considering the established evidence of the importance of oral language skills as a prerequisite to reading development, the finding of almost 78.8% difference between a 5-year-old's spoken language and that of education has serious implications on literacy acquisition in StA. Saiegh-Haddad and Haj (2018) tested the quality of the phonological representations of the three classes of words in the lexicons of children. The results show that the quality of the phonological representation of these words, for kindergarten children, first-grade, second grade, and even sixth grade children, varied with the degree of phonological distance

between the StA word and its SpA equivalent even though all of the words targeted were within the receptive vocabulary of children. The paper notes that identical words were shown to be the most accurately represented, followed by cognates and then by unique words. Moreover, only cognates distant by one single vowel were shown to have a phonological representation similar to identical words. An example of such cognate is عُصفورة/ *ʿusfūrah* in StA versus عَصفورة/ *ʿasfūrah* in SpA for "bird."

While the study quantifies the linguistic distance between StA and Palestinian SpA, the extent of this linguistic disparity will vary across the vernaculars of the different Arabic-speaking countries. Nonetheless, no spoken vernacular shares the exact set of linguistic units and structure with StA (Bassiouney, 2020; Haeri, 2003; Saiegh-Haddad, 2022). Until more studies are undertaken to quantify the lexical distance between StA and the different Arabic vernaculars, Saiegh-Haddad and Spolsky (2014) will need to be considered an acceptable representation for the magnitude of the difference. This is a reasonable approximation in light of the research discussed in Section 2 on the disparities between the various SpA vernaculars and StA suggesting that Palestinian SpA could be one of the closer dialects to StA.

Research shows that phonological awareness/sensitivity are predictors of word decoding and reading achievement. This equally applies to Arabic, as shown in the studies discussed below. However, this research also shows that the ability to operate on the phonological structure of words and to decode words and read in StA is negatively affected by the linguistic distance between StA and SpA.

Saiegh-Haddad (2003) examined *phonemic awareness of kindergarten and first-grade children, in addition to the decoding ability of first-grade students*. The study tests for two types of phonological structures: phonemes and syllabic structures. Results show that the status of the phoneme and syllabic structure, being StA or SpA, impacts children's phonological awareness ability. Children in both grade levels had more difficulty isolating sounds unique to StA, compared to SpA phonemic and syllabic structures (even when articulation ability was matched). Regarding word-decoding performance, first graders decoding ability was affected by the status of phonological structure, being StA or SpA. They could accurately decode phonemes, and syllabic structures that exist in (or are common to) SpA structures while making significant errors decoding phonological structures that are not within their spoken language, i.e. unique to StA.

Saiegh-Haddad (2004) tested the *effect of the lexical distance between StA and SpA on children's ability to access StA versus SpA phonemes*. The study employs three sets of words: SpA words (represented by words common in both varieties, previously denoted as identical words), StA words (represented by cognate and unique words), in addition to pseudowords (which are a string of letters that resemble real words but are fake words that do not exist in the language). The study confirmed earlier findings that StA phonemes were more difficult for children to access and isolate than SpA phonemes. There was no effect of lexical status on children's performance when SpA phonemes were targeted. However,

when StA specific phonemes were targeted, children performed worse on pseudowords.

Saiegh-Haddad and Schiff (2016) studied *the impact of the phonological distance on word reading accuracy and fluency*. In an experiment conducted on public school students across five grades (second, fourth, sixth, eighth, and tenth grade), the authors found that both word reading accuracy and fluency in Arabic were higher for SpA words (represented by identical words) than StA words. The advantage of reading SpA words over StA words persisted across grades, showing that the effect of the linguistic distance between the form of words in StA versus that of the SpA lexicon lasts years. The advantage of reading SpA words compared to StA words was also confirmed across both vowelled and unvowelled words, suggesting that despite StA being orthographically transparent, students can more easily recognize SpA words (words they are already familiar with) than they can StA words (words foreign to them). Based on the study's findings suggesting that reading develops earlier and more effectively in SpA, the authors note that initial reading instruction should start in SpA.

In a follow-up study, and using the same student sample, Schiff and Saiegh-Haddad (2018) extended their investigation to explore the *effect of the linguistic distance between StA and SpA on skills of phonological and morphological aware*ness; the latter being the ability to explicitly think about the smallest units of meaning in language, known as *morphemes*. Phonological and morphological awareness tasks were developed across two sets of structures. The results show better performance on SpA structures across the youngest grades. Students in the second and fourth grades performed significantly better on phonological awareness SpA tasks. This SpA advantage extended to sixth-grade students for morphological awareness tasks. Additionally, the study tests *the contribution of phonological and morphological awareness in StA and SpA on word-reading accuracy and fluency*. The results showed that students reading fluency and accuracy were higher in SpA. Notably, the study finds that phonological and morphological awareness in SpA contributed to reading fluency in StA. This finding is in line with the established literature on cross-linguistic transfer and linguistic interdependence, namely the role of metalinguistic awareness in the first language, L1 (here SpA), as a predictor of reading in a second language, L2 (StA).

In a third related paper, Saiegh-Haddad, Kassem and Schiff (2020) tested *the impact of phonological distance between both varieties on both syllable and phoneme awareness across low versus mid-high socio-economic status* (*SES*) *children*. The results demonstrate significantly higher phonological awareness for SpA words than StA words. The study findings extend earlier results by showing that the phonological distance between both varieties: 1) affects syllable awareness and not just phonemic awareness; 2) has a long-lasting impact on kids across older grades; and 3) affects children from low SES as well as mid-high SES. The study shows that low SES children are more sensitive to the phonological distance effect than mid-high SES children. The authors note that their

finding is in accordance with the international evidence demonstrating low levels of phonological awareness in children from low SES. This is not surprising given that children from low SES families are likely to be linguistically disadvantaged and with poor emergent literacy skills. The family's SES effect is expected to be exaggerated in the case of Arabic diglossia, where a significant linguistic distance exists between the language of literacy and the language at home, and where many parents in this group might be illiterate or not competent in StA.

Saiegh-Haddad and Haj (2018) tested *the influence of phonological distance on the quality of phonological representation in the lexicons of children or in their long-term memory storage of words*. Phonological representations critically impact word reading development and related academic skills such as phonological processing, word retrieval, word learning, word decoding, and reading comprehension. Examining four age groups—kindergarten, first grade, second grade, and sixth grade—the study confirms the negative impact of the phonological distance between StA and SpA on young children's ability to establish and develop an accurate phonological representation of StA words. Kindergarten children were not able to judge if the pronunciation of picture supported StA words was accurate or not even though all words were within their receptive vocabulary. This effect extends to first and second graders and even shows up in sixth graders. The results confirm that the more distant the phonological form of an StA word is from its SpA equivalent, the less likely children are able to judge the accuracy of their pronunciation, and the less likely they can encode an accurate phonological representation. Children had the highest accuracy scores and level of phonological representation in identical word types compared to the poorest performance in unique words.

Asaad and Eviatar (2013) studied *the impact of the phonological distance between StA and SpA on letter naming ability*, the latter being a predictor of reading acquisition in many languages. The study tested this relationship for elementary school children from first, third, and fifth grade, in comparison to adults, represented by undergraduate students. The results show that the children's ability to retrieve letter names and sounds was slowest for letters that do not exist in SpA, particularly for first graders.

Ibrahim (2013b) tested *the impact of a phonological awareness training program on improving literacy in StA*. The study examines if a two-year phonological awareness training program conducted on kindergarten children can help improve their reading abilities in StA at the end of the first grade. The results show that the treated group, who received the program, improved in some phonological tasks such as last phoneme match and phoneme count compared to the control group who did not receive the intervention. However, the treated group did not show significant improvement on tasks such as rhyme match and syllable count. There was also no significant difference between both groups in the performance of the reading test in first grade. The author notes this result to be surprising when compared to English for which studies have found that phono-

logical intervention programs in kindergarten enhance reading in first grade. The author identifies Arabic diglossia as one of the factors behind the diverging finding.

Finally, on a morpho-syntactic level, Khamis-Dakwar et al. (2012) examined *the sensitivity and accuracy of children's grammaticality judgments across both Arabic language varieties*. The study assesses children's knowledge of ten grammatical constructions in each of the two varieties, SpA and StA. A forced-choice grammaticality judgement task was administered to children in 1st to 5th grades. Of the ten grammatical constructions, six are realized differently across StA and SpA (such as subject-verb agreement and question formation), while four are realized in very similar ways across both varieties (such as sound plural markings and adjective definiteness/indefiniteness). The results show that the accuracy of children's grammaticality judgments was predicted by the particular language variety. Children performed better on items presented in SpA than in those presented in StA, and on items where the two constructions were similar in both varieties. In every grade level, children performed worse on StA-only constructions. The authors state that their findings suggest the need to assess alternative teaching methods that take into account the interference effect of diglossia on learning.

To sum up, this section demonstrates the pervasiveness of the impact of the linguistic distance between StA and SpA via summarizing studies that show that: both varieties function as two different languages at the metalinguistic level, there is a limited 21.2% overlap between both varieties in the children's lexicon; and that children are hindered in their ability to recognize StA-specific grammatical constructions. Furthermore, this section outlines the numerous studies that show the impact of this distance on various basic literacy skills: phonological awareness, morphological awareness, phonological representation, word decoding, reading fluency, and letter naming. Finally, the research confirms that the negative impact of the distance between SpA and StA is larger for families of lower SES. While not the focus of this paper, it is important to highlight that Schiff & Saiegh-Haddad (2017) and Saiegh-Haddad (2020) show that diglossia exerts a significant impact on word-reading accuracy and fluency in children with reading disability where dyslexic students were found to be even more adversely impacted by linguistic affiliation of a word with SpA or StA.

7. The Reality of Familiarizing Young Children with Standard Arabic

A common claim often repeated among Arabs is that young children absorb StA directly, or indirectly, from their environment prior to entering school. Clearly this does not happen from daily speech, which takes place in SpA. However, some believe that it happens from parents reading storybooks in StA, or from children watching cartoons and TV shows in the variety. This section takes a more critical look at both these claims.

It is generally known that there is a very weak culture of reading to children in the Arab world (Abu-Rabia et al., 2022; World Bank, 2021a, 2021b; World Bank,

2020). Among the few parents that do read Arabic storybooks, many avoid reading the StA text and resort to directly translating the text to SpA. This section presents new survey data supporting this view. As for acquiring StA from cartoons and TV, research confirms the limited role of screen time on language development in young children. Furthermore, the evidence shows that Arab children and parents are moving away from children shows in StA in favor of SpA ones. Given this limited role of reading and screen time, it is more accurate to expect that children embark on school with limited to no knowledge of StA. The second part of this section outlines studies demonstrating that learning StA requires consistent, explicit, and structured exposure to the language. This implies that teaching children the variety entails a level of deliberation and commitment that cannot be expected from random home exposure to StA by parents. The discussion confirms that children entering school receive their education in an unfamiliar second language which delays the learning of academic skills until that language of literacy is mastered. Acknowledging this reality is important to guide any future educational policies targeting Arabic language instruction.

7.1. Exposure to Standard Arabic Prior to Entering School

7.1.1. Research Findings on Arab Parents' Reading Habits

Iraqi (1990) examined the book-buying habits of 290 families of Palestinian kindergarteners and finds that young children's lack of familiarity with StA affects parents' behavior towards storybook reading. The survey data shows that only 1.8% of the families read to their children from books, 58.2% recited stories from their childhood from memory, while the remaining 40% did use books in storytelling but did not read the text in the book. Instead, these parents first read the StA text on their own and then related the story orally in SpA to their children while showing the book illustrations. The two main reasons given by the latter group of parents for not reading the text were that the children do not understand the language of the book and that children do not enjoy being read to (from Feitelson et al., 1993).

A recent qualitative report by the International Literacy Association, Louie and Sierschynski (2020), examines literacy practices of Arab Americans by interviewing Arab mothers living in the United States. The study found that the mothers chose to read English and not Arabic books to their children. The reason reported was that their children did not understand the formal Arabic used in books. One mother stated, "[if] I started reading this book to her, she would never make any sense, because it is formal Arabic instead of my slang, the spoken, everyday dialect." Interestingly, the study notes that the participants were all more fluent in Arabic than English and only used Arabic in their homes.

Additional evidence on the challenges of familiarizing children with StA prior to, or outside, school is presented in Khamis-Dakwar et al. (2012). As part of a wider study, the authors developed a questionnaire for the parents of the 120 Palestinian students. The parental questionnaire gathered information on read-

ing literacy routines at home where parents were asked if they read stories to their children in StA or in SpA. They were also asked about their children's exposure to StA through television and radio broadcasts. On average, parents reported that their children watched about 12 hours of StA TV during summer-break compared to 9 hours a week during school time. They also reported reading to their children an average of 12 books during the school year versus 10 books during the summer break. Of the 120 participating students, 89 percent were read to in StA while the remaining 11 percent of the students heard simultaneous translations of the books in SpA as opposed to being read the actual StA text. Analyzing the questionnaire data, the study finds no significant correlation between home exposure to StA (through TV and reading in StA) and improved performance of language tasks in StA. The authors note that the impact of random home exposure to StA is likely minimal. The study recommends that any efforts dedicated towards facilitating literacy development, through increasing children's exposure to StA, should consider the fact that unsystematic exposure is not sufficient to develop children's emergent literacy skills in StA. The authors highlight the need for an approach that capitalizes on children's knowledge of SpA to facilitate the teaching of StA in schools.

