COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

**Bilingual/multilingual learning context:
Data from Cyprus and Greece**

Timothy C. Papadopoulos
Cyprus MC for ELN
WG1 Deputy Leader
Department of Psychology & Centre for Applied Neuroscience, University of Cyprus
Cyprus

WG1 London Meeting, June 22-23, 2015

TIMOTHY C. PAPADOPOULOS
DEPRT. OF PSYCHOLOGY, UNIVERSITY OF CYPRUS
papadopoulos.timothy@ucy.ac.cy

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

The Greek Language

Linguistic Features of the Language

Q1.1: Description in terms of orthography – transparent to opaque

Greek (in Greek: "ellinika") is spoken by an **estimated total of 13 million people** worldwide, including Greece, where it is the national language, and expatriates in many other countries (http://www.ethnologue.com/language/ell).

It is written with the Greek script, a "true alphabet" from its beginnings many centuries ago (ca. 740 B.C.E.; Threatte, 1996), which was derived from the **Phoenician script** (Swiggers, 1996; Voutyras, 2001).

In first grade, children are taught to read using **systematic phonics instruction** through an "analytic-synthetic" method (Aidinis, 2012). This includes teaching of letter shapes and sounds, articulation and blending drills, and emphasis on decoding at the single-word level.

Children begin to write texts by the second semester of Grade 1. Most children can read simple words by February of Grade 1 (Kendeou, Papadopoulos, & Spanoudis, 2012). Long and complex words and pseudowords are **mastered by the majority** of children by **Grade 3 or earlier** (Protopapas, in press).

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Linguistic Features of the Language

Q1.1: Description in terms of orthography – transparent to opaque

Greek: An orthographically consistent language

Greek is a language with a highly regular and **transparent** orthography. The overall consistency for Greek at the grapheme-phoneme level has been reported (Protopapas & Vlahou, 2009) to reach

- **95.1%** in the **feedforward** (from orthography to phonology) and
- **80.3%** in the **feedback** (from phonology to orthography) direction

Thus, even the few grapheme-phoneme inconsistencies in the feedback direction are **conditional rule-learned** and apply to variant but predictable spelling patterns.

Greek also has a **simpler syllabic** structure than English with fewer monosyllabic words and a larger number of open bi- tri- or poly-syllabic words.

Linguistic Features of the Language

Q1.2: Morphological richness

Greek is characterized by an extensive system of **inflectional morphology**. Verbs are inflected for stem, aspect, tense, person, number, and voice, although parts of this information are fused into fewer distinct morphemes (Protopapas, in press).

Also, **verb forms** include a stem and an inflectional ending, both of which may be simple or complex (derived stems and multicomponent inflections). An "augment" prefix is also added to past tense forms under certain conditions (Ralli, 2003).

Nouns and **adjectives** are inflected for gender, number, and case. There are 3 genders (masculine, feminine, and neuter, for adjectives; each noun belongs to a single gender), 2 numbers (singular and plural), and 4 cases (nominative, genitive, accusative, and vocative).

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Linguistic Features of the Language

Q1.3: Grammatical complexity

Greek is a language with **average-size vowel and consonant inventories**, complex syllable structure, and lexical stress (Dryer et al., 2011).

Greek alphabet includes **24 letters** which come in uppercase and lowercase variants, plus an additional lower-case-only variant for sigma that is used word-finally. Seven of these letters correspond to vowels when in isolation, namely **α, ε, η, ι, ο, υ, ω**. In lowercase only, stress is marked on the vowel of the stressed syllable with a **special diacritic** (an acute accent).

Greek is also strongly suffixing and fusional with respect to inflectional morphemes, **SVO/VSO** with respect to the dominant order of subject, verb, and object, and uses prepositions (preceding the noun phrase).

Linguistic Features of the Language

Q1.4: Are there any special or unique features of your language?

Phonological Ability

Phonological ability develops in a continuous way, with a structural stability, as **a single ability** in the early years (ages 5-8) (Papadopoulos, Spanoudis, Kendeou, 2009)

The mean rate of change over time is **homogeneous** among participants in spite of the apparent individual differences at the initial levels of phonological sensitivity (Papadopoulos, Kendeou, & Spanoudis, 2012).

