

## DIALECT AWARENESS AND LITERACY IN A BIDIALECTAL SETTING

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**Abstract:** This study, which took place in a bidialectal setting, examined the extent to which dialect awareness in Time 1 can predict reading and spelling in Time 2. The children ( $N = 49$ , 7- to 9-year olds) were learning literacy in Cyprus where a dialect is spoken in certain contexts but Standard Modern Greek is also widely used. Because there are no standardised measures of dialect awareness in Greek, we developed measures of this factor as part of the study. The dialect measures were related to reading and morphological spelling tests six months later. The educational implication of these results, which still must be tested through intervention studies, is that improving children's dialect awareness may lead to enhanced success in literacy learning in bidialectal settings.

**Key words:** Dialect awareness, Greek Cypriot Dialect, Reading, Spelling, Standard Modern Greek.

### INTRODUCTION

The aim of this study was to investigate whether dialect awareness is related to children's literacy achievement. The study took place in Cyprus where the Greek Cypriot Dialect (GCD) is spoken in certain contexts (e.g., in the family, in radio comedies, in television humorous commercials often for local products, in shops and in the streets) but where Standard Modern Greek (SMG) is also widely used, for example in the media such as news broadcasting and in formal settings such as school and the Parliament. Because children learn literacy in a variety of Greek that is

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different from the one used at home and in most settings where they interact before they start going to school, it is possible that the colloquial variety interferes with their literacy learning. In what follows, we first provide some background on the question of how the use of a dialect relates to literacy learning. We then present a brief description of how the GCD differs from SMG. Finally, we report a study that investigated the internal consistency of the measures of awareness of the dialect that we developed and their relation to measures of reading and spelling.

### ***Background***

The most important property of orthographic systems “is the universal language constraint: All writing systems represent spoken languages” (Perfetti, 2003, p. 3), and children in different countries must learn how their particular languages are represented in the orthographies they are learning. In situations in which the written language differs from the spoken language, e.g., the standard variety from the non-standard variety/dialect, children should find it more difficult to realise that written language encodes one of the varieties they speak. This is because non-standard varieties, although no different in complexity from the standard varieties (Schilling-Estes, 2008), do not have their own orthography, and spelling is based on the standard variety (Petyt, 1980). A dialect or a non-standard variety, that is, any variety of a language shared by a group of speakers (Wolfram & Schilling-Estes, 2006), differs from the standard variety in respect to pronunciation and grammar (McDavid, 1969).

The more distant is the spoken variety from the orthography, the more the additional difficulties the children are expected to encounter in their learning (Goodman, 1969). From an early age children learn to use a non-standard variety which differs from the medium of instruction as well as from the written language used in school books (e.g., Labov, 2003; Saiegh-Haddad, 2005; Washington, 2001); thus, they need to write words which they do not use in their spoken language and also to read and understand words which are different from those in the dialect (Fasold, 1969). Because dialects are usually not explicitly taught and the differences between the dialect and the standard variety tend to be ignored by the educational authorities, bi-dialectal children need to make an increased effort to learn how to read and spell in the standard variety which does not correspond to their spoken language at home (e.g., Labov, 1995; Labov & Baker, 2003; Saiegh-Haddad, 2003).

Greek orthography is viewed as transparent because pronunciation is predictable from spelling and the sound of each single letter or digraph remains constant in different contexts (Chitiri & Willows, 1994; Goswami, Porpodas, & Wheelwright, 1997). Thus, Greek children master word reading quickly and their progress is

predicted from their phonological awareness (e.g., Aidinis & Nunes, 2001; Harris & Giannouli, 1999; Porpodas, 1991). Because the relation between oral and written words in Greek is not exhausted by phoneme-grapheme correspondences, morphological awareness is also important in spelling because the spelling of some words, particularly of inflections, is not predictable from pronunciation. There are cases in which some phonemes correspond to different spellings. For example, in Greek, the phoneme /i/ corresponds to five different graphemes: (“ι”, “η”, “ει”, “οι”, “υ”). The two words ‘καλή’, /kal’i/ (*nice*, in the feminine and singular, as in *nice woman*) and ‘καλοί’, /kal’i<sup>1</sup>/ (*nice*, in the masculine and plural, as in *nice men*) are homophones but are spelled differently. When these many-to-one correspondences happen in the spelling of suffixes and prefixes, the right grapheme can be predicted from morphology, as in ‘καλή’ and ‘καλοί’. There is evidence that children’s awareness of morphemes is important for mastering these spellings (e.g., Bryant, Nunes, & Aidinis, 1999; Chliounaki & Bryant, 2002, 2003; Pittas & Nunes, 2014).

Thus, learning literacy in Greek requires both phonological awareness and morphological awareness. The question examined in this study is how this learning task changes when children learn literacy in one variety of the language but the variety that they use in everyday life is a different one. Greek Cypriot children live in a bidialectal setting: they speak the GCD dialect in most social contexts but must learn to read and write in SMG. The differences between the spoken and the written forms are phonological and morphological, and may have the effect of transforming a transparent orthography into a less transparent one, perhaps more difficult to master.

### *Learning literacy in bidialectal settings*

This bidialectal setting is not unique to Cyprus: there are many settings in which the colloquial variety of the language spoken by the child differs from another form, often more prestigious, which is written. Labov (1995) hypothesised that differences between the linguistic variety spoken by a child and the form that is used in writing may result in reading errors, which will then miscue the child with respect to the meaning of the text being read. For example, a spoken dialect may create a new homophone (in African-American English [AAE], “told” and “toll” are homophones, but not in Standard<sup>2</sup> American English [SAE]), and the child has to identify the correct meaning

<sup>1</sup> The International Phonetic Alphabet (IPA) is used to represent the sounds of the Greek Cypriot Dialect and Standard Modern Greek.