7.1.2. New Data on How Egyptian Parents Read to Their Children

New data on Egyptian parents' reading practices in Arabic was collected by the author of this paper in an online multiple-choice survey. The online questionnaire was placed on a website that provides informal translations and original storybooks in Egyptian SpA. The respondents were asked questions such as: the reason behind their interest in the website (if they are parents who want to read to their child, adults who work with children, or adults learning Egyptian SpA), age of their children (if 10, or less), their location (if they live in Egypt, an Arab state, or elsewhere), how they read StA books (if they read the StA text or merely translate). Data was collected between February 2019 and February 2021 with a total of 1200 respondents.

Confining the data to parents with children 10 years or younger results in a sample of 615 respondents. Table 6 reveals that only 12% of the sample claimed to read the StA text out loud while 47% mixed between sometimes reading the StA text and sometimes translating it to SpA. Of the remaining respondents, 10% answered that they do not read any StA books and 31% do not read the StA text in the books and only translate the story into SpA. The latter two groups aggregate to an estimated 41% of parents not exposing their children to any StA through books. Interestingly these figures do not change when the sample is broken to families who live in Egypt versus those who live elsewhere. While the survey results confirm prior information on the reading behavior of Arab parents, they need to be interpreted within the survey context. These findings reflect reading patterns for a sample of parents who have self-selected into visiting a website that promotes reading and have voluntarily taken the survey. This implies a prior commitment and interest in reading to children.

Table 6. Reading practices of Egyptian parents.

	All Countries	Egypt	Other Countries
Sample Size	**615**	**326**	**289**
	100%	53%	47%
Reading Styles:			
▪ Only reading written StA text	12%	11.5%	13%
▪ Mixing (sometimes reading StA & sometimes just to SpA)	47%	49.5%	44%
▪ Not reading the written text & only translating to SpA	31%	31%	31%
▪ Do not read any StA books	10%	8%	12%

Source: Author's online survey. Data was collected over the period from February 2019 to February 2021.

The limited acquisition of StA from children's storybooks is not surprising considering a well-documented weak culture of reading (World Bank, 2021a). Despite the limited data on published children's books, it is known that a common print run of a new title in a country as big as Egypt is about 1000 copies. This figure pales when compared to the population of school-aged children in the country. In 2016/17, the total enrolment from kindergarten to Grade 12 amounted to 20.6 million students. Of this student population, 10% attended private schools, totaling to 2 million children who could afford buying children's books (Al Watan, 2017; PwC, 2018/2019). To put these figures in perspective, the total size of school-aged children in a country like Sweden is similar to that of privately schooled children in Egypt. Yet, Sweden exhibits a far more developed children's book market. As previously discussed, Arab parents do not read to their children in general, parents that do read to their children often use on-the-spot translating to SpA. Additionally, and as will be further demonstrated in the next section, the evidence shows that even in households where parents do sometimes read to their children StA, it is infrequent or unstructured enough to enable children to pick up on the language.

7.1.3. The Role of Screen Time on Language Development

Regarding the claim that children acquire StA from screen time (cartoons and TV shows), the research shows that children acquire language through active exposure, such as via child-directed speech and social interactions, and not passively through media or overheard speech. While a few studies note a positive role of screen time on developing some aspects of language, this positive effect is more likely for older children. Furthermore, this research tends to reference acquiring a few new words as opposed to learning the structure and grammar of a language (Gleason & Ratner, 2009; Kuhl et al., 2003; Krcmar et al., 2007; Robb et al., 2009; Roseberry et al., 2009, 2014; Taylor et al., 2018). Screen time can be a tool for language development if complementary to social interaction, but not in its place. For Arab children, there is no social interaction in StA. Exposing young children to StA through screen time is not only questionable in terms of benefits to acquiring StA but is also inconsistent with messages from the World Health

Organization and pediatricians advocating for reducing screens for children under the age five.

Another challenge to acquiring formal Arabic through screen time is that children's media in StA has not been popular. For example, the contention in children's media in StA was recognized in Egypt in the Arabic version of the international children's television program "Sesame Street." After producing the version عالم سمسم/ *ʿālam simsim* in 2010 in Egyptian SpA, the team experimented in the following years and produced an StA version, افتح يا سمسم/ *iftaḥ yā simsim* with the aim of catering to the entire Arab region. Nonetheless, the latter's lack of broad success led to a policy reversal and an Egyptian SpA sequel of *ʿālam simsim* returned in 2017. This was in addition to producing other regional dialect versions of the show. A similar experience happened with Disney movies. In 2012, Disney began dubbing their movies into StA instead of Egyptian SpA as has been previously done. Following an online outcry and reportedly lower viewings of the StA movies, Disney announced in 2017 its return to dubbing to Egyptian SpA. Another example is Netflix's recent animation movie, The Willoughbys, which was dubbed into both Egyptian SpA alongside the StA version. The lack of demand for children's media in StA has also been noted in World Bank (2021a).

Taking an evidence-based approach towards understanding the extent of exposure of preschool children to StA, one can easily deduce that most children go to school unfamiliar with this variety of Arabic and receive it in school as a second language or L2.

7.2. Structured Approaches to Familiarize Children with Standard Arabic

Ayari (1996) noted, "the challenge posed by the learning of standard Arabic heavily burdens the Arab child, delaying his/her learning of academic skills until the language of literacy (literary Arabic) is mastered, if at all." The same sentiment is echoed in Maamouri (1998), who discusses how Arab learners do not easily transition from "learning to read" to "reading to learn" that most children experience all over the world. He cites Anastase al-Karmali, one of the members of the Arabic Language Academy in Egypt, saying "The Arab studies the rules of the Arabic language in order to learn to read, whereas others read in order to learn the sciences."

In his paper, Ayari recognizes a role for the mother tongue as a medium of literacy in the initial stages of education and cites the argument presented by the UNESCO, a long-standing supporter of MTB education: "It is better, psychologically and pedagogically, to achieve literacy by two short jumps (that is, from illiteracy to literacy in the mother tongue and from literacy in the mother tongue to literacy in a second language) than by one long jump (that is, from illiteracy in the mother tongue to literacy in the second language)". Nevertheless, the author acknowledges that the language policy debate in the Arab world, like elsewhere, is driven by economic, political, and religious considerations and not

necessarily by academics. He concedes that any call for using the vernacular as a language of instruction will meet resistance. Given this reality and restrictions, Ayari emphasizes the necessity of exposing young children to StA through activities, such as story reading to preschoolers, so that it is not a different language when they enter school. This section discusses research that assesses approaches to familiarizing young children with StA. All the studies have been conducted on Arabic speaking Palestinian children.

Feitelson et al. (1993) tested whether the regular reading of stories in StA to kindergarteners would familiarize them with the literary variety and enhance their emerging literacy skills. The study was conducted on kindergarten children 5-6 years old. The experiment was designed such that teachers were instructed to read to their students' one of twelve storybooks, written in StA, during the last 15 to 20 minutes of each school day, repeatedly for a period of 6 months. Before starting to read, teachers were asked to explain no more than three keywords without which children might not be able to understand the story. At the end of the trial period, students in the experimental group were compared to a control group that used the regular Ministry of Education Arabic teaching program. The study finds that kindergarteners in the experimental class significantly outperformed their counterparts in the control group on listening comprehension tests. They also obtained higher scores on measures of active use of StA.

There are essential aspects of this experiment that should not be overlooked that contributed to the positive impact of story reading on children's acquisition of StA. First, because existing storybooks were heavily moralistic and written in abstract and difficult language, 12 new storybooks were specifically developed for the experiment to ensure content that is attractive for children. Second, to facilitate the children's understanding, the experimental storybooks were written in a language carefully chosen to include as many words as possible common to both StA and SpA. Third, the regularity of reading (daily) and the repetitiveness of reading (the same 12 storybooks) were important factors for the reported results.

In a similar study, Abu-Rabia (2000) tested the impact of the early exposure of young children to StA on their reading comprehension in subsequent grades. The study finds that the early exposure of preschool children to StA enhanced their acquisition of the variety and improved their reading comprehension in first and second grades. Like the previous study, it is important to highlight key elements of the experiment design. The preschool and kindergarten students had three meetings per day with their teacher that all took place in StA. Each meeting lasted for 30 minutes and entailed teacher questions, a dialogue about daily subjects such as the weather, the date, and the season. Children were also asked to talk about their feelings and experiences of the day or the previous day. Moreover, various fun activities were conducted in StA, such as games, singing, and story reading. All teacher dialogue was in StA, and the children were encouraged to participate. Similar daily activities and interactions took place with the control group, with the only difference that it was in SpA. The structured and systematic

exposure of the experimental group to StA, during preschool and kindergarten, was a critical factor for their improved reading comprehension test results achieved at the end of grades 1 and 2. Another key factor that needs to be considered in any broader implementation of this experiment is the Arabic teachers' capacity and competencies in their verbal use of StA.

Saiegh-Haddad and Spolsky (2014) highlighted genuine challenges that confront the reality of expanding the early oral exposure of children to StA such that it is not a new language they only encounter in school. First, the de-facto rigid separation between the functionality of StA and SpA makes any use of StA in daily life unnatural and artificial. Maamouri (1998) notes, "It would be naïve to assume that Arabs, even educated Arabs, would be speaking to each other and communicate in one common form of Modern Fusha." Saiegh-Haddad & Spolsky also note that the approach of aurally exposing children to StA requires a high level of oral proficiency of parents and teachers in communicating in StA—a proposition that is currently impossible given that many adults lack that level of proficiency. Consequently, the authors offer an alternative program, namely the *Exposure through Reading Program* (ERP). The ERP is founded on the notion that literacy acquisition in a language not spoken by children requires an explicit, structured, and controlled exposure. The ERP controls for three dimensions: content, time, and quantity. Controlled exposure to vocabulary is presented as essential to a successful linguistic exposure program. A basic steppingstone to learning new StA vocabulary is to build on the lexicon that children have already acquired in their respective SpA. Accordingly, compiling a list of identical, cognate, and unique Arabic words is highlighted as critical for constructing a controlled and graded exposure program that builds on the child's mother tongue. The study echoes Khamis-Dakwar et al. (2012), who note that any efforts focusing on increasing young children's exposure to StA will need to consider that random exposure is insufficient to develop children's emergent literacy skills in the variety. All the approaches that have yielded positive results have all included structured, systematic, and regular exposure, in addition to social interactions in StA.

8. Diglossia in Practice: Examining Material for Teaching Child Literacy

Previously, Section 6 presented a thorough literature review of research demonstrating the pervasive impact of the linguistic distance between StA and SpA on child literacy acquisition. The impact of diglossia is shown across various literacy skills such as phonological awareness, morphological awareness, phonological representation, word decoding, reading fluency, and letter naming. Acquiring basic literacy in StA is more challenging for children than in StA. Following to this discussion, Sections 7 outlined common misconceptions regarding the level of familiarity of preschool-aged children with the language of education, StA, and concludes that children enter school with limited to no knowledge of StA. Against this background, this section analyzes through the lens of diglossia edu-

cational print materials used to teach children initial literacy in StA. It assesses the extent of overlap between the StA used in these books and Egyptian SpA, the latter being the variety familiar to Egyptian children at the start of school. The more distant the textbook language is from the child's mother tongue SpA, the more challenging it is to acquire the most basic literacy skills. Analyzed in this section are the Ministry of Education of Egypt (MoE) first-year of kindergarten textbook for teaching literacy in Arabic, various alphabet-teaching books produced by regional private publishers, and a sample early-reader storybook graded by the Arabic 21 grading system; the only existing scale for Arabic children's books.

Two key findings stem from this analysis. First, all assessed material significantly diverges from the Egyptian child's SpA. Preschool children encounter numerous words outside their receptive vocabulary during the beginning stages of acquiring basic literacy skills such as phonics, blending, and decoding. Second, the assessment indicates that the divergence between the StA language of the textbook and the child's SpA increases for material developed by non-native publishers (in this case non-Egyptian publishers). The later finding casts doubt on the adequacy of sharing inter-regional literacy material and highlights the importance of developing local material that caters to each Arab country's SpA.

8.1. Egypt's Arabic Language Kindergarten Textbook

The Arabic textbook of the Egyptian MoE is the primary tool used by schools, public and private, to teach the Arabic language. A new curriculum was launched in September 2018 for the first and second years of Kindergarten (KG1 & KG2) and First Grade. This section examines this new curriculum for KG1, named تَواصُل/ *Tawasul*, which comprises two textbooks, one for each term.