Word reading accuracy & fluency

Word reading accuracy is not a major issue with reading difficulties in Greek (Nikolopoulos, Goulandris, & Snowling, 2003). The "crucial index" of difficulty in reading acquisition is reading time, from the earliest stages of learning to read (Porpodas, 1999), throughout the middle elementary grades (Protopapas, Skaloumbakas, & Bali, 2008) and onto secondary (Protopapas & Skaloumbakas, 2007). Reading fluency is concurrently and longitudinally predicted by rapid serial naming (e.g., Georgiou, Parrila, & Papadopoulos, 2008).

TIMOTHY C. PAPADOPOULOS
DEPRT. OF PSYCHOLOGY, UNIVERSITY OF CYPRUS
papadopoulos.timothy@ucy.ac.cy

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Linguistic Features of the Language

Q1.4: Are there any special or unique features of your language?

Reading Comprehension

No evidence for Matthew effects has been detected in reading comprehension, as **lower-performing children** seem more likely to catch up rather than fall behind through the elementary grades 2–6 (Protopapas, Sideridis, Mouzaki, & Simos, 2011); and **precocious readers** fail to retain their comprehension advantage through Grade 3 (Papadopoulos, Kendeou, Ktisti, & Fella, in press) or Grade 6 (Tafa & Manolitsis, 2012).

Throughout the elementary grades, **vocabulary** is the strongest concurrent and longitudinal predictor of reading comprehension (Protopapas, Mouzaki, et al., 2013).

Interestingly, **vocabulary shares** most of the reading comprehension **variance** accounted for by "print--dependent" skills, that is, word identification and pseudoword decoding, even though it is usually assessed orally, and therefore might properly be considered part of the "oral language" construct (Kendeou, Papadopoulos, & Kotzapoulou, 2012; Protopapas, Simos, et al., 2012).

Linguistic Features of the Language

Q1.5: Written orthography (unique features of spelling or grammar)

Letters and letter combinations correspond to phonemes in **a largely systematic manner** (Protopapas & Vlahou, 2009).

Greek orthographic transparency is convenient to analyse because the string of phonemes making up each word corresponds to a string of letters or contiguous letter groups in the same order without gaps or jumps. So it is always possible to break up an orthographic string into phoneme-size chunks when the corresponding phoneme string is known even when the segmentation is not predictable from the letter string alone (Papadopoulos & Georgiou, 2010).

The complexities of Greek spelling are a consequence of the use of different **diphthongs**. Difficulties arise from having to choose from a set of alternatives but the consequences of erroneous choices are phonologically neutral, that is, the word may be **orthographically incorrect but remains phonologically as intended** (Protopapas, Fakou, Drakopoulou, Skaloumbakas, Mouzaki, 2012).
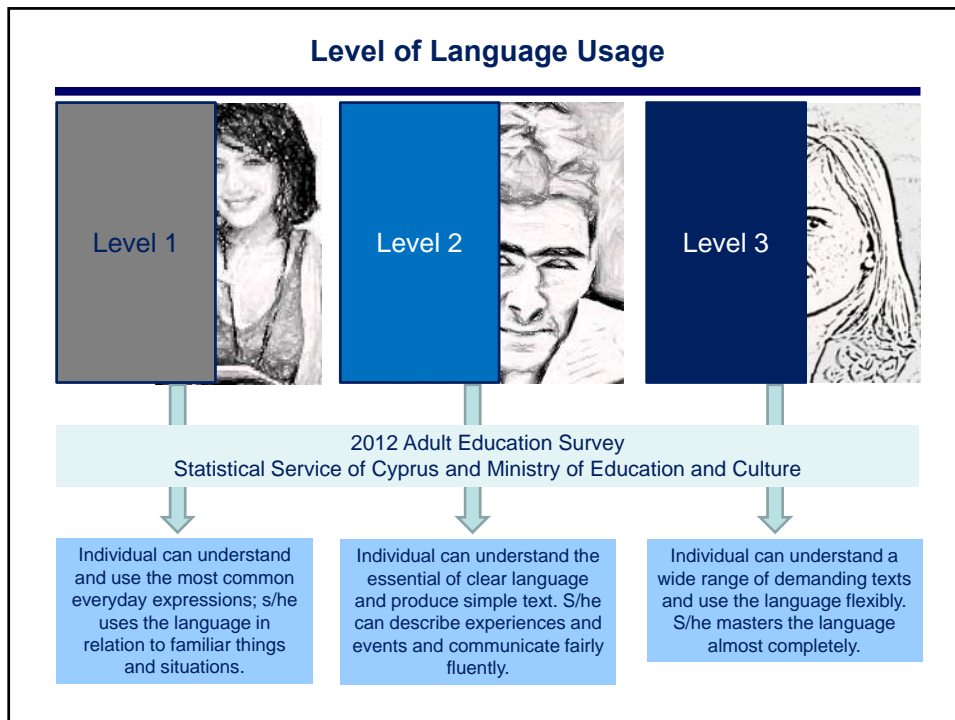
TIMOTHY C. PAPADOPOULOS
DEPRT. OF PSYCHOLOGY, UNIVERSITY OF CYPRUS
papadopoulos.timothy@ucy.ac.cy

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Linguistic Features of the Language

Q1.6: Are there particular features of the majority language which make it more/less challenging to learn?