<sup>2</sup> Different researchers use different terminologies to refer to these two forms of English. We will use African American English (AAE) and Standard American English (SAE) throughout this paper for consistency.

from the spelling without reference to the words as spoken in his or her dialect (Labov & Baker, 2003). Morphological differences between a standard and a colloquial form can also exist: for example, in AAE, the regular past tense inflection is often omitted. Labov and Baker (2003) raised the hypothesis that this omission may result in comprehension difficulties in further reading of the text. There can also be intrusions from the dialect in writing, because the child may represent in writing the form that (s)he uses in speaking. Treiman (2004), for example, analysed the intrusion of features of AAE in the writing of adults, speakers of AAE or SAE. She focused on the phonological differences between AAE and SAE; for example, the final consonant of words such as “ballad” is pronounced as voiceless /t/ rather than voiced /d/ in AAE. Participants were first asked to show their familiarity with each of the words, then asked to spell the word heard in a sentence and to pronounce the word. Treiman observed that speakers of SAE, in comparison to speakers of AAE, performed significantly better in spelling and produced fewer voiceless final consonants in spelling (e.g., ‘haggart’ for ‘haggard’). It was also found that the researcher’s pronunciation of the dictated words influenced spelling; African-American students showed more intrusions in spelling when the experimenter was a native AAE speaker.

Evidence for the hypothesis that dialect users face greater difficulty in literacy learning has accumulated in the last decades. There are three different ways in which this effect could be mediated, and all three might operate at the same time; these different ways are not alternative hypotheses. First, familiarity may be an important factor: children who are exposed less often to a form of the language but then have to learn literacy in this variety would be at a disadvantage when learning to read. Evidence for the familiarity hypothesis can be obtained from studies with children learning to read Arabic, who are invariably involved in a bidialectal situation. Arabic has usually two forms, a classical form, *FusHa*, which is spoken on formal occasions, and a vernacular form, *Aamiyya*, used in everyday life (Feitelson, Goldstein, Iraqi, & Share, 1993). Children learn to read and write in the classical form. Abu-Rabia (2000) assessed children’s reading comprehension when they were either in first or second grade. About half of the children had been exposed to classical Arabic throughout their pre-school years through story reading, whereas the others had not been exposed to this form of the language in pre-school, but only to their vernacular. The group that had been exposed to literary Arabic performed significantly better in the reading comprehension tests when they were in first or second grade than the group that had not received this familiarisation during the preschool period.

Second, it has been hypothesised that children in bidialectal situations need to invest more cognitive effort in order to master word reading and spelling (e.g., Labov, 1995; Labov & Baker, 2003; Saiegh-Haddad, 2003). Evidence for this greater cognitive effort

has been obtained also with children learning literacy in Arabic. Saiegh-Haddad (2003) observed that preschool and first grade children who were Arabic dialect speakers had significantly greater difficulty in isolating phonemes belonging to the standard variety than isolating phonemes in words from the vernacular form they spoke. In fact, their performance in these phonological awareness tasks was better with pseudowords derived from words in the colloquial variety they spoke than with real words in the standard form of the language (Saiegh-Haddad & Geva, 2008). Thus, isolating phonemes in the standard variety demanded greater effort, although the children were performing basically the same cognitive operation of phoneme deletion in both tasks.

Finally, Terry (2010) suggested a third possible mediator for the greater difficulty that dialect users seem to have in learning literacy. She suggested that, beyond the use of a dialect *per se*, language awareness may be an important factor in literacy learning for dialect users. Children who use AAE in interactions with an adult in school, a situation in which the standard variety is expected, may be less aware of the different uses of the language than children who use fewer markers of the dialect in this situation. Terry's rationale for the role of language awareness was based on the observation that, in her study, the use of AAE correlated with emergent literacy measures obtained when the children were in kindergarten. She expected that there would be negative correlations between use of AAE and those measures of early literacy that are dialect sensitive, such as rhyme recognition, but not with those that are not, such as knowledge of the alphabet. However, negative correlations were observed both when the emergent literacy measures were dialect sensitive and when they were not. This led her to hypothesise that there might be a more general explanation for these correlations, namely, children who use AAE in situations where it is not the expected form of the language are less aware of dialect differences and language in general and thus perform less well in all emergent literacy measures. In this study, we examined the hypothesis that dialect awareness is a predictor of literacy learning. Because dialect variations are not random, but rather systematic with respect to the language that is represented in writing (see Terry, 2006), children who use a dialect and are aware of how it differs from the standard form are predicted to have an advantage in learning to read and spell over children who use the same dialect but are not aware of how the two varieties of the language are connected.

### *The Greek Cypriot Dialect and its relation to literacy learning*

Dating back to the 12th century BC Greek groups, the Achaeans, settled in Cyprus from the Peloponnese of mainland Greece spreading the Mycenaean language, the language which Michael Ventris deciphered in 1950s and showed to have been Greek

(Horrocks, 2010). The Greek Cypriot Dialect (GCD) represents the ‘East Greek’ varieties spoken in Southern Greece (Horrocks, 2010; Newton, 1972a; Panayotou, 2007) and archaeological evidence shows that the GCD shares numerous particular linguistic features with the Arcadian dialect spoken in the heart of the Peloponnese (Chatzioannou, 1996; Panayotou, 2007; Rayes, 1994). The differences between the two varieties which are mainly phonological and morphological are very few in relation to the similarities. For example, in the GCD the word /'jonin/, ‘snow’ is transformed to /xi'oni/ in SMG because the Cypriot sound /j/ corresponds to the Standard Greek /x/ before back or final vowels; in the GCD the active voice present tense verb /bor'usin/, ‘they can’ is transformed to ‘μπορούν’, /bor'un/ in SMG because there are different endings for active and passive voice first conjugation singular and plural verbs in the past and present.