The teacher's manual, which is publicly available on the MoE eLearning website, states that the new curriculum uses the phonics technique to teach the alphabet. The teacher's guide notes the different aspects of phonological awareness, including identifying single phonemes, syllables, segmenting, blending, and rhymes. Each alphabetical letter is presented in four different sounds represented by the four short diacritic marks, namely the *fatḥah*, *ḍammah*, *kasrah*, and *sukūn*. For instance, the letter ب/*b* is introduced as بَ/*ba*, بِ/*bi*, بُ/*bu*, and بْ/*b*. The manual explains that the letters of the alphabet are not presented in the textbook in their traditional sequence but are taught in the order of the letters that are used more commonly, with the goal of enabling children to construct and read words early on in their literacy learning process. The manual directs teachers to highlight the resemblance and differences between various letters that share the same shape yet differ in the placement of their dots, *such as* ب/*b*, ت/*t*, ث/*th*, and ي/*y or* ج/*g*, ح/*h*, and خ/*kh*. Furthermore, children are familiarized with the varying shapes of each letter which change based on their position in a word, at the start, middle or end. The curriculum also includes what is referred to as "common words" (*الكلمات الشائعة*), somewhat equivalent to sight-words which children are expected to learn logographically. However, unlike sight-words in the English language, which tend to represent orthographical opaque

words, almost all Arabic sight words are "orthographically transparent" (see Section 4 for a more nuanced identification of this term). In this respect, it is unclear what qualifies as an Arabic sight word.

In addition to vocabulary, the textbooks for each of the two school terms include thirteen short stories categorized into two types: "guided-stories" and "shared-stories." The former are short stories comprising two to four words per page and a maximum of six pages. The vocabulary in the stories is composed of letters that students have already learned and aim to help children practice blending and decoding. The second set, shared-stories, are meant to be read aloud with the objective of exposing children to StA. The shared-stories are longer, 8 to 10 pages, and with significantly more text. The manual instructs teachers to read each shared-story at specified times during the school year and there are no instructions to read them repeatedly throughout the school year.

Notably, the teacher guide makes no reference to Arabic diglossia and that the de-facto mother tongue of children is different from the StA of the textbook. For instance, there is no guidance on how to introduce letters that do not exist, or are of limited use, in SpA, particularly the letters ث/*th*, ذ/*dh*, ظ/*z*, and ق/*q*. There are also no directions on how to teach StA vocabulary that is foreign to children. For instance, in teaching the first letter presented in the textbook, *alif* (أ), children are faced with a picture of an "ear" and are expected to identify it as a word that starts with the letter sound *a*. While the StA word for "ear" أُذُن/'*udhun* does indeed begin with that letter sound, children know the word by its SpA name وِدن/*widn* which starts with a different letter and sound, *w*. As shown in **Table 7**, the textbook is full of such encounters.

Considering the recognized importance of the aural knowledge of a language as a prerequisite during the initial stages of literacy learning, this section investigates the type of vocabulary used in the KG1 textbook to teach the sounds of the alphabet. Following Saiegh-Haddad and Spolsky (2014), the words are categorized into three categories: identical, cognate, unique. **Table 7** shows the overall breakdown of the KG1 textbook vocabulary. A few subjective elements to the categorization in **Table 7** (and **Table 8**) are noted below; however, they are only relevant to a few words and, consequently, unlikely to change the overall findings:

- Under the category of unique words, two kinds of vocabulary are considered. The first are words that are phonologically different in StA to their SpA equivalent (e.g. فَم/*fam* in StA versus بُو/*bu*' in SpA for the word "mouth"). The second set of words in this group are words in StA that do not have an equivalent in SpA yet are likely not known to preschool children, meaning not in their receptive vocabulary. This is due to the non-contextual relevance of such words given the weak culture of reading and the limited exposure of children to vocabulary outside their daily encounters. An example of such words is the word for "lion cub" شِبل/*shibl* which to most young child is known simply as أَسَد/'*asad* (meaning simply "lion"). Accordingly, such unfamiliar words are categorized as unique words based on a subjective guess on which vocabulary is likely unknown to preschool children.

Table 7. Arabic textbook for KG1 by The Ministry of Education of Egypt.

	Identical	Cognate	Unique
أ	أسَد، أرْنَب، أخطَبوط، إشارة، أختي، أم، أب، أخ، أرض، أمي	إصبَع(صُباع/صابع)، أرجوحَة (مُرجيحَة)، أرز (رُز)، أبي (أبويَا)، أخي (أخويَا)	أذن(ودن)، أنْف (مَناخير)، استَيْقظ (صِحي)، أثاث (عَفش)
ب	بَطَّة، بَاب، بِنْت، بُنّ، بَحْر، بُرْج، بالّون، بَصَلة، بَلَح	بَيْت(بيَت)، بَقَرَة (بَارَة)، بِطّيخ (بَطّيخ)، بُرتُقال(بُرتُآن)، بُحَيْرة (بُحيْرة) بِطَريق(بَطْريق)، بَيْض(بيَض)، بَبَّغاء(بَغبَغان)	بَدْر (قَمَر/ أمَر)
ت	تُفَّاح، تِمْسَاح، تَمر، تَاج، تُوت		تِبن (unfamiliar)
ث		ثَعْلَب (تَعْلَب)، ثَلْج (تَلّج)، ثَلّاجَة (تَلّاجَة)، ثَعبان (تِعبان)، ثَوْر (تَوْر)، ثُوْم(تَوْم)	ثِياب (لِيْس)
ج	جِسْر، جَرَس، جَزَر، جَمَل، جَبَل، جُحْر	جَدّي(جِدّي)، جَدَّتي (جِدّتي)، جُبْن(جِبنَة)، جِذر(جِزر)	جُنْدي (عَسْكَري)
ح	حَمامَة، حُوت، حَبْل	حِرْبَاء (حِرْبايَة)، حِمار (حُمار)، حِصان (حُصان)، حَوْض(حَوْض)	حَمَل (خَروف صُغَيَّر)، حَطَب (unfamiliar)
خ	خَس، خَروف، خِيار، خَزنة	خَوْخ (خَوْخ)، خَيْط (خيَط)، خُضْراوات (خُضار)، خَيْمة (خيَمة)	خُبْز (عِيْش)
د	دُودَة، دِيك، دُرج	دُب (دِب)، دَواء (دَوا)	دَرّاجة (عَجلة)، دَلْو (جَرْدَل)
ذ		ذِراع (دِراع)، ذِئب(دِيب)، ذُرَة (دُرَة)، ذَقْن(دَأن)، ذُبَابَة (دِبّانَة)، ذَيْل(دِيل)	
ر	رَف، رُمّان، رِيشَة، رَمْل، رِجْل	رَجُل (راجِل)، رُمْح (رِمْح)، رَأس (راس)	
ز	زَرافَة، زَبادي، زِير	زِر (زُرار)، زُبد (زِبدَة)، زَيْت (زيَت)، زَيْتون (زَتُون)	زَهْرَة (وَردَة)
س	سَمَكَة، سِتارَة، سِيرك، سَاعة، سُحُب، سَهم	سُلْحُفَاة (سُلْحِفَة)، سَرير (سِرير)، سُلَّم(سِلّم)	سَيَّارة (عَرَبيَّة)
ش	شَجَرَة، شَمس، شَمع، شَعْر، شِراع	شُبّاك (شِبّاك)، شاطِئ (شَط)	شِبل (أسد صغير)
ص	صِينِيّة، صَيّاد، صاروخ، صُورَة، صِنّارة	صُندوق (سَندوع)، صَمْغ (سَمْغ)	صُنبور (حَنَفِيَّة)
ض	ضُفْدَع، ضِرس، ضَبْع	ضابِط (ظابِط)، ضَفيرَة (ضِفيرَة)	
ط	طِفْل، طَبّاخ، طاووس، طَبل	طَبَق (طَبَأ)، طائرة (طَيّارة)، طَريق (طَريئ)، طُرطور (طَرطور)	طَبيب (دُكتور)، طُيُور (عَصافير) طَاولة (ترابيزة)
ظ	ظَرْف	ظُفْر (ضافِر)، ظَهْر (ضَهر)	ظَبْي (غزال)، ظِباء (غزال)
ع	عِنَب، عَلَم، عَسَل، عَنْكبوت، عَصير	عُصْفُور (عَصفور)، عُش(عِش)، عَيْن (عيَن)، عَظْم (عَضم)، عِقد (عُوْد)	
غ	غَوَّاص، غَسّالة، غُراب، غَزال، غُصن، غَنَم		غِذاء (أكل)
ف	فَرَولة، فِيل، فِنْجان، فُل، فُسْتَان، فَهد، فَراشة	فَأر (فار)، فأس (فاس)، فُرْشَاة (فُرْشَة)، فُسْتُق (فُسْدُق)	فَم (بُوْ)، فَرَس (حُصان)
ق		قَلَم (أَلَم)، قِرْد (إرد)، قِطّة (أَطّة)، قَلب (أَلب)، قُنْفُذ (أَنْفِد)، قَصر (أصر)، قِرش (إرش)، قِطار (أطْر)، قُطْن (أطن)، قَلعَة (أَلعَة)، قَمح (أمح)	قَفّازات (جُوانتي)، قَدَم (رِجل)، قِناع (ماسك)
ك	كَلْب، كِتَاب، كُتُب، كُرْسِي، كَتْكُوت، كُوع	كُرَة (كُورَة)، كأس (كاس)، كَتِف (كِتْف)، كُمَّثرَى (كُمّترا)	
ل	لَبَن، لِسان، لُؤلُؤ، لِفت	لَحم(لَحمَة) لُعبَة(لِعبَة) لَوْز(لوْز)	
م	مَلعَب، مَعجُون، مَشْبَك، مَطبَخ، مَطَر	مَوْز(موْز) مَركَب(مَركِب) مِقَص(مَأص) مُثَلَّث(مُسَلَّس) مِفْتَاح(مُفْتَاح) مِحْفَظَة(مَحْفَظَة) مِلح(مَلح) مِياه(مَيَّة) مَاعِز(مِعزَة) مِضْرَب(مَضْرَب) مُشْمُش(مِشمِش)	مِظَلَّة (شَمسِيّة)، مُهَرِّج (بِلياتشو)، مَطرَقة) شاكوش)
ن	نَحْلَة، نَمْلة، نَهْر، نَخلة	نَجْمَة (نِجمَة)، نَسْنَاس (نِسْنَاس)، نَظّارَة (نَضّارَة)	نُقُود (فلوس)
ه	هِلَال، هُدهُد، هَرَم	هَدِيَّة (هِدِيَّة)	هَاتِف (تِليفون)
و	وَلَد، وَرد	وَرَقَ (وَرَأ)، وَطواط (وِطواط)، وُرود (وَرد)	وِسادَة (مَخَدّة)، وَجْه(وِش)، وِشاح (unfamiliar)
ي	ياسمين، يَمامة	يُوسفي (يوسْتَفَندي)، يَد (إيد)	
Total Words	**116**	**108**	**36**
	45%	**41%**	**14%**

Source: The Ministry of Education of Egypt KG1 Arabic Language textbook "Tawasol". **The sign (˜) in cognate words:** represents two secondary phonemes that exists in spoken dialects, namely: /e:/ in *be:d* in SpA in place of *bayd* in StA for "eggsبَيْض"/بِيض", and *ō* in *mōz* موْز in place of *mawz* مَوْز in StA for "bananas" (see Saiegh-Haddad & Henkin, 2014 for a related discussion on diphthong contraction).

- Table 7 & Table 8 compare the StA textbooks vocabulary to Cairene SpA, the dialect representing Egyptian SpA (see Section 1 for a discussion on this generalization).
- All indefinite nouns in SpA end with the inflection mark, called التنوين/*tanwīn*, which is depicted by doubling the short vowel *ḍammah* and is pronounced as that vowel followed by an n-sound at the end of the word (e.g. كتابٌ/*kitabun*). Such inflection, like most others, has been dropped in SpA. Most of the vocabulary used in the textbook ends with *tanwīn*. If one were to consider this ending, there would be no common words between StA and SpA in the textbook. Accordingly, this end-of-word inflection mark has been ignored for all the textbook words.

Table 7 demonstrates that only 45% of the textbook vocabulary aimed at teaching letter sounds to KG1 students are identical words, i.e. completely overlap in StA and SpA forms. More than half of the textbook vocabulary is different to children's familiar SpA. Of the remaining 55%, cognates account for 41% and unique words 14%. The extent of deviation of the cognate words from SpA varied in the degree of phonological difference. They span from one phonological parameter difference (e.g. بِطّيخ/*biṭṭīkh* in StA versus بَطّيخ/*baṭṭīkh* in SpA for "watermelon"); to two phonological parameters difference (e.g. زَيْت/*zayt* in StA versus زيت/*zēt* in SpA for "oil"); to three phonological parameters difference (e.g. قُنفُذ/*qunfudh* in StA versus أُنفِد/*'unfid* in SpA for "hedgehog"); in comparison to more phonological parameters (e.g. أُرجوحَة/*'urgūḥah* in StA *versus* مُرجيحَة/*murgēḥah* in SpA for "swing").