There aren't.

However, writing is a largely neglected aspect of written language development. Research has focused on the development of word reading accuracy and fluency and how that eventually supports passage comprehension. But there is comparatively little theoretical or empirical work on children's communicative efforts in the form of text production.

The case of Cyprus

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Level of Language Usage

Level 1	Level 2	Level 3

2012 Adult Education Survey
Statistical Service of Cyprus and Ministry of Education and Culture

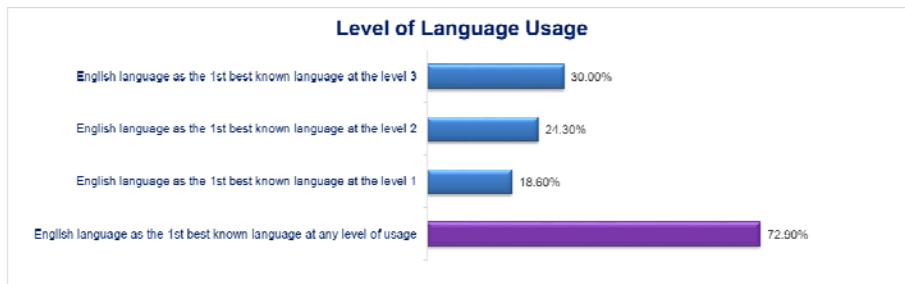|		
Individual can understand and use the most common everyday expressions; s/he uses the language in relation to familiar things and situations.	Individual can understand the essential of clear language and produce simple text. S/he can describe experiences and events and communicate fairly fluently.	Individual can understand a wide range of demanding texts and use the language flexibly. S/he masters the language almost completely.

Majority Languages

Q2.1: Are there geographical differences in distribution of the majority languages spoken in your country?

No data is available related to the geographical differences in distribution of the majority language spoken in Cyprus.

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Majority Languages

Q2.2: **What proportion of the population speaks more than one major language for your country fluently?**

English is the first best known language (excluding mother tongue) among 25-64 years olds

Level of Language Usage

English language as the 1st best known language at the level 3	30.00%
English language as the 1st best known language at the level 2	24.30%
English language as the 1st best known language at the level 1	18.60%
English language as the 1st best known language at any level of usage	72.90%

Greek as mother tongue and non-native speakers

Q3.1: **What proportion of the population speaks more than one major language for your country fluently?**

Mother tongue and non-native speakers

No knowledge of the Greek language	5.40%
Greek as other language best used	14.90%
Greek as mother tongue	79.70%

Note: Data across all levels of compulsory education (Statistical Service of Cyprus, 2012)

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Greek as mother tongue and non-native speakers

Q3.1: What are the demographic features of this group?

Citizenship	Kindergartens (%)	Primary schools (%)
Greek-Cypriots	85,23	83,09
Turkish-Cypriots	0,15	0,20
Maronite	0,14	0,23
Armenians	0,07	0,08
Latins	0,00	0,00
Non-Cypriots	14,41	16,40
	Georgia Greece Romania Bulgaria Syria	Romania Bulgaria Greece UK Syria
TOTAL	100,00	100,00

Note: Data from kindergarten through sixth grade of compulsory education (Statistical Service of Cyprus, 2012)

Greek as mother tongue and non-native speakers

Q3.2: How do the children fare at school?

Multicultural Education, the education programs that pupils with limited Greek language proficiency attend, falls under two main categories:
i. **measures for language support**, which refer to the learning of Greek as a second language, and
ii. **measures for facilitating the inclusion** of various groups with different identities.

The Government recognizes that all students have **the right to an education appropriate to their needs** and great efforts have been made to achieve this aim during the last 10 years.

The MOEC adopts **UNESCO's views on inclusion** to embrace all students, such as children from disadvantaged socioeconomic backgrounds, children in rural and remote areas, children from ethnic and linguistic minorities, children of regular or irregular migrants, refugees and asylum seekers and