Only a handful of studies with Greek Cypriot speakers have examined whether the use of the GCD interferes with literacy learning. Yiakoumetti, Papapavlou, and Pavlou (2007) analysed intrusions of GCD in written text. The participants in this study were GCD speakers in 6th grade. Students’ dialect use in speech was assessed by means of a three-minute interview and in writing by written essays on language and geography subjects. The authors report the emergence of intrusions both when the students were speaking and producing text that should be written in SMG. In speech, the most common intrusions from the dialect, measured in number of intrusions per minute, were morphological (3.3 intrusions per minute), followed by phonological (2.4 intrusions per minute), lexical (1.3 intrusions per minute) and lastly syntactic (defined as word order: 0.5 intrusions per minute). In writing, the most common intrusions from the dialect, measured in number per 100 words, were first lexical (3 intrusions per 100 words), followed by morphological (2.2 intrusion per 100 words) and lastly phonological (0.5 intrusion per 100 words). No syntactic intrusions from the dialect were identified in writing.

Using an intervention design, Yiakoumetti (2006) aimed to develop GCD speakers’ literacy skills by carrying out a quasi experimental study with an intervention and a control group. Both groups were pre- and post- tested in oral speech and written essays. The participants in the experimental group were trained by their class teachers to identify the differences between SMG and GCD and to convert sentences from SMG to GCD. The teaching sessions lasted for 45 minutes each day for three months. When the children were post-tested, the experimental group produced significantly fewer dialect related intrusions in speech and writing than the control group. Thus, changes in the use of the dialect in speaking were accompanied by changes in writing. However, the students’ awareness of the dialect was not measured directly in this study, so it is not possible to know whether this awareness was the mediator of the changes resulting from teaching.

These studies show that there is a connection between use of the dialect in speaking and intrusions of GCD in writing. However, neither of the studies provides direct evidence for the role of awareness of features of the dialect in learning literacy.

### *The present study*

The hypothesis examined in this study is that Greek Cypriot children need to bear in mind the differences between GCD and SMG in order to understand how Greek orthography works and thus learn to read and spell. If they can easily convert GCD forms into SMG forms, this ability would facilitate their understanding of how oral and written words are connected.

In order to examine whether dialect awareness is related to reading and spelling, we developed measures of awareness of the connection between GCD and SMG. The measures of awareness of the dialect were given to the children on the first sweep of data collection; on the second occasion, six months later, the children were given measures of word reading and spelling. Our prediction was that dialect awareness would be related to children's performance on word reading and spelling measures.

Socio-economic status is related to children's performance in reading and spelling (e.g., Seymour, 2005) and in situations in which a dialect is used it was shown that children's socio-economic status mediates the connection between dialect related intrusions and reading and spelling. In the African American English setting in which differences among income per capita are wide, findings show that middle socioeconomic status African American children outperform low socioeconomic status African American children in oral language (Washington & Craig, 1998) and in reading tests (Singam, 1998). Thus, in the present study, the hypothesis that dialect awareness predicts reading and spelling is examined in a setting in which socio-economic differences are at a minimum. There are variations in how marked the use of GCD is when city and rural groups are compared (Tsiplakou, Papapavlou, Pavlou, & Katsoyannou, 2006), but our focus was not on the number of features of GCD used by the children but rather on the awareness they would display when translating from GCD to SMG.

The tasks used in the study were designed to test whether the children realise that an oral form in the Greek Cypriot dialect may not be represented in writing because changes are made to transform it into Standard Modern Greek, but that the transformations of oral to written form are consistent and predictable; thus, children were asked to translate sentences and pseudowords from GCD to SMG. Among various task types discussed in the literature (e.g., Charity, Scarborough, & Griffin, 2004; Fogel & Ehri, 2000; Labov, 1969; McCormick-Piestrup, 1973) such as 'elicited

imitation', 'spontaneous speech', and 'translation' type of tasks, the 'translation' type was chosen because the aim of this study was to assess whether children are aware of the differences between the dialect and the standard variety (Fogel & Ehri, 2000). On the other hand, the 'spontaneous speech' and the 'elicited imitation' tasks are more appropriate for assessing the number and different types of dialect related intrusions in speech. For example, the 'spontaneous speech' tasks require children to produce speech by a variety of means such as interviews or pictures and so on. For instance, some studies (e.g., Craig, Zhang, Hensel, & Quin, 2009; Terry, Connor, Thomas-Tate, & Love, 2010) asked children to orally describe a picture, other studies (e.g., McCormick-Piestrup, 1973; Yiakoumetti et al., 2007) assessed dialect related intrusions in speech by means of question and answer interviews or informal interview conversations.

## METHOD

### *Participants*

The sample was drawn from three classes of one state-supported primary school situated in a middle-class area near the capital city of Cyprus. Participants ( $N = 49$ ) were Greek Cypriot children who were in Grade 2 or Grade 3 (25 boys; 24 girls). Their age range was seven years and five months to nine years and three months at the time the study started. All of them spoke the Greek Cypriot Dialect in most social contexts but learnt to read and write in Standard Modern Greek, which is the medium of instruction. When the second sweep of data collection took place, the children were in third or fourth grade. In order to simplify the description, we will refer to these two groups as the younger and older group. Children who spoke languages other than Greek or had a learning difficulty were excluded from the sample. The first phase of data collection took place at the end of the third school term; the second phase of data collection took place six months later, during the next academic year, at the end of the first school term.