In the context of analyzing material used to introduce phonics to preschool children, any deviation from SpA critically affects literacy acquisition at this early stage of learning letter sounds. The reason can be demonstrated with a couple of examples from the textbook. The first example is from the second letter introduced in the textbook, the letter م/*m*. Children are presented with a picture of a "banana" and "scissors" and are asked to identify which of the two items starts with the sound مِ/*mi*. Based on the child's SpA, none of these words start with that sound because the word "banana" in SpA is موز/*mōz*, which starts with the sound *mo*, and the SpA word for "scissors" is مَأص/*ma'aṣṣ* and starts with the sound *ma*. At such an early learning stage, children are not aware of the StA pronunciation of these words being مَوْز/*mawz*, which starts with *ma*, and مِقَّص/*miqaṣṣ*, which begins with the sound *mi*.

The same point can be seen with another example from the third letter introduced in the textbook, ب/*b*. Students are asked if the word for "watermelon" starts with بِ/*bi* or بُ/*bu*. Based on the children's knowledge of SpA, none of these options are correct because they know "watermelon" by its SpA pronunciation, بَطيخة/*baṭṭīkha*, which starts with the sound *ba*. Given that prior knowledge of a language is a critical prerequisite to acquiring decoding skills, these two examples constitute frustrations that children face early during the process of learning basic literacy.

It is worth noting that many of these examples can be avoided with an increased awareness of diglossia and its impact on the early stages of literacy learning. Apart from words that start with the sounds that do not exist in Egyptian SpA (such as the frontal fricatives ث *th*, ذ *dh*, and ظ/ض), there are many alternative *identical* words familiar to children that can facilitate the early learning of letter sounds. For example, the letter ق *q* has limited usage in SpA as it tends to be pronounced similar to a glottal stop (as in a *hamza*, ء') instead of its StA pronunciation as a uvular plosive. With some deliberation and attention to children's lexicon, one can find SpA vocabulary with the "proper" StA pronunciation of the letter such as in words for *qawī* القوي for "strong," *qiṣṣa* القصّة for "story," and *qursān* القُرصان for "pirate," which accurately represent the sounds قَ *qa*, قُ *qu*, and قِ *qi*. This is not to say that there should be no effort to teach new StA vocabulary to children; rather, the process of exposing young children to StA must be structured and preferably not used at the initial stages of teaching phonics and decoding.

As for the previously mentioned textbook *shared-stories* aiming to expose children to StA, a rough assessment shows that such stories are not developed at an appropriate level to children's knowledge of StA. The stories diverge from the research discussed in Section 7.2 that highlights that StA is best acquired through storybooks written in StA lexicon closest to SpA. Additionally, the studies demonstrate the need to read the stories repeatedly over long periods of time. That is not the case in the textbook shared-stories. For instance, the first story, أرنب مميز فعلاً *(A Really Special Rabbit)*, is instructed to be read only at the very start of the school year. The story has numerous cognates and many unique words different from their SpA synonyms, including: قفزَ/*qafaẓa* (he jumped), ذهبَ/*dhahaba* (he went), أصدقاء/*ṣdiqā'* (friends), بحثَ/*baḥatha* (he searched), رأيتُ/*ra'aytu* (I saw), طعام/*ta'ām* (food), تسلقَ/*tasallaqa* (he climbed), لماذا/*limadha* (why), الذي/*'alladhi* (that), معًا/*ma'an* (together), لقي/*laqiya* (he found), عادَت/*'ādat* (she returned), يجعل/*yag'al* (he makes). Although not discussed in this paper, the non-familiar StA syntax structure is an additional challenge for students.

8.2. Alphabet Teaching Material by Non-Egyptian Private Publishers

8.2.1. Alphabet Teaching Books by Regional Publishers

Table 8 summarizes the findings from examining alphabet teaching books published by three regional private publishing houses; Dar Al-Hadaek and Asala from Lebanon and Wahed El Hikayat from the UAE. The Asala Ascend series contains 28-alphabet books that are graded by the only Arabic grading system, the Arabic 21 system (Arabic 21 Standard), at level B (ب), which is suggested for KG2 or 5 to 6-year-olds (Arabic 21 is further discussed in Section 8.2.2). Given that the books under study are not in the public domain, Table 8 does not show the detailed word analysis as reported in Table 7, and only shares a few demonstrative examples.

Table 8. Regional material for teaching early literacy.

Book Title (Year of Publication)	Identical	Cognate	Unique	Total
▪ **Publisher: Ministry of Education of Egypt:**				
KG1 Textbook (from Table 7)	**116 (45%)**	**108 (41%)**	**36 (14%)**	**260**
▪ **Publisher: Dar Al-Hadaek from Lebanon:**				
Letters & Words (First Edition 2014)	أرنب، تمساح، مِشمِش	كَأس(كاس)، مِلح (مَلح)، صُرْصور (صُرصار)	جِذاء(جزمة)، دجاجة (فَرخة)، إجاص (كُمَّترى)، مِذياع(راديو)، ذَنَب(ذيل)، قلاووظ (unfamiliar)	
	44 (36%)	**47 (40%)**	**28 (24%)**	**117**
▪ **Publisher: Asala from Lebanon:**				
My Letters in a Dictionary (First Edition 2011)	بطة، بنت، حوت، عصير	مِرآه (مِراية)، صَعتَر (زَعتَر)، زَهرية (زُهريّة/فازة)، يَد (إيد)، إصبَع (صُباع)، زُجاج (إزاز)، كَلِمَة (كِلْمَة)	صحن(طبق)، دُراق(خوخ)، دُمية (عروسة)، حَسون (unfamiliar)، نَبض(unfamiliar)، مَلفوف (كُرنب)، سَكاكير (حلويات)، حَسَك (شوك)	
	191 (38%)	**184 (37%)**	**123 (25%)**	**498**
28 Ascend Alphabet Books (First Edition 2012)	أسد، طِفل، غُصن	تِلفاز (تلفزيون)، مِسمار (مُسمار)، كَعك (كَحك)، إوَزَّة (وِزَّة)، صُندوق (سَندوق)	طَحين (دقيق)، هِرَّة (أطّة)، جُرذ (فار كبير)، واوي(unfamiliar)، ليث (أسد)، نَعجة (خاروف)، يركض (يجري)	
	110 (41%)	**97 (36%)**	**61 (23%)**	**268**
▪ **Publisher: Wahet Al Hekayat from the UAE:**				
The Basket of Letters (First Edition 2016)	شَمس، كيس، جَمَل	ماعِزة (مِعزة)، ظُفر (ضافِر)، كَنغر (كانجارو)، نَمر(نِمر)، أصابِع (صوابِع)	أفعى (تِعبان)، حافلة (أتوبيس)، جَورب (شراب)، مِظلة (شمسية)	
	81(38%)	**89(41%)**	**46(21%)**	**216**
The Location of Letters (First Edition 2019)	خَشَب، فراشة، كاكاو	حِرباء(حِرباية) ظلام(ضَلمة) مِياه(مَيَّه)	سِياج (سور)، نُحام (فلامِنجو)، وَجه (وِش)، دُعسوقة (unfamiliar)، صوص (كتكوت)، يربوع (unfamiliar)	
	39 (44%)	**30 (34%)**	**20 (22%)**	**89**

Source: published books by the various publishers listed in the table. The analyzed books are not in the public domain; accordingly, the full breakdown is not provided for copyrights considerations.

Like Table 7, less than half of the words are familiar to children the way they are accustomed to pronouncing them, as shown by the portion of *identical* words ranging from 36% to 44%. The table shows a larger percentage of *unique* words for the non-Egyptian publications, ranging from 21% to 25%, compared to 14% for the Egyptian MoE textbook. This indicates that non-local publications have more words that are entirely unfamiliar to Egyptian preschool children.

This higher percentage of unique words can be explained in terms of the publisher's country of origin. Many of the words used in these textbooks might be familiar to children in those regions; however, they are unknown to Egyptian children. For instance, some of the unique words entail a choice of StA vocabulary that is more commonly used in these countries than alternative StA syn-

onyms that are more common in Egypt. Examples of such words are صَحن/*ṣaḥn* versus طبق/*ṭabaq* for "plate," فراش/*fīrāsh* versus سَرير/*sarīr* for "bed," دُمية/*dumyah* versus عروسة/*ʿarūsah* for "doll," صَبي/*ṣabī* versus وَلَد/*walad* for "boy," مَلفوف/*malfūf* versus كُرنب/*kurunb* for "cabbage." Another set of vocabulary that contributes to the larger portion of unique words is an increased use of words that admittedly do not have an SpA equivalent but are likely unknown to Egyptian children. Examples of these words are خُلد/*khuld* for "mole", words for different kinds of birds (حَسّون سنونو دوري توكان/*ḥassūn, dūrī, sunūnū, tūkān*), يربوع/*yarbūʿ* for "jerboa," and واوي/*wāwī* for "jackel," as well as words like نَبض/*nabd* for "pulse" and هَضبة/*haḍabah* for "plateau".

Using non-familiar vocabulary in Arabic alphabet books is common among many publishers. This pattern is also witnessed in books that are geared towards teaching *first words* to young children, such as "The Usborne First Thousand Words in Arabic" published in 2014 by Usborne Publishing Ltd, and the book كلماتي الأولى (*My First Words*) published by Dar El Shorouk (Egypt) in 2002.

8.2.2. An Example of a Graded Early Reader Storybook.

Finally, this section presents one demonstrative example of a graded early-reader storybook. In 2017, the Arab Thought Foundation, an international and independent Lebanon-based foundation, launched the Arabic 21 benchmark (Arabic 21 Standard). It is the first attempt at classifying and grading the level of Arabic text in children's books for the various school grades. The benchmark aims to be a regional guide for grading material developed by publishing houses in the Arab world and international publishing houses that print in Arabic as well as to aide authors and illustrators of children's books. The notes to the benchmark emphasize the readability, comprehensibility, and age appropriateness of the text as key elements to teaching literacy.

This section examines one of the storybooks graded by Arabic 21 titled أقدام كبيرة كبيرة (*Big Big Feet*), published by Asala in 2018. The book is graded at the fifth level; grade H (هـ). Based on the benchmark, books in this level are suggested for Grade 1 or children ages 6 to 7. The Arabic 21 guiding notes indicate that H-level books should entail "some repetition of words and employ vocabulary that is mostly close to SpA." A word-for-word analysis of the storybook reveals that about 30% can be classified as unique words (e.g. قدم/*qadam* in StA versus رجل/*rigl* in SpA for "foot," تكدح/*takdaḥ* in StA versus تتعب/*tatʿab* for "tired," يسار/*yasār* in StA versus شمال/*shimāl* for "left," عسيرة/*ʿasīrah* in StA versus صعبة/*ṣaʿbah* for "difficult,", and أنف/*ʾanf* in StA versus مناخير/*manakhīr* for "nose"). An estimated 44% are cognate words that vary in their degree of phonological distance from their SpA form (e.g. تَعبى/*taʿbā* versus تعبانة/*taʿbānah* for "tired," خَشِنَة/*khashinah* versus خِشْنَة/*khishnah* for "rough," تَصرُخ/*taṣrukh* versus تُصرُخ/*tuṣrukh* for "scream"). An analysis of the syntaxial variation of the StA story text vis-a-vis SpA is beyond the scope of the present study.

The above discussion provides two key insights. First, the limited awareness of the importance of word familiarity and receptive vocabulary as prerequisites to

literacy acquisition. Second, a lack of understanding the impact of Arabic diglossia, i.e. the implication of the distance between the spoken form of the language and its written form. This is evident in the design of all analyzed books and the extent of divergence from the child's familiar lexicon. Furthermore, the analysis suggests that it might be unsuitable to develop inter-regional teaching material at such early stages of teaching literacy. This is expected given the different regional SpAs on which any teaching material should be founded. Finally, a superficial analysis of two storybooks (a *shared-story* in the Egyptian MOE Arabic teaching textbook and the Arabic-21 graded storybook) highlights the challenges of developing storybook text in StA that significantly overlaps with SpA.

9. A Role for Mother Tongue

9.1. Mother Tongue-Based Education: Theory and Evidence

Significant to this discussion is research on Mother Tongue-Based (MTB) education and the role of initiating literacy acquisition in SpA as a bridge to literacy in the official language, StA. The UNESCO has long been a supporter of MTB education. More recently, various other international agencies have braced this policy (UNESCO, 2008a, 2008b; Bensen, 2004; UNICEF, 2016, 2019; USAID & RTI, 2011; USAID, 2012, 2014, 2017; World Bank, 1997; World Bank & SEAMEO, 2009).