### *Measures*

In order to obtain face validity, the dialect awareness measures were selected and designed after several discussions with linguists and experts in the field of child learning. The tasks used in the present study were adapted from those developed by pioneers in the field (e.g., Baratz, 1969), and have been tested by researchers in other languages. The tasks were modified after being pre-piloted with a small group



of typically developing children ( $N = 6$ ) in Grades 1 through 4. During the pre-pilot study we confirmed that children understood the test instructions easily and that there were no ambiguous items or pictures. We were also able to confirm that the children enjoyed the tasks and did not find the answer sheets complicated. In view of the novelty of the measures, for all tasks there was a larger pool of items created than the number expected to be used in further analyses; this allowed item reliability to be examined and the unreliable items to be excluded from the analyses.

The words included in the tasks were selected from the first to the third grade school books used in state-supported schools so that the children would find them familiar. The most commonly used words were based on the consonant-vowel (CV) syllabic structure. Pseudowords were included to make sure that children had not come across the items before; these had the same syllabic structure as the real words. Research showed that preschool and first grade children perform well in oral tasks using pseudowords (Berko, 1958). The construction of the pseudowords took account of the fact that Greek phonotactics has restrictions on which consonants are allowed in word-final position. The consonants most commonly occurring at the end of the words are [n] and [s] (Holton, Mackridge, & Philippaki-Warbuton, 2004). The pseudowords contained only consonant clusters that are permitted in Greek.

Although the dialect awareness measures involve a writing task, the tasks were not carried out in the same way as the usual spelling tests given in schools since in those tests all the words are pronounced in Standard Modern Greek. Two measures were used to assess dialect awareness. We describe first the nature of the tasks and then the transformations involved in going from GCD to SMG in the stimuli used. The tasks are presented in Appendix A and B.

#### *Sentence translation task*

This task was developed on the basis of the work by Fogel and Ehri (2000), who adapted a translation method tested originally by Baratz (1969). In the Fogel and Ehri (2000) study, the children, all users of AAE, read five sentences written in AAE and were asked to translate them by re-writing them in SAE. In order to produce a translation from one form of the language to the other, the children must be aware of the differences between the two forms of the language. In the present task the sentences to be translated from the vernacular were presented orally because GCD is hardly ever used in writing. The experimenter said eleven sentences, one at a time, in GCD. The children were asked to write each one in SMG. Eight sentences contained both phonological and morphosyntactic transformations and three sen-

tences contained phonological transformations only (see Appendix A). All sentences were short with a minimum of three and a maximum of nine words; the number of transformations per sentence varied from one to three, producing a total of 17 transformations to be performed in writing. Each word was scored using one for a correct transformation and zero for an incorrect transformation or no transformation; maximum possible score was seventeen.

#### *Pseudoword translation task*

This task was based on the same translation paradigm as the sentence translation task but used pseudowords. The children had to produce in writing a translation from the dialect to the standard variety. Although this may seem at first glance an impossible task, because one could argue that a pseudoword has no semantic content and cannot be translated, we considered it a sensible task due to the fact that dialect variations are systematic and predictable. The pseudowords were based on the consonant-vowel (CV) syllabic structure and contained only consonant clusters that are permitted in Greek. Eight pseudowords involved phonological transformations and contained phonemes used in GCD that are not used in SMG. Therefore, these phonemes had to be transformed into their substitutes in SMG. Two items involved a morphological transformation and used a suffix in GCD that does not exist in SMG and thus had to be replaced by its substitute in SMG. The children heard each pseudoword with the GCD pronunciation and were asked to write it down as they would have to be written in school (see Appendix B). Correct representations of the pseudowords in SMG were given one point; unexpected spellings or representing the pseudowords in GCD were given no points.

The items requiring phonological transformations examined the most important phonological differences between the two varieties of Greek. Table 1 gives examples of phonological transformations. The phonological differences between the Greek Cypriot Dialect and Standard Modern Greek are consistent.

1. The GCD sound /dʃ/ corresponds to the Standard Modern Greek /k/ before front vowels (e.g. Cypriot /dʃe/: Standard Greek /ke/ 'and');
2. the Cypriot sound /ʃ/ corresponds to the Standard Greek /x/ before back or final vowels (e.g. Cypriot /ʃonin/: Standard Greek /xi'oni/ 'snow');
3. the Cypriot sound /fk/ corresponds to the Standard Greek /vɣ/ before front vowels (e.g. Cypriot /afk'i/: Standard Greek /avɣ'i/ 'dawn');
4. the Cypriot sound /θx/ corresponds to both Standard Greek /ð/ and /θj/ before front and final vowels (e.g. Cypriot /θk'e/: Standard Greek /θj'e/ 'uncle'; see Newton, 1972b). Table 1 presents examples of these transformations using Greek letters.

Table 1. Examples of pseudowords used for phonological transformations

Greek - Cypriot pseudoword	Standard Modern Greek pseudoword	Phoneme needed to be transformed
Example: 1. τζιέκοτο dʒ'iekoto	κέκοτο k'ekoto	/dʒ/ → /k/
2. σσέβατα f'evata	χέβατα ç'evata	/ʃ/ → /χ/
3. κανέφκι kan'efki	κανεύει kan'evi	/fk/ → /v/
4. θκιακενύο θkiaken'io	διακενύο ðiaken'io	/θk/ → /ð/ → /θ/

Items that required morphosyntactic transformations examined the most important differences between the two varieties: 1) verb endings, 2) the syllabic augment ε, and 3) the clitic pronoun (see Appendix C for a description on the morphosyntactic differences between GCD and SMG). Table 2 gives examples of the morphosyntactic transformations.

Table 2. Examples of words used for morphosyntactic transformations

Greek - Cypriot word	Standard Modern Greek word	Morphosyntactic transformation
1. a) τρώσιν /tr'osin/ b) ετραγουδήσααν /etraɣud'isasin/ c) εστέκουμουν / est'ekumun/	a) τρώνε/tr'one/ b) τραγουδήσαν /traɣ'uðisan/ c) στεκόμουν /stek'omun/	The ending of verbs (first and second conjugation) in the active and passive voice in non-past and past tenses in indicative mood had to be changed.
2. a) ετραγουδήσααν /etraɣud'isasin/ b) επήγαμε /ep'iame/ c) εστέκουμουν /est'ekumun/	a) τραγούδησαν /traɣ'uðisan/ b) πήγαμε /p'iame/ c) στεκόμουν /stek'omun/	The syllabic augment ε- (in all the past verbs) needed to be deducted.
3. a) είπα σου /'ipa su/	a) σου είπα /su 'ipa/	The clitic pronoun had to change syntactic position.

### *The spelling and reading measures*

In order to test whether the children's performance in the dialect awareness measures predicted their performance in spelling and reading, the children were given two spelling measures and one reading measure six months after they had been

given the dialect awareness measures. The reading test and one of the spelling measures were standardised measures, but the spelling test was found to contain very few words whose spelling required the use of morphology (e.g., words with end sounds that correspond to different inflections and therefore are spelled differently). Therefore, a measure of the children's use of appropriate morphological distinctions in spelling was designed and included in the study.

*The standardised spelling test.* The spelling test (see Appendix D) was developed by Mouzaki, Protopapas, Sideridis, and Simos (2007, p. 135) and has very good psychometric characteristics (internal consistency reliability: Cronbach's  $\alpha = .945$ ; test-retest reliability: Pearson's  $r = .910$ ). It is suitable for the age of the participants in this study and shows good discrimination when given to second and third graders—the level of schooling of the participants in this study. It consists of 60 words presented orally in the context of a sentence. The procedure is typical of spelling tests: first the target word is pronounced, then the sentence including the target word, and then again the target word. The children write the target word after it has been said three times. The session is interrupted when the child makes six consecutive errors. In this study, the test was administered in the classroom so the stopping rule was adopted *a posteriori*. Although all the children attempted all the words in the session, the children's scores considered only the number of correct spellings up to the point before they made six consecutive errors, thus applying the rule used when the task is administered individually. In the study by Mouzaki et al. (2007), the maximum score obtained by second graders was 38 and by third graders 48. We decided to present 40 words to the younger group and 50 words to the older group, allowing for extra words to be spelled correctly in order to avoid a ceiling effect. Each word was scored using one for the correct spelling and zero for an incorrect spelling.

*The morphological spelling test.* This test consisted of 20 words with 32 different prefixes and suffixes (see Appendix E). The procedure was the same used for the previous test; all the sentences contained simple clauses in which the syntactical and grammatical moods were clear. The target spellings in the test were prefixes and suffixes whose spellings are predicted from morphology but not completely specified phonologically (as in the ending /i/, which can be spelled in different ways). The children were given one point for each morpheme spelled correctly.

*The reading test.* The reading test designed by Tafa (1995) was used in this study. It was standardised in Greece. The test assesses both reading comprehension and fluency and was designed for administration in the classroom. It is appropriate for

children in the age range of the participants in this study and uses a close-procedure. The children are presented with sentences that contain a blank; they are required to choose and underline, from four alternative words, the one that will correctly fill the blank in the sentence (see Appendix F). The test consists of 42 sentences and is timed; 40 minutes are allowed for completion. Items left blank are considered incorrect. The experimenter presented four examples prior to the implementation of the test.

### *Procedure*

The measures were designed for group presentation and were administered by the first author, a native Greek Cypriot, in Standard Modern Greek which is the medium of instruction in school. Each task was brief, to be completed in 10 minutes. The items in each task were randomly ordered and then presented in a fixed order. Prior to the beginning of each task, which took place in children's classrooms during morning hours, two to three examples were given as practice so that the children would understand what to do. In these practice trials, after the children had given their answers, the correct answer was presented on a screen. The children were given positive feedback for their responses and the correct answer was briefly discussed with them. During the assessments, no comments were made on children's answers.

## **RESULTS**

### *Preliminary analyses*

The tasks designed for the present study were scrutinised through a preliminary analysis to examine normality of the distribution, item level of difficulty, and item reliability. The reliability analysis identified items whose removal had a positive impact on the task reliability and also items that were either too easy or too difficult, therefore contributing little to the discrimination between participants. These items were omitted from the tasks.

Table 3 presents the means, the standard deviations and Cronbach's  $\alpha$  for each task. The reading and spelling tasks had been standardised on a Greek sample and Cronbach's  $\alpha$  was calculated for this sample for these tasks too. In order to check whether the two measures of dialect awareness could be combined to a single score, the internal consistency analysis was also carried out with all the items of the two tasks. All of the measures had acceptable levels of internal consistency.

*Table 3. Means, standard deviations and Cronbach's  $\alpha$  for each of the tasks*

	Mean	Standard Deviation	Cronbach's $\alpha$	
Sentence translation task (maximum score = 17)	11.88	1.96	.78	} Total Cronbach's $\alpha = .798$
Pseudoword translation task (maximum score = 10)	4.02	2.11	.69	
Morphological spelling test (maximum score = 32)	26.26	5.12	.83	
Reading test (maximum score = 42)	27.57	6.53	.83	
Standardised spelling test (maximum score for the younger group = 40)	26.00	6.21	.85	
Standardised spelling test (maximum score for the older group = 50)	30.94	8.72	.92	

Regarding the normality of the distribution and item level of difficulty, the negative skew score ( $z = -6.98$ ) and positive kurtosis score ( $z = 12.25$ ) of the sentence translation task were significant at  $p < .001$ . A ceiling effect was observed indicating that children found the task easy; most children scored high and few of them scored very low. This might be a good measure for identifying the children who are not aware of the differences between the dialect and the standard variety. The pseudoword translation task was neither too difficult nor too easy for the children; ceiling or floor effects were not observed. The scores of negative skewness ( $z = -0.39$ ) and kurtosis ( $z = -1.01$ ) were not significant indicating that the scale contains trials which are neither too easy nor too difficult.