In MTB education, children start their schooling in their first language, L1, which is the language they speak, think, understand, and use to express themselves. An educational policy that adopts L1 as the Language of Instruction (LoI), employs L1 as the primary language of educational print material and classroom communication across the various subjects. Subsequently, there is a planned gradual transition to a second language (L2)—be it a formal or a foreign language—at a specified time in elementary school. In MTB education, students learn core concepts in their familiar language, L1, and later learn the vocabulary and labels for those same concepts in L2. Teaching initial literacy in the child's language capitalizes on what children already know before entering school. It facilitates the understanding of sound-symbol or meaning-symbol correspondences and efficiently allows children to employ psycholinguistic guessing strategies that are important at such an early stage of literacy acquisition. Furthermore, under MTB education, students can practice writing as soon as they understand the orthographic rules of their language because they already know the LoI.

Under Cummins' influential *theory of linguistic interdependence*, children's proficiency in L2 is a function of their competence in L1. The idea is that learning a language requires cognitively demanding tasks that are common across all languages, such as literacy, content learning, and abstract thinking. For instance, reading acquisition, which is one of the most complex and demanding learning processes that children face in their early years of schooling, involves the recruitment and coordination of multiple cognitive and neural resources to build up a fluent mapping between letters and their sounds. Acquiring those skills in

L1 allows students to then transfer them to a subsequent language (August & Shanahan, 2006; Ball, 2010; Cummins, 1979, 2000, 2007; Goodrich et al., 2013; Kim & Piper, 2019; Lallier & Carreiras, 2017; USAID & RTI, 2011).

This implies that learning literacy in L1, or SpA in this paper, lays the foundations and facilitates the learning of L2, StA. The cross-language transfer between SpA and StA should be more direct than between many other languages, such as between English and Chinese or English and Hindi. This is because both varieties share the same orthographic system and overlapping phonology and lexicon (Koda & Zehler 2008; Kim & Piper, 2019; Luk & Bialystok, 2008; Schiff & Saiegh-Haddad, 2018; Wang et al., 2006, 2009; Wawire & Kim, 2018). It is important to note that the positive impact of learning in L1 extends beyond teaching concepts related to reading and writing. It enables the early learning of other skills, such as numeracy. For example, a child being examined on a worded math problem is likely to better grasp its content when presented in his familiar language SpA. Assessing children's math skills in StA can impact the perception of their actual numeracy capabilities due the challenge of understanding the language in which the math problem is presented. In this respect, MTB education contrasts with educational programs that initiate literacy in L2, which may succeed in teaching students to decode words, but it can take many years before children are able to comprehend what they are reading.

Most recently the World Bank published a thorough report titled "Loud and Clear: Effective Language of Instruction Policies for Learning," which describes its latest policy approach on using LoI as part of the operationalization of the literacy policy package in support of its new learning targets (World Bank, 2021b). Based on the recent World Bank Learning Poverty indicators, the report highlights shockingly low learning levels in various parts of the World. The study notes that "without consideration of LoI issues, one might erroneously conclude that teachers lack the knowledge and skills to teach … An alternative plausible consideration is that teachers are required to provide instruction in a language that students do not speak or understand." The paper outlines the theoretical underpinning behind supporting LoI in the mother tongue and presents various country case studies that demonstrate MTB education policy successes in improving learning outcomes for literacy and numeracy. The World Bank's policy on LoI is based on five key principals: 1) teaching children in a language they understand for at least the first 6 years of primary schooling, 2) using a language children understand for instruction in academic subjects beyond reading and writing, 3) introducing any additional language as a "foreign" language with a focus on oral language skills, 4) continuing to use the language that children understand for instruction even after the "foreign" language becomes the main LoI, and finally 5) continuously plan, develop, adapt, and improve LoI policies. The report acknowledges challenges to adopting sound LoI policies, such as the lack of stakeholder knowledge of the benefits of teaching in a language that students speak and understand, in addition to political and eco-

nomic considerations that go beyond the education sector and relate to national or political identity.

In addition to the substantial and growing body of research cited in the World Bank report, there are numerous empirical studies—including from Sweden, Norway, the Philippines, Cameroon, Cyprus, Haiti, the United States, Ethiopia, and Kenya—supporting the role of the mother tongue in helping to transition children to the official language of education and improving scholastic attainment (Bull, 1990; DeGraff, 2016; Ganuza & Hedman, 2019; Myhill, 2014; Osterberg, 1961; Pavlou & Papapavlou, 2004; Piper et al., 2016, 2018a, 2018b; Saiegh-Haddad & Spolsky, 2014; Ramachandran, 2012; Rickford, 2005; Seid, 2018; Siegel, 2006; Simpkins & Simpkins, 1981; Walter & Chuo, 2011; Walter & Dekker, 2011; Yiakoumetti, 2006). In these studies, randomized trials are used to measure the impact of language policy on students' scholastic achievement. A treated group of students receiving schooling instruction in L1 is compared to a control group that follows the traditional educational policy in L2. Students' learning outcomes on basic literacy skills (such as decoding, reading fluency, comprehension in L1) and other subjects (such as proficiency in L2 and math) are compared over a duration of time.

While MTB education is commonly found to positively impact scholastic attainment, in some instances, challenges to good policy implementation do not allow the realization of its benefits. Among the obstructions often cited is the disconnect between theory and policy on the one hand and practice on the other. For instance, the implementation of MTB education can sometimes face significant resistance from parents and the community due to fears that it will harm students in acquiring L2, the language associated with long-term outcomes, labor market opportunities, prestige, and success. There is a lack of understanding among stakeholders on how competence in L1 will serve better learning outcomes in L2. Some challenges are more relevant to countries with multiple mother tongue languages where it is too expensive to develop educational material in the mother tongues of the different regions (e.g. in Kenya). A related challenge is the difficulty of sourcing competent teachers who know the different mother tongues of the country. Additional obstacles relate to the absence of essential ingredients needed to effectively implement a new educational policy, such as: the lack of teachers' professional development, preparing them to teach in the new LoI, and the absence of manuals to guide teachers on how to teach under the new LoI policy (Piper et al., 2016, 2018a, 2018b). Kerwin and Thorton (2021) show that the effectiveness of a new policy intervention can be highly sensitive to small changes in the program's input. They compare the learning outcomes from a full-cost versus a reduced-cost version of an early-grade MTB education program in Uganda. The results show lower learning gains to the low-cost version. It is thus critical not to overlook key ingredients essential for a successful implementation before concluding on the effectiveness of MTB educational policies.

9.2. Mother Tongue-Based Education: An Option for Arab Countries?

With regards to the Arab region and the teaching of the Arabic language, promoting the use of the mother tongue as the initial language of literacy instruction has received limited attention in research and none in practice. As noted in Section 7.2, Ayari (1996) recognized the view advocating for using the mother tongue as a medium of literacy in the initial stages of education. Maamouri (1998) highlighted the pedagogical relevance of vernacularizing the teaching of Arabic and notes, "Using the vernacular in the early stages of Arabic literacy acquisition can bring invaluable assistance to Arab learners. It would make the learning of the decoding skills easier by connecting the letters of the Arabic orthographic system to known and more accessible language patterns and forms."

More recently, Saiegh-Haddad & Spolsky (2014) and Saiegh-Haddad et al. (2020) address whether it is better to start teaching reading and writing skills in the vernacular SpA and later transfer to StA or start directly teaching the standard. While the authors present sound arguments for teaching initial literacy in SpA, they note key challenges, such as the lack of educational material in SpA, the resistance of the community against accepting SpA as a LoI, in addition to the strong religious and political ideology that StA is sacred and is the language of Arab unity. Taking these challenges as givens, compounded with the additional challenge that children are unlikely to know StA prior to starting school, the authors introduce a "second-best" strategy, namely the Exposure through Reading Program discussed in Section 7.2.

Various development agencies have supported MTB education in many parts of the world during the past decades, in Latin America, Asia, and Sub-Saharan Africa. However, none of this work has addressed the Arab region. Recently the World Bank published three reports that mention or discuss the teaching of Arabic (World Bank, 2021a, 2021b: Annex D; World Bank, 2020). The attention to the weak teaching policies of Arabic has been triggered by the remarkably low performance of Arab states on the Learning Poverty indicator and the various international reading assessments (Section 5). Both reports World Bank (2020) and World Bank (2021b) acknowledge the significant gap between StA and SpA. The studies note that StA is like a new language (L2) for children starting school and highlight the struggle to acquire basic literacy skills in the variety. The 2020 report states, "The close connection among language, religion, and national identity makes it difficult to make a regional recommendation." World Bank (2021b) (Annex 4) makes recommendations such as encouraging parents to read to their children from an early age, developing more children literature that uses colloquial and standard Arabic as appropriate, devoting sufficient time in the curriculum to the development of Arabic skills, and the need to use evidence-based pedagogical methods in the early years. Both reports fall short of making a direct recommendation to use SpA as the initial LoI.

The World Bank (2021a) report, titled "*Advancing Arabic Language Teaching and Learning*," provides specific policy recommendations to improve the teaching of Arabic. The report rightly acknowledges the numerous challenges to teaching StA to young children, including: StA being predominantly a written language and not a mother tongue, challenges due to the linguistic distance between SpA and StA, the need for oral language comprehension as a prerequisite to literacy, a weak culture of parents reading to their children, the reality that many parents might not be literate or competent in StA, and the fact that many teachers suffer a lack of competence in StA. However, despite all these clearly outlined challenges, the study does not recognize a direct role for SpA (L1) in education policy or as a bridge to learning StA (L2).

For example, among the study's recommendations is to define and harness common features and vocabulary between StA and SpA in addition to expanding children's early exposure to StA. The premise of both these recommendations can be challenged. Regarding the commonalities between StA and SpA, and based on Saiegh-Haddad and Spolksy (2014), the report seems to underrepresent the extent of the difference between StA and SpA. The World Bank study states, "There is significant overlap between colloquial forms of Arabic and MSA… around 60% of the five-year-olds' lexicon was the same as, or very close to, MSA." This statement can be misleading given that the 60% is composed of 21.2% identical and 40.6% cognate words, the latter varying in the degree of phonological distance from the spoken dialect. As discussed in Section 6, Saiegh-Haddad (2022) demonstrates that only cognates distant by *one single vowel* have phonological representation similar to identical words. Notably, the percentages of the Saiegh-Haddad and Spolksy (2014) study regarding the overlap between SpA and StA lexicon are based on Palestinian SpA. As discussed in Section 2 and noted in the World Bank (2021a) study, Palestinian SpA is found to be the closest to StA in terms of shared lexicon. This implies that the overlap between both varieties will be even smaller for all other SpA dialects. Finally, by solely focusing on lexicon (vocabulary), the report ignores the academic consensus regarding the linguistic distance between StA and SpA, which spans other language domains such as syntax and morphology.

As for the World Bank report's recommendation for early exposure of preschool-aged children to StA, it is not clear how this can be achieved considering the absent interaction in the language, the low levels of reading to Arab children in StA, the limited role of screen time, and the need for a structured and systematic exposure to the variety, as thoroughly discussed in Section 7. In general, the success of an education strategy that relies on parents' actions in the years prior to school is highly questionable.

9.3. The Role of Mother Tongue: Children Literature and Emergent Literacy Skills

An additional angle to this discussion is the role of mother tongue in children's literature and consequently in developing pre-literacy skills. While writing adult

books in SpA is somewhat accepted (as the case is in Egypt, discussed in Section 2), children's books are almost exclusively in StA. Confining children's books to a language that children only master after several years of schooling is a likely contributor to the low rates of reading to children. Shendy (2019) discusses the role of language in children's literature and highlights the misconceptions associated with writing in the vernacular. The paper examines the common practice that parents resort to, which is constantly translating the StA text of storybooks to SpA that children understand (also discussed in Section 7). In employing this practice, a significant part of reading time is spent defining and explaining unfamiliar words, which is likely to discourage parents from reading. For example, reading in StA in the intimate setting of a bedtime story strips familiarity and pleasure from the experience, making it more instructional than leisurely. Indeed, orally translating storybooks from a foreign language to a child's mother tongue is an accepted practice. However, it is usually not the only mode of reading to a child—as is the case in the Arabic-speaking world.

Shendy (2019) further highlighted research showing various benefits of reading to children in supporting their cognitive, emotional, and social development. Read-aloud is often the children's first entrance into literacy. Studies show that reading to children develops essential emergent literacy or pre-literacy skills. It enhances children's print motivation (i.e. being interested in printed material). It develops their oral language, comprehension, and listening skills. Read-aloud improves children's phonological awareness as they attend to repeats, rhymes, and refrains. It develops print awareness, such as understanding how to handle a book, reading from right to left, and recognizing pictures, symbols, signs, letters, and words, in addition to understanding the relationship between illustrations and text. It further stimulates narrative and expressive skills as children get interested in retelling a story. Moreover, it boosts inquisitive skills and critical thinking as children question the story plot and character motivations. Emergent literacy is the stage during which pre-school-aged children acquire basic and crucial skills that facilitate learning to read and write (Lonigan et al., 2008; Whitehurst & Lonigan, 1998).