### *The relation between dialect awareness and literacy skills*

In order to examine whether performance in each of the dialect awareness measures was longitudinally related to each of the reading and spelling measures, the correlations between the combined dialect awareness measures and literacy measures were calculated. In order to combine the two measures of dialect awareness and to avoid giving greater weight to one task than the other, the  $z$ -scores rather than the observed scores were added.

Table 4 shows the correlations of each of the dialect awareness measures with the reading and spelling tests as well as the correlation between the combined scores in the two tasks. All the correlations between the sentence translation task and reading test were significant and so were the correlations with the morphological spelling test.

The pseudoword translation task was correlated only with the morphological spelling test. The standardised spelling test did not correlate significantly with any of the measures of dialect awareness. These results provide initial support for the hypothesis that dialect awareness is related to children's word reading and morphological spelling skills in the first years of literacy acquisition in school.

*Table 4. Pearson correlations between dialect awareness tasks and literacy tests*

	Combined dialect awareness tasks (z-score)	Sentence translation task	Pseudoword translation task
1. Reading test	.572**	.430**	.272
2. Standardised spelling test	.209	.195	.096
3. Morphological spelling test	.408*	.454**	.327**

\* $p < .05$  \*\* $p < .01$

When examining the number of correct answers per child in each of the different tasks it was found that the children who achieved the highest or lowest score in reading, also achieved higher or lower in the dialect awareness tasks and spelling tests respectively. For example, the children who scored in the reading test 37 out of 42, 36 out of 42, and 34 out of 42, scored 10 out of 17 in the sentence translation task and in the pseudoword translation task scored 5 out of 10, 4 out of 10, and 7 out of 10 respectively. The children who scored 22 out of 42, 25 out of 42, and 22 out of 42 in reading, scored 7 out of 17, 8 out of 17, and 7 out of 17 in the Sentence Translation Task respectively and in the pseudoword translation task scored 1 out of 10, 2 out of 10, and 1 out of 10 respectively.

## CONCLUSIONS AND DISCUSSION

This study tested whether dialect awareness is related to the acquisition of literacy skills in the initial grades. The hypothesis was examined with Greek Cypriot children who speak the GCD and learn to read and write in SMG. The dialect awareness measures were given to the children six months before the measures of word reading and spelling. Two of the three literacy measures correlated significantly and positively with the dialect awareness measures. These results suggest that dialect awareness is indeed important for development of children's reading and spelling when they use a vernacular language that differs from the form of the language in which they learn to read and write.

Previous studies (e.g., Labov & Baker, 2003) demonstrated that occurrence of morphological intrusions from the dialect such as the absence of the possessive -s,

was negatively perfectly correlated with decoding and reading comprehension. Labov and Baker noted that the higher the lack of possessive -s in speech, the more likely it is that readers' comprehension will decrease. This is because the possessive -s carries meaning, e.g., 'the duck's nurse' and 'the duck nurse' have completely different meanings. Similarly in this study, the reading test measured both fluency and reading comprehension and the results offer additional support for the connection between awareness of the phonological and morphological differences of the two varieties and reading comprehension.

We were puzzled by the finding that the correlations between dialect awareness and the Standardised Spelling Test were not significant. However, an inspection of the words used in this test shows that there were no items that include phonemes or morphemes that do not exist in GCD. Therefore, the predicted disadvantage for dialect users could not be measured, and consequently the predicted advantage of dialect awareness could not be found. The pseudoword translation task was not correlated with reading and this might be because it tapped more on the awareness of the phonological differences between the two varieties rather than the morphological differences. From the ten pseudowords needed to be translated only two of them involved a morphological transformation, and the rest of them involved phonological transformations. In reading, awareness of morphemes is important for understanding the meaning of the words and thereby comprehending the whole passage.

Previous research on the relation between the use of a dialect and literacy learning is so far scarce but it suggests that dialect users often have difficulties in literacy learning. Three possible explanations for their difficulties were considered in the introduction: lack of familiarity with the form that is written (e.g., Abu-Rabia, 2000), difficulties in making distinctions (both phonological and morphological) required for reading and spelling correctly (e.g., Treiman, 2004), and a greater cognitive effort demanded in order to understand how oral and written words are connected (e.g., Labov, 1995; Labov & Baker, 2003; Saiegh-Haddad, 2003). In all the previous studies, the relationship between using a dialect and learning literacy is negative: the more features of the dialect are present in the child's oral language, the greater will be the child's difficulty in learning literacy. This study approached the same problem from a more positive angle. Children who live in bidialectal settings live with two forms of the same language and must learn to be bidialectal. African American children have to understand what their peers and relatives say, so they must understand AAE, and they also have to understand what people say on television and what their teachers say, so they must understand SAE. Similarly, Arabic children use a vernacular form in everyday life and learn standard modern Arabic as the language used in formal settings and in texts. Greek Cypriot children



also speak and hear the GCD in most settings but they also must understand what people say on TV and what their teachers say. One could focus on the disadvantages of living in bidialectal settings but one can also focus on the advantages. The different forms of the languages used in informal and more formal settings vary in predictable ways. If the children can become aware of the dialect differences, they can transform their implicit knowledge of the language into a real asset for literacy learning. Thus, instead of looking for negative correlations between use of the dialect and literacy outcomes, we looked for positive correlations between dialect awareness and literacy outcomes. The close relation of the dialect with the standard variety allows children to discover the differences between them; the children who were implicitly aware of the differences between the two varieties performed better in reading and spelling because they realised that dialect differences, which are much less than the similarities, are consistent and predictable. Our results suggest, but they do not show unambiguously, that dialect awareness can be seen as a skill that contributes significantly to children's literacy learning. Individual differences identified in our measures of dialect awareness were related to literacy skills six months later.

In the field of bilingualism and literacy learning, studies carried out in different languages (e.g., Bialystok, 2010; Bialystok, Majumder, & Martin, 2003; Liow & Lau, 2006) and a meta-analysis undertaken by Adesope, Lavin, Thompson, and Ungerleider (2010) reported the positive outcomes of bilingualism even when socio-economic status was controlled for; there is a significant bilingual advantage in the development of metalinguistic skills such as phonological awareness. Similarly, this study maintains that the children who have learned to differentiate between their dialect and the standard variety, have developed the ability to think about language in a way that enables them to master the task of learning to read and spell more comfortably.

Some studies, such as Terry (2010) and Fogel and Ehri (2000) argued that language awareness may be an important factor for literacy learning for dialect users. Terry (2006, 2010) suggested that children who produce dialect related intrusions in speech, reading and writing are less aware of language and that is why they face difficulties in literacy measures. This conclusion emerged from her findings of negative correlations between the use of African American English and dialect sensitive measures, such as rhyme recognition, and the measures of literacy that are not dialect sensitive, such as knowledge of the alphabet. The present study developed this argument by showing that children's awareness of the differences between the dialect and the standard variety positively influences their performance in reading and spelling.

Further studies should follow in order to test more rigorously the hypothesis

that dialect awareness may enhance literacy learning, and this will be enabled, at least in Cyprus, by the fact that the measures we have developed are reliable and valid, as they correlate with word reading and spelling. In further research, one should control not only for age in the prediction of literacy outcomes but also for general verbal ability, phonological awareness as well as morphological awareness because these variables might be related to both the predictor and outcome variables. In this way it will be shown whether dialect awareness contributes unique variance in explaining the outcome variables after the shared variance between the other predictor variables is statistically controlled (Tabachnick & Fidell, 2007). Further research should test whether the finding that dialect awareness predicts literacy skills is robust. As the current design did not include the estimations of dialect awareness and literacy in both Time 1 and Time 2, in future a longitudinal study should be adopted in which children will be assessed in all the predictor measures and all the outcome measures at Time 1 and Time 2. The proposed design can establish the longitudinal contributions of dialect awareness to reading and spelling and will investigate whether experience in reading and spelling also helps children to develop dialect awareness; whether the connection of dialect awareness with reading and spelling is a bi-directional one as knowing the order in which the events occur is important for developing an intervention study (De Vaus, 2009). More importantly, and in line with the results by Fogel and Ehri (2000), one should also test whether transforming children's implicit knowledge of both forms of the language into explicit knowledge can have the effect of improving their literacy skills. This finding would have significant educational implications and could contribute to the educational success of groups of dialect users who so far have had to discover by themselves how their dialect differs from the language represented in writing.

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## APPENDICES

*Appendix A: Sentence translation task*

Greek - Cypriot		Standard Modern Greek
<b>Example:</b>		
a.	Το χρώμα του αυτοκινήτου εν μπλε The car's colour is blue	Το χρώμα του αυτοκινήτου είναι μπλε
<b>Example:</b>		
b.	Έγραφα σου ένα γράμμα I wrote you a letter	Σου έγραφα ένα γράμμα
1.	Οι κάττοι τρώσιν The cats eat	Οι γάτοι τρώνε
2.	Ετραγουδήσασι ύμνους They sang hymns	Τραγούδησαν ύμνους
3.	Επήγαμε εις στο σχολειό σήμερα We went to school	Πήγαμε στο σχολείο σήμερα
4.	Είπα σου ότι με λένε Αντώνη I told you my name is Antonis	Σου είπα ότι με λένε Αντώνη
5.	Εχτές εστέκουμουν έξω Yesterday I was standing outside your house	Χθες στεκόμουν έξω από το σπίτι σου
6.	Αγαπώ την Μαρία τζαι τον Νίκο I love Maria and Nicos	Αγαπώ την Μαρία και τον Νίκο
7.	Κάθε βράδου θκιεβάζω παραμύθι Every evening I read stories	Κάθε βράδου διαβάζω παραμύθι
8.	Η Μαρία έβλεπε με που το παράθυρο της τάξης Maria saw me from the class window	Η Μαρία με έβλεπε από το παράθυρο της τάξης
9.	Ο Κώστας κλαδεύκει Costas is trimming	Ο Κώστας κλαδεύει
10.	Εχορέψαμε εκατόν χορούς We carried out a hundred dances	Χορέψαμε εκατό χορούς
11.	Κάθε βράδου η ώρα 9:00 τζοιμούμαι Every evening I sleep at 9:00	Κάθε βράδου η ώρα 9:00 κοιμάμαι