It is critically important to note that emergent literacy skills are transferable, meaning when acquired in one language they are easily transferable to another. Pre-literacy skills developed through reading storybooks written in SpA, a language that shares common orthography and overlapping phonology and lexicon with StA, will directly serve literacy development in the latter. Furthermore, making children's literature in spoken everyday dialect will make reading accessible to more parents, including those lacking competency in StA.

Aside from developing early literacy skills, reading broadens children's imaginations. Through a story, children acquire factual knowledge and learn how the world works. They experience other people, places, times, and events. Stories can provide an excellent means for children to develop empathy and contemplate ethical questions. Mendelsohn et al. (2018), published in the journal of The

American Academy of Pediatrics, finds that read-aloud lowers the risk of developing attention problems and hyperactivity later in life. A 2002 report by the Organization for Economic Co-operation and Development (OECD, 2002) shows the benefits of reading for pleasure where reading enjoyment is more important for children's educational success than their family's socioeconomic status. Examining brain activation in kindergarten children through neuroimaging scans, Powers et al. (2016) find that a strong family literacy environment may help rewire the brain from left hemisphere to the right, providing resiliency for young readers predisposed to dyslexia. Additionally, using MRI images of young children's brains, Hutton et al. (2019) demonstrate how illustrated storybooks are optimal at enhancing connectivity of attention, visual, and language brain networks in preschool-age children. Finally, Brockington et al. (2021) show the positive impact of story read-aloud on hospitalized children as presented in increased oxytocin and decreased cortisol levels, leading to a reduction in pain levels and the negative emotions associated with hospitalization.

World Bank (2021b) Annex D acknowledges the role of children's literature in the spoken dialect as a tool to improve learning outcomes. One approach to address this issue is to promote two distinct categories of children's books, each serving a different purpose. The first is books in StA that are read to (or read by) children with the objective of teaching them the StA language variety. A second category can be children's books in SpA that can cater to emergent literacy development and encourage the culture of reading for pleasure. Advocating the same, Maamouri (1998) states, "Storybooks in colloquial Arabic could be used as an intergenerational approach to Arabic first literacy acquisition."

10. Conclusion and Recommendations

There is a consensus in the academic literature on the sizable distance between StA and SpA across various language domains: lexicon, phonology, syntax, and morphology. From a linguistic standpoint, the two varieties function as two different languages. SpA is Arab children's mother tongue, L1, while the formal variety StA is a second language, L2. StA, being the language of education, means that there is a mismatch between Arab children's mother tongue and the language in which they acquire literacy. Children entering school lack adequate knowledge of StA, which hinders their learning throughout their education. In fact, it takes several years of schooling for children to gain proficiency in L2.

The current policy of teaching Arabic is not working. In the Arab region, Learning Poverty rates, as recently reported by the World Bank, are second only to Sub-Sarahran Africa. More than one-half of the children in Arab countries are in Learning Poverty—they cannot read and understand an age-appropriate text by age 10. The poor reading levels have been confirmed by various international assessments and are shown to affect academic achievement in other subjects. This poor performance across Arab countries, regardless of wealth, is prevalent despite the significant investments in education made by the region in the past

decades.

Numerous studies from the field of applied Arabic linguistics are reviewed in this paper. The findings confirm that children are better at learning basic literacy skills—phonological awareness, morphological awareness, phonological representation, word decoding, reading fluency, letter naming—in SpA rather than StA. Furthermore, this study examines several StA literacy teaching materials produced by different publishers in different Arab countries. The analysis demonstrates that more than 50% of the StA vocabulary used to teach initial literacy diverges from the child's familiar SpA. Arab children are learning initial and basic reading skills in an "estranged" language. Notably, acquiring literacy in L2 is not unheard of. For instance, children of immigrant families are commonly subjected to learning in a non-home language. However, what is uncommon in the case of Arabic-speaking countries is that all children—who are citizens of a single country and who speak a shared L1—initiate literacy acquisition in L2, a language different from their mother tongue.

A common recommendation to address the unfamiliarity of preschool-aged children to StA advocates for early oral exposure to the language variety to bridge the literacy-orality gap and thus prepare children for literacy acquisition in StA. Recommenders of this approach suggest achieving this through storybook read-aloud, cartoons, and TV shows in StA. The implementation and effectiveness of such a recommendation is questionable. First, the evidence shows a poor culture of reading to young children. Of those who read, many ignore the StA text and instantly translate it to SpA while other parents may lack competency in it. Second, learning a language through screen time is highly doubtful in light of the established scientific evidence demonstrating that children learn language actively, such as through social interactions, as opposed to passively through screen time or indirect speech. As discussed in this paper, socially interacting in StA cannot be expected. Generally, it seems inadequate to design an educational policy and a literacy acquisition program that is dependent on parents' actions in the years prior to entering school. Any education policy that maintains StA as the LoI needs to be designed acknowledging that children entering school receive StA as L2.

Accepting this state of affairs calls for examining the research on MTB education and its benefits. Under MTB education, literacy in L1 is a bridge to learning L2, the latter being a country's formal language or a foreign one. Numerous development institutions have supported MTB education policies, and many regions in the world have experimented with, or adopted, mother tongue language of instruction policies. The benefits of teaching in L1 extend beyond learning to read and write and are shown to impact achievement scores across various subjects, such as math and sciences, in addition to providing the steppingstone for proficiency in L2. In the case of StA and SpA, the cross-language transfer of skills is expected to be more direct than for many other L1/L2 languages. This is because both varieties share the same orthographic system and have overlapping

phonology and lexicon.

Pursuing MTB education policy is not without challenges. The resilience of the community to accept the mother tongue as the LoI is a key obstacle. This challenge emerged in the few attempts to include some dialect in the curriculum, by Algeria and Morocco, which were received with a public backlash (Arab Weekly, 2015; Morocco World News, 2018; The Economist, 2017). As discussed, most Arabs are not aware of the complexity of the Arabic language. They attribute the challenges they encounter in learning and commanding StA to the profoundness of the language, as opposed to the diglossic state of the language and its uniquely "frozen" quality. Accordingly, any efforts toward promoting the use of SpA as a LoI requires outreach and awareness campaigns targeted to a wide set of stakeholders, policymakers, teachers, parents, and the public. Various stakeholders will need to be educated on what constitutes a child's mother tongue. Additionally, it will be critical to address public fears and anxieties regarding undermining the learning of StA through adopting a MTB education policy. Addressing the latter will entail educating stakeholders on the role of the mother tongue as a bridge to learning StA. It can also be helpful to share relevant country experiences such as how teaching Welsh and Catalan in the United Kingdom and Spain do not threaten the official country languages, English and Spanish, respectively.

Another challenge often cited in discussions of MTB education relates to the choice of mother tongue in nations with multiple languages. Admittedly, this can be a challenge in some MENA countries, such as Algeria, Morocco, and Iraq (World Bank, 2020). Nevertheless, many countries with a similar challenge, such as Nigeria & South Africa, are dealing with this complex multilingual situation through experimenting with MTB education system that transition to the country's lingua franca in later grades. However, it is worthwhile to note that this is not likely to be a big concern in many other Arab states where most inhabitants are accustomed to one dominate dialect. For instance, in the case of Egypt, the Cairene dialect is familiar to most Egyptians, and deviations of other SpA vernaculars from Cairene SpA are minor compared to their disparity with StA. Additionally, teachers can be trained on how to explain such regional dialectical differences to learners and help them negotiate them.

Putting the political and religious considerations aside and prioritizing evidenced-based pedagogical methods, it is clear that MTB education is a policy that Arab nations need to consider. While LoI is one aspect of educational policy, it is a critical one. Arab countries need to accept the diglossic nature of Arabic, examine its costs and limitations, and try to manage and mitigate them. However, more research can help guide this process. Each Arab country needs to conduct randomized experiments to compare the outcomes of MTB education with traditional instruction in StA. Under such trails, students from both treated and control groups are compared on a wide range of measures, such as testing their speaking, listening, writing, and reading skills in SpA and StA, in addition

to their performance in other subject areas. As discussed in this paper, it will also be essential to assess the sensitivity of a mother tongue LoI policy to complementary ingredients that are critical to its success and to examine the requirements for the scalability of such a policy, if found successful. Additionally, it will be helpful to undertake quantitative studies that estimate the overlap between StA and SpA in children's lexicon for the different Arab nations (similar to Saiegh-Haddad & Spolsky, 2014). However, as suggested by the existing literature on the linguistic distance between the various Arab nations' SpAs and StA, indicating that Palestinian SpA is closest to the standard variety, one can expect that most countries will have less or very similar overlaps as those reported for Palestinian children.

In the meantime, and while Arab nations decide on what methodology to adopt to modernize Arabic language instruction, it is critical to encourage and guide the development of teaching material that takes diglossia into account. During the early years, there needs to be a deliberation in choosing vocabulary and language that overlaps in StA and SpA, with additional attention given to children's receptive vocabulary. Furthermore, encouraging children's literature in SpA, and enriching the Arab children's library with storybooks in the language they understand, can help popularize the culture of reading to children from a very young age. It will also support the development of emergent literacy skills that will serve children as they start learning to read and write in StA.

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The author declares no conflicts of interest regarding the publication of this paper.

References

Abadzi, H. (2017). *Improving Arab Students' Academic Achievement: The Crucial Role of Rapid Reading and Grammar Mastery in the Early Grades*. Al Qasimi Foundation for Policy Research. https://doi.org/10.18502/aqf.0047

Abu-Leil, A. K., Share, D. L., & Ibrahim, R. (2014). How Does Speed and Accuracy in Reading Relate to Reading Comprehension in Arabic? *Psicológica, 35,* 251-276.

Abunasser, M. (2015). *Computational Measures of Linguistic Variation: A Study of Arabic Varieties*. Ph.D. Thesis, University of Illinois at Urbana-Champaign.

Abu-Rabia, S. (2000). Effects of Exposure to Literary Arabic on Reading Comprehension in a Diglossic Situation. *Reading and Writing, 13,* 147-157. https://doi.org/10.1023/A:1008133701024

Abu-Rabia, S. (2019). The Role of Short Vowels in Reading Arabic: A Critical Literature Review. *Journal of Psycholinguistic Research, 48,* 785-795. https://doi.org/10.1007/s10936-019-09631-4

Abu-Rabia, S., Kedan, E., & Wattad, H. (2022). The Influence of Diglossia on Syntactic Proficiency in Modern Standard Arabic among Regular and Struggling Readers. *Creative Education, 13,* 252-282. https://doi.org/10.4236/ce.2022.131016

Al Watan (2017). *Education Statistics for Public and Private Schools in the Governorates* (Translated). https://www.elwatannews.com/news/details/1963482

Arab Reading Index-ARI (2016). *UNDP & Mohammed Bin Rashid Al Maktoum Foundation (MBRF).* UAE.

Arabic 21 Standard. https://arabthought.org/en/arabi21/index

Asaad, H., & Eviatar, Z. (2013). The Effects of Orthographic Complexity and Diglossia on Letter Naming in Arabic: A Developmental Study. *Writing Systems Research, 5,* 156-168. https://doi.org/10.1080/17586801.2013.862163

August, D., & Shanahan, T. (2006). *Developing Literacy in Second-Language Learners: A Report of the National Literacy Panel on Language, Minority Children, and Youth.* Center for Applied Linguistics, Lawrence Erlbaum Associates.

Ayari, S. (1996). Diglossia and Illiteracy in the Arab World, Language. *Culture and Curriculum, 9,* 243-253. https://doi.org/10.1080/07908319609525233

Ball, J. (2010). *Enhancing Learning of Children from Diverse Language Backgrounds: Mother Tongue-Based Bilingual or Multilingual Education in the Early Years.* UNESCO. http://unesdoc.unesco.org/images/0021/002122/212270e.pdf

Bassiouney, R. (2020). *Arabic Sociolinguistics* (2nd ed.). Georgetown University Press. https://doi.org/10.1515/9781474457361

Bensen, C. (2004). *The Importance of Mother Tongue-Based Schooling for Educational Quality.* Commissioned Study for EFA Global Monitoring Report, UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000146632

Boyle, H., & Salah, W. (2018). Reading Reform in Egypt: Do the Second-Grade Textbooks Reflect the New Direction? *Prospects: Quarterly Review of Comparative Education, 47,* 197-213. https://doi.org/10.1007/s11125-018-9435-z

Brockington, G., Moreira, A. P. G., Buso, M. S., da Silva, S. G., Altszyler, E., Fischer, R., & Moll, J. (2021). Storytelling Increases Oxytocin and Positive Emotions and Decreases Cortisol and Pain in Hospitalized Children. *Proceedings of the National Academy of Sciences of the United States of America, 118,* e2018409118. https://doi.org/10.1073/pnas.2018409118

Bull, T. (1990). Teaching School Beginners to Read and Write in the Vernacular. In E. H. Jahr, & O. Lorentz (Eds.), *Tromsø Linguistics in the Eighties* (Vol. 11, pp. 69-84). Novus Press.

Cromley, J. G. (2009). Reading Achievement and Science Proficiency: International Comparisons from the Programme on International Student Assessment. *Reading Psychology, 30,* 89-118. https://doi.org/10.1080/02702710802274903

Cummins, J. (1979). Linguistic Interdependence and the Educational Development of Bilingual Children. *Review of Educational Research, 49,* 222-251. https://doi.org/10.3102/00346543049002222

Cummins, J. (1981). The Role of Primary Language Development in Promoting Education Success for Language Minority Students. In California State Department of Education (Ed.), *Schooling and Language Minority Students: A Theoretical Framework* (pp. 3-49). Department of Education, Evaluation, Dissemination and Assessment Center.

Cummins, J. (2000). *Language, Power, and Pedagogy: Bilingual Children in the Crossfire*. Multilingual Matters. https://doi.org/10.21832/9781853596773

Cummins, J. (2007). Rethinking Monolingual Instructional Strategies in Multilingual Classrooms. *Canadian Journal of Applied Linguistics, 10,* 221-240. https://journals.lib.unb.ca/index.php/CJAL/article/view/19743/21428

Daniels, P., & Share, D. (2018) Writing System Variation and Its Consequences for Reading and Dyslexia. *Scientific Studies of Reading, 22,* 101-116. https://doi.org/10.1080/10888438.2017.1379082

DeGraff, M. (2016). Mother Tongue Books in Haiti: The Power of Kreyòl in Learning to Read and in Reading to Learn. *Prospects, 46,* 435-464. https://doi.org/10.1007/s11125-017-9389-6

Dempster, E. R., & Reddy, V. (2007). Item Readability and Science Achievement in TIMSS 2003 in South Africa. *Science Education, 91,* 906-925. https://doi.org/10.1002/sce.20225

Eviatar, Z., & Ibrahim, R. (2000). Bilingual Is as Bilingual Does: Metalinguistic Abilities of Arabic-Speaking Children. *Applied Psycholinguistics, 21,* 451-471. https://doi.org/10.1017/S0142716400004021

Eviatar, Z., & Ibrahim, R. (2014). Why Is It Hard to Read Arabic? In E. Saiegh-Haddad, & M. Joshi (Eds.), *Handbook of Arabic Literacy: Insights and Perspectives* (pp. 77-96). Springer. https://doi.org/10.1007/978-94-017-8545-7_4

Fahmy, Z. (2011). *Ordinary Egyptians: Creating the Modern Nation through Popular Culture*. Stanford University Press. https://doi.org/10.1515/9780804777742

Feitelson, D., Goldstein, Z., Iraqi, J., & Share, D. (1993). Effects of Listening to Story Reading on Aspects of Literacy Acquisition in a Diglossic Situation. *Reading Research Quarterly, 28,* 71-79. https://doi.org/10.2307/747817

Ferguson, C. A. (1959). Diglossia. *Word, 15,* 325-340. https://doi.org/10.1080/00437956.1959.11659702

Ganuza, N., & Hedman, G. (2019). The Impact of Mother Tongue Instruction on the Development of Biliteracy: Evidence from Somali-Swedish Bilinguals. *Applied Linguistics, 40,* 108-131. https://doi.org/10.1093/applin/amx010

Gleason, J. B., & Ratner, N. B. (2009). *The Development of Language* (Chapter 4). Pearson.

Goodrich, J. M., Lonigan, C. J., & Farver, J. M. (2013). Do Early Literacy Skills in Children First Language Promote Development of Skills in their Second Language? An Experimental Evaluation of Transfer. *Journal of Educational Psychology, 105,* 414-426. https://doi.org/10.1037/a0031780

Haeri, N. (2003). *Sacred Language, Ordinary People*. Palgrave Macmillan. https://doi.org/10.1057/9780230107373

Haeri, N. (2009). The Elephant in the Room: Language and Literacy in the Arab World. In D. R. Olson, & N. Torrance (Eds.), *The Cambridge Handbook of Literacy* (pp. 418-430). Cambridge University Press. https://doi.org/10.1017/CBO9780511609664.023

Harrat, S., Meftouh, K., Abbas, M., Jamoussi, S., Saad, M., & Smaili, K. (2015). Cross-Dialectal Arabic Processing. In A. Gelbukh (Ed.), *Computational Linguistics and Intelligent Text Processing. CICLing 2015. Lecture Notes in Computer Science* (Vol. 9041, pp. 620-632). Springer. https://doi.org/10.1007/978-3-319-18111-0_47

Hasbrouck, J., & Tindal, G. (2017). *An Update to Compiled ORF Norms* (Technical Report No. 1702). Behavioral Research and Teaching, University of Oregon.

Hutton, J., Dudley, J., & Horowitz-Kraus, T. (2019). Functional Connectivity of Atten-

tion, Visual and Language Networks during Audio, Illustrated and Animated Stories in Preschool-Age Children. *Brain Connectivity, 9,* 580-592. https://doi.org/10.1089/brain.2019.0679

Ibrahim, R. (2009). The Cognitive Basis of Diglossia in Arabic: Evidence from a Repetition Priming Study within and Between Languages. *Psychology Research Behavior and Management, 2,* 93-105. https://doi.org/10.2147/PRBM.S5138

Ibrahim, R. (2013a). Reading in Arabic: New Evidence for the Role of Vowels Signs. *Creative Education, 4,* 248-253. https://doi.org/10.4236/ce.2013.44036

Ibrahim, R. (2013b). Beginning Readers in Arabic and the Distance between Literary and Spoken Arabic. *Creative Education, 4,* 307-314. https://doi.org/10.4236/ce.2013.45046

Ibrahim, R., & Aharon-Peretz, J. (2005). Is Literary Arabic a Second Language for Native Arab Speakers? Evidence from Semantic Priming Study. *Journal of Psycholinguistic Research, 34,* 51-70. https://doi.org/10.1007/s10936-005-3631-8

Ibrahim, R., & Bentin, S. (2000). Bilingual Organization of Spoken and Literary Arabic in Native Arabic Speakers: Two Languages or One? Manuscript submitted for publication.

Iraqi, J. (1990). *Kriah bifnejalde gan chovah dovre aravit leu'at peulot ha 'asharah alternativiot kederech leshipur havanat hanikra umejumanujot lashon [Reading to Arabic-Speaking Kindergarten Children Compared to Alternative Enrichment Activities as a Means of Improving Reading Comprehension and Language Skills].* Unpublished Master's Thesis, University of Haifa.

Kerwin, J., & Thorton, R. L. (2021). Making the Grade: The Sensitivity of Education Program Effectiveness to Input Choices and Outcome Measures. *Review of Economics and Statistics, 103,* 251-264. https://doi.org/10.1162/rest_a_00911

Khamis-Dakwar, R., & Froud, K. (2007). Lexical processing in Two Language Varieties: An Event-Related Brain Potential Study of Arabic Native Speakers. In M. Mughazy (Ed.), *Perspectives on Arabic Linguistics* (pp. 153-168). John Benjamins. https://doi.org/10.1075/cilt.290.13kha

Khamis-Dakwar, R., Froud, K., & Gordon, P. (2012). Acquiring Diglossia: Mutual Influence of Formal and Colloquial Arabic on Children's Grammatical Judgement. *Journal of Child Language, 39,* 61-89. https://doi.org/10.1017/S0305000910000784

Khateb, A., Taha, H., lias, I., & Ibrahim, R. (2013). The Effect of the Internal Connectedness of Written Arabic Words on the Process of the Visual Recognition: A Comparison between Skilled and Dyslexic Readers. *Writing Systems Research, 5,* 214-233. https://doi.org/10.1080/17586801.2013.834244

Kim, Y. S. G., & Piper, B. (2019). Cross-Language Transfer of Reading Skills: An Empirical Investigation of Bidirectionality and the Influence of Instructional Environments. *Reading and Writing, 32,* 839-871. https://doi.org/10.1007/s11145-018-9889-7

Koda, K., & Zehler, A. (Eds.) (2008). *Learning to Read across Languages: Cross-Linguistic Relationships in First- and Second-Language Literacy Development.* Routledge. https://doi.org/10.4324/9780203935668

Krcmar, M., Grela, B., & Lin, K. (2007). Can Toddlers Learn Vocabulary from Television? An Experimental Approach. *Media Psychology, 10,* 41-63.

Kuhl, P., Tsao, F., & Liu, H. (2003). Foreign-Language Experience in Infancy: Effects of Short-Term Exposure and Social Interaction on Phonetic Learning. *Proceedings of the National Academy of Sciences of the United States of America, 100,* 9096-9101. https://doi.org/10.1073/pnas.1532872100

Kwaik, K., Saad, M., Chatzikyriakidis, S., & Dobnik, S. (2018). A Lexical Distance Study of Arabic Dialects. *Procedia Computer Science, 142,* 2-13.

https://doi.org/10.1016/j.procs.2018.10.456

Lallier, M., & Carreiras, M. (2017). Cross-Linguistic Transfer in Bilinguals Reading in Two Alphabetic Orthographies: The Grain Size Accommodation Hypothesis. *Psychonomic Bulletin & Review, 25,* 386-401. https://doi.org/10.3758/s13423-017-1273-0

Lonigan, C. J., Schatschneider, D., & Westberg, L. (2008). Impact of Code-Focused Interventions on Young Children's Early Literacy Skills. In *Developing Early Literacy. Report of the National Early Literacy Panel* (pp. 107-151). National Institute for Literacy.

Louie, B., & Sierschynski, J. (2020). Culturally Sustaining Instruction for Arabic-Speaking English Learners. *The Reading Teacher, 74,* 159-167. https://doi.org/10.1002/trtr.1920

Luk, G., & Bialystok, E. (2008). Common and Distinct Cognitive Bases for Reading in English-Cantonese Bilinguals. *Applied Psycholinguistics, 29,* 269-289. https://doi.org/10.1017/S0142716407080125

Maamouri, M. (1998). *Language Education and Human Development: Arabic Diglossia and Its Impact on the Quality of Education in the Arab Region*. World Bank, Mediterranean Development Forum.

Mendelsohn, A., Cates, C. B., Weisleder, A., Johnson, S., Seery, A., Canfield, C., Huberman, H., & Dreyer, B. (2018). Reading Aloud, Play, and Social-Emotional Development. *Pediatrics, 141,* e20173393. https://doi.org/10.1542/peds.2017-3393

Morocco World News (2018). *Morocco's Education Ministry Defends Use of Darija in Primary School*. https://www.moroccoworldnews.com/2018/09/253041/education-ministry-darija-school

Mullis, I. V. S., & Martin, O. M. (2013). *TIMSS 2015 Assessment Frameworks*. Boston College, TIMSS & PIRLS International Study Center. http://timssandpirls.bc.edu/timss2015/frameworks.html

Myhill, J. (2014). The Effect of Diglossia on Literacy in Arabic and Other Languages. In E. Saigh-Haddad, & R. M. Joshi (Eds.), *Handbook of Arabic Literacy: Insights and Perspectives* (pp. 197-223). Springer. https://doi.org/10.1007/978-94-017-8545-7_9

O'Reilly, T., & McNamara, D. S. (2007). The Impact of Science Knowledge, Reading Skill, and Reading Strategy Knowledge on More Traditional "High-Stakes" Measures of High School Students' Science Achievement. *American Educational Research Journal, 44,* 161-196. https://doi.org/10.3102/0002831206298171

OECD (2002). *Reading for Change: Performance and Engagement across Countries. Results from PISA 2000*. Organization for Economic Cooperation and Development. https://doi.org/10.1787/9789264099289-en

OECD (2018). *PISA 2018 Results*. https://www.oecd.org/pisa/publications/pisa-2018-results.htm

Osterberg, T. (1961). *Bilingualism and the First School Language: An Educational Problem Illustrated by Results from a Swedish Dialect Area*. Västerbottens Tryckeri.

Pavlou, P., & Papapavlou, A. (2004). Issues of Dialect Use in Education from the Greek Cypriot Perspective. *International Journal of Applied Linguistics, 14,* 243-258. https://doi.org/10.1111/j.1473-4192.2004.00061.x

Piper, B., Zuilkowski, S., & Ong'ele, S. (2016). Implementing Mother Tongue Instruction in the Real World: Results from a Medium-Scale Randomized Controlled Trial in Kenya. *Comparative Education Review, 60,* 776-807. https://doi.org/10.1086/688493

Piper, B., Zuilkowski, S., Dubeck, M., Jepkemei, E., & King, S. J. (2018b) Identifying the Essential Ingredients to Literacy and Numeracy Improvement: Teacher Professional Development and Coaching, Student Textbooks, and Structured Teachers' Guides. *World Development, 106,* 324-336. https://doi.org/10.1016/j.worlddev.2018.01.018

Piper, B., Zuilkowskib, S., Kwayumbac, D., & Oyanga, A. (2018a). Examining the Secondary Effects of Mother Tongue Literacy Instruction in Kenya: Impacts on Student Learning in English, Kiswahili, and Mathematics. *International Journal of Educational Development, 59,* 110-127. https://doi.org/10.1016/j.ijedudev.2017.10.002

PIRLS (2016). *Boston College*. https://timssandpirls.bc.edu/pirls2016/index-pirls.html

Powers, S. J., Wang, Y., Beach, S. D., Sideridis, G. D., & Gaab, N. (2016). Examining the Relationship between Home Literacy Environment and Neural Correlates of Phonological Processing in Beginning Readers with and without a Familial Risk for Dyslexia: An fMRI Study. *Annals of Dyslexia, 66,* 337-360. https://doi.org/10.1007/s11881-016-0134-2

PwC (2018/2019). *Understanding Middle East Education*. Egypt Country Profile. https://www.pwc.com/m1/en/industries/education/publications/education-country-profile-egypt.pdf

Queen Rania Foundation (2021). *A Report on the Effect of Arabic Language Diglossia on Teaching and Learning.*

Ramachandran, R. (2012), *Language Use in Education and Primary Schooling Attainment: Evidence from a Natural Experiment in Ethiopia, No 2012/34*. Working Paper, Institut d'Economia de Barcelona (IEB).

Reed, D., Petscher, Y., & Truckenmiller, A. (2016). The Contribution of General Reading Ability to Science Achievement. *Reading Research Quarterly, 50,* 253-266. https://doi.org/10.1002/rrq.158

Rickford, J. (2005 updated). In J. D. Ramirez, T. G. Wiley, H. Deklerk, & E. Lee (Eds.), *Ebonics: The Urban Evolution Debate* (1999, pp. 23-41). http://johnrickford.com/portals/45/documents/papers/Rickford-2005-1999-Using-the-Vernacular-to-Teach-the-Standard.pdf

Robb, M. B., Richert, R. A., & Wartella, E. A. (2009). Just a Talking Book? Word Learning from Watching Baby Videos. *British Journal of Developmental Psychology, 27,* 27-45. https://doi.org/10.1348/026151008X320156

Roseberry, S., Hirsh-Pasek, K., & Golinkoff, R. (2014). Skype Me! Socially Contingent Interactions Help Toddlers Learn Language. *Child Development, 85,* 956-970. https://doi.org/10.1111/cdev.12166

Roseberry, S., Hirsh-Pasek, K., Parish-Morris, J., & Golinkoff, R. (2009). Live Action: Can Young Children Learn Verbs from Video? *Child Development, 80,* 1360-1375. https://doi.org/10.1111/j.1467-8624.2009.01338.x

Said, E. (2002). Living in Arabic. *Raritan, 21,* 220-236.

Saiegh-Haddad E, & Haj, L. (2018). Does Phonological Distance Impact Quality of Phonological Representations? Evidence from Arabic Diglossia. *Journal of Child Language, 45,* 1377-1399. https://doi.org/10.1017/S0305000918000302

Saiegh-Haddad, E. (2003). Linguistic Distance and Initial Reading Acquisition: The Case of Arabic Diglossia. *Applied Psycholinguistics, 24,* 115-135. https://doi.org/10.1017/S0142716403000225

Saiegh-Haddad, E. (2004). The Impact of Phonemic and Lexical Distance on the Phonological Analysis of Words and Pseudo-Words in a Diglossic Context. *Applied Psycholinguistics, 25,* 495-512. https://doi.org/10.1017/S0142716404001249

Saiegh-Haddad, E. (2017). MAWRID: A Model of Arabic Word Reading in Development. *Journal of Learning Disabilities, 51,* 454-462. https://doi.org/10.1177/0022219417720460

Saiegh-Haddad, E. (2020). The Impact of Linguistic Distance on Dyslexia in Dialect Speak-

ers: The Case of Arabic Diglossia. In J. Washington, D. Compton, & P. McCardle (Eds.), *Dyslexia: Revisiting Etiology, Diagnosis, and Treatment*. Brooks Publishing.

Saiegh-Haddad, E. (2022). A Psycholinguistic-Developmental Perspective on the Role of Diglossia in Reading: Issues, Methods, and Findings in Arabic as a Testcase. In E. Saiegh-Haddad, Laks, L., & McBride, C. (Eds.), *Handbook of Literacy in Diglossia and Dialectal Contexts: Psycholinguistic, Neurolinguistic and Educational Perspectives* (76-98). Springer. https://doi.org/10.1007/978-3-030-80072-7

Saiegh-Haddad, E., & Henkin-Roitfarb, R. (2014). The Structure of Arabic Language and Orthography. In E. Saiegh-Haddad, & M. Joshi (Eds.), *Handbook of Arabic Literacy: Insights and Perspectives* (pp. 3-28). Springer. https://doi.org/10.1007/978-94-017-8545-7_1

Saiegh-Haddad, E., & Schiff, R. (2016). The Impact of Diglossia on Voweled and Unvoweled Word Reading in Arabic: A Developmental Study from Childhood to Adolescence. *Scientific Studies of Reading, 20,* 311-324. https://doi.org/10.1080/10888438.2016.1180526

Saiegh-Haddad, E., & Spolsky, B. (2014). Acquiring Literacy in a Diglossic Context: Problems and Prospects. In E. Saiegh-Haddad, & M. Joshi (Eds.), *Handbook of Arabic Literacy: Insights and Perspectives* (pp. 225-240). Springer. https://doi.org/10.1007/978-94-017-8545-7_10

Saiegh-Haddad, E., Shahbari-Kassem, A., & Schiff, R. (2020). Phonological Awareness in Arabic: The Role of Phonological Distance, Phonological-Unit Size and SES. *Reading and Writing, 33,* 1649-1674. https://doi.org/10.1007/s11145-020-10019-3

Schiff, R., & Saiegh-Haddad, E. (2017) When Diglossia Meets Dyslexia: The Effect of Diglossia on Voweled and Unvoweled Word Reading among Native Arabic-Speaking Dyslexic Children. *Reading and Writing, 30,* 1089-1113. https://doi.org/10.1007/s11145-016-9713-1

Schiff, R., & Saiegh-Haddad, E. (2018). Development and Relationships between Phonological Awareness, Morphological Awareness and Word Reading in Spoken and Standard Arabic. *Frontiers in Psychology, 9,* Article No. 356. https://doi.org/10.3389/fpsyg.2018.00356

Seid, Y. (2018). The Impact of Learning First in Mother Tongue: Evidence from a Natural Experiment in Ethiopia. *Applied Economics, 51,* 577-593. https://doi.org/10.1080/00036846.2018.1497852

Share, D., & Daniels, P. (2016). Aksharas, Alphasyllabaries, Abugidas, Alphabets and Orthographic Depth: Reflections on Rimzhim, Katz and Fowler (2014). *Writing Systems Research, 8,* 17-31. https://doi.org/10.1080/17586801.2015.1016395

Shendy, R. (2019). The Limitations of Reading to Young Children in Literary Arabic: The Unspoken Struggle with Arabic Diglossia. *Theory and Practice in Language Studies, 9,* 123-130. https://doi.org/10.17507/tpls.0902.01

Siegel, J. (2006). Keeping Creoles and Dialects Out of the Classroom: Is It Justified? In S. J. Nero (Ed.), *Dialects, Englishes, Creoles, and Education* (pp. 39-67). Lawrence Erlbaum Associates Publishers.

Simpkins, G. A., & Simpkins, C. (1981). Cross Cultural Approach to Curriculum Development. In G. Smitherman (Ed.), *Black English and the Education of Black Children and Youth: Proceedings of the National Invitational Symposium on the King Decision* (pp. 221-240). Center for Black Studies, Wayne State University.

Taha, H. (2016). Deep and Shallow in Arabic Orthography: New Evidence from Reading Performance of Elementary School Native Arab Readers. *Writing Systems Research, 8,*

133-142. https://doi.org/10.1080/17586801.2015.1114910

Taha, H., & Khateb, A. (2013). Resolving the Orthographic Ambiguity during Visual Word Recognition in Arabic: An Event-Related Potential Investigation. *Frontiers in Human Neuroscience, 7,* Article 821. https://doi.org/10.3389/fnhum.2013.00821

Taylor, G., Monaghan, P., & Westermann, G. (2018). Investigating the Association between Children's Screen Media Exposure and Vocabulary Size in the UK, *Journal of Children and Media, 12,* 51-65. https://doi.org/10.1080/17482798.2017.1365737

The Arab Weekly (2015). *Teaching of Colloquial Arabic Divides Moroccans*. https://thearabweekly.com/teaching-colloquial-arabic-divides-moroccans

The Economist (2017). *A Battle over Language is Hampering Algeria's Development*. https://www.economist.com/middle-east-and-africa/2017/08/17/a-battle-over-language-is-hampering-algerias-development

UNESCO (2008a) *Mother Tongue Matters: Local Language as a Key to Effective Learning*. https://bangkok.unesco.org/content/mother-tongue-matters-local-language-key-effective-learning

UNESCO (2008b). *Improving the Quality of Mother Tongue-Based Literacy and Learning Case Studies from Asia, Africa, and South America*. https://bangkok.unesco.org/content/improving-quality-mother-tongue-based-literacy-and-learning-case-studies-asia-africa-and

UNICEF (2016). *The Impact of Language Policy and Practice on Children's Learning: Evidence from Eastern and Southern Africa*. https://www.unicef.org/esa/sites/unicef.org.esa/files/2018-09/UNICEF-2016-Language-and-Learning-FullReport.pdf

UNICEF (2019). *Early Literacy and Multilingual Education in South Asia*. https://www.unicef.org/rosa/reports/early-literacy-and-multilingual-education-south-asia

USAID & RTI (2011). *Improving Learning Outcomes through Mother Tongue-Based Education*. RTI International.

USAID & RTI International (2012). *Student Performance in Reading and Mathematics, Pedagogic Practice, and School Management in Jordan*. http://pdf.usaid.gov/pdf_docs/pa00jbnh.pdf

USAID & RTI International (2013). *Egypt Grade 3 Early Guide Reading Assessment Baseline*.

USAID (2012). *A Helping Hand for Mother Tongue Texts*. https://www.usaid.gov/news-information/frontlines/new-players-and-graduation/helping-hand-mother-tongue-texts

USAID (2014). *USAID & Ministry of Education Launch a National Mother Tongue Reading Program*. https://et.usembassy.gov/usaid-ministry-education-launch-national-mother-tongue-reading-program/

USAID (2017). *Mother Tongue Based Multilingual Education in The Philippines: A Study of Literacy Trajectories*. Education Development Center, Inc.

Versteegh, K. (2001). *The Arabic Language*. Edinburgh University Press.

Walter, S., & Chuo, G. (2011). *The Kom Experimental Mother Tongue Education*. Project Report for 2011, MTB-MLE Network.

Walter, S., & Dekker, D. (2011). Mother Tongue Instruction in Lubuagan: A Case Study

from the Philippines. *International Review of Education, 57,* 667-683. https://doi.org/10.1007/s11159-011-9246-4

Wang, M., Park, Y., & Lee, K. R. (2006). Korean-English Biliteracy Acquisition: Cross-Language Phonological and Orthographic Transfer. *Journal of Educational Psychology, 98,* 148-158. https://doi.org/10.1037/0022-0663.98.1.148

Wang, M., Yang, C., & Cheng, C. (2009). The Contributions of Phonology, Orthography, and Morphology in Chinese-English Biliteracy Acquisition. *Applied Psycholinguistics, 30,* 291-314. https://doi.org/10.1017/S0142716409090122

Wawire, B. A., & Kim, Y.-S. G. (2018) Cross-Language Transfer of Phonological Awareness and Letter Knowledge: Causal Evidence and Nature of Transfer. *Scientific Studies of Reading, 22,* 443-461. https://doi.org/10.1080/10888438.2018.1474882

Whitehurst, G. J., & Lonigan, C. J. (1998). Child Development and Emergent Literacy. *Child Development, 69,* 848-872. https://doi.org/10.1111/j.1467-8624.1998.tb06247.x

World Bank & SEAMEO (2009). *Mother Tongue as Bridge Language of Instruction. Policies and Experiences in Southeast Asia*.

World Bank & UNESCO (2019). *Learning Poverty.* Country Reports. https://www.worldbank.org/en/topic/education/brief/learning-poverty

World Bank (1997). *The Use of First and Second Language in Education. A Review of International Experience*. https://documents1.worldbank.org/curated/en/131161468770987263/pdf/multi-page.pdf

World Bank (2020). *Expectations and Aspirations: A New Framework for Education in the Middle East and North Africa*. World Bank Group.

World Bank (2021a). *Advancing Arabic Language Teaching and Learning—A Path to Reducing Learning Poverty in the Middle East and North Africa*. World Bank Group.

World Bank (2021b). *Loud and Clear: Effective Language of Instruction Policies for Learning*. A World Bank Policy Approach Paper, World Bank Group.

Yiakoumetti, A. (2006). A Bidialectal Program for Learning of Standard Modern Greek in Cyprus. *Applied Linguistics, 27,* 295-317. https://doi.org/10.1093/applin/aml012