*Appendix B: Pseudoword translation task*

Greek - Cypriot	Standard Modern Greek	Phoneme needed to be transformed
<b>Example:</b>		
a. τζιέκοτο dʒ'iekoto	κέκοτο k'ekoto	/dʒ/ → /k/
<b>Example:</b>		
b. ταλεύει tal'efki	ταλεύει tal'evi	/fk/ → /v/
1. τζιακάκι dʒiak'aki	κιακάκι kiak'aki	/dʒ/ → /k/
2. σσέβατα ʃ'evata	χέβατα ç'evata	/ʃ/ → /ç/
3. ακάχτικο ak'axtiko	ακάπτικο ak'aktiko	/xt/ → /kt/
4. κανέφκι kan'efki	κανεύει kan'evi	/fk/ → /v/
5. λότσινο l'odʒino	λόγκινο l'ok:ino	/dʒ/ → /k/
6. θκιακενύω θkiaken'io	διακενύω ðiaken'io	/θκ/ → /ð/ → /θ/
7. αλινεύκω alin'efko	αλινεύω alin'evno	/fk/ → /v/
8. ατζιαλίνι adʒial'ini	ακιαλίνι akial'ini	/dʒ/ → /k/
9. θκιαζάνω θkiazano	διαζάνω ðiazano	/θκ/ → /ð/ → /θ/
10. κουτζίμι kudʒ'imi	κουκίμι kuk'imi	/dʒ/ → /k/

### *Appendix C: Morphosyntactic differences between GCD and SMG*

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The most important morphosyntactic differences between GCD and SMG are: 1) verb endings; 2) the syllabic augment ε-; and 3) the clitic pronoun (see Appendix D for further explanation). There are different endings for the active and passive voice first conjugation singular and plural verbs in the past and present (Newton, 1972b). An important difference between GCD and SMG in verb morphology is the syllabic augment ε-<sup>3</sup>. In order to form a past tense in SMG, the syllabic augment ε- is added to the stem if it begins with a consonant, e.g. /εγραψα/, 'I wrote'. The augment, which always takes the stress, is added only when the verb stem and ending have two syllables (Holton et al., 2004). In contrast, in GCD the syllabic augment is added to verbs beginning with a consonant to produce the past tenses and it is also added to the stem of the verb with more than two syllables, e.g. /εστ'εκουν/ 'I was standing'. In this case the augment is not stressed (Newton, 1972b). The items that required a syntactic transformation involved word order: in SMG the weak pronoun is always placed before the verb, e.g. /σε 'ιδα/, 'I saw you' (Holton et al., 2004) whereas in the GCD it is always placed after the verb (Newton, 1972b), e.g. /'ιδα σε/, 'I saw you'.

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<sup>3</sup> The linguistic terminology is based on Holton, Mackridge, & Philippaki-Warbuton (2004).



*Appendix D: The standardised spelling test*

<b>Examples</b>		
<b>Target Word</b>	<b>Sentence</b>	<b>Target Word</b>
από of	Είναι φτιαγμένο από ξύλο It is made of wood	από
έλα come	Έλα μαζί μου Come with me	έλα
κυνηγητό tag	Έλα να παίξουμε κυνηγητό Come to play tag	κυνηγητό

*Appendix E: The morphological spelling test*

Target Word	Sentence	Words consisting of prefixes	Words consisting of suffixes
Αντιπρόεδρος vice-president	Αντιπρόεδρος της τάξης είναι η Μαρία Maria is the vice-president of the class	✓ (2)	✓
δύσκολο difficult	Αυτό το πρόβλημα στα μαθηματικά είναι δύσκολο This problem in maths is difficult	✓	✓
Αντιβασιλιάς regent	Ο βασιλιάς αρρώστησε γι' αυτό κάλεσαν τον αντιβασιλιά The king was sick and they called the regent	✓	✓
συμφωνώ I agree	Συμφωνώ ότι δεν πρέπει να λερώσουμε την τάξη I agree that we should not make the class dirty	✓	✓
τηλεφωνώ I telephone	Κάθε μέρα τηλεφωνώ στη γιαγιά μου Every day I telephone to my grandmother	✓	✓
υποδιευθυντής deputy head	Υποδιευθυντής του σχολείου είναι ο κύριος Γιώργος Mr George is the deputy head of the school	✓ (3)	✓
είσοδος gate	Η είσοδος του σχολείου είναι πάντα ανοιχτή The school's gate is always open	✓	✓
Υπεραγαπώ I adore	Εγώ υπεραγαπώ την οικογένειά μου I adore my family	✓	✓
ευγενικός polite	Είμαι πάντα ευγενικός με όλους I am polite with everyone	✓	✓
ποδοσφαιριστής football player	Ο ποδοσφαιριστής της ομάδας μου χτύπησε My team's football player was hurt	✓	✓
σπιτάκι house	Το σπιτάκι της κούκλας μου είναι ροζ My doll's house is pink		✓
βιολιστής violinist	Ο Γιάννης είναι ο βιολιστής της ορχήστρας μας John is the violinist of our orchestra		✓
ποτιστήριο watering can	Η αδελφή μου ποτίζει τα λουλούδια με το ποτιστήριο My sister uses the watering can to water the flowers		✓
αριθμητική arithmetic	Η δασκάλα της αριθμητικής είναι η κυρία Ελένη Mrs Eleni is arithmetic's teacher		✓

*Appendix F: The reading test*

Examples	
Given Words	Sentence
γάλα / γάτα / γιαγιά / γλάστρα	Η ----- είναι ζώο
milk / cat / grandmother / flower pot	The ----- is an animal
εξερευνητής / εξεταστής / εξάλλος / εξολοθρευτής	Ο άνθρωπος που επισκέπτεται άγνωστα εδάφη είναι ένας -----
explorer/ examiner / frantic / terminator	The man who visits unknown lands is a/an -----
αδιάθετος / αξιόπιστος / αξέχαστος / απρόσεχτος	Αυτός ήταν πολύ ----- και κράτησε την υπόσχεση του
Upset / reliable / unforgettable / careless	This man was very ----- and he kept his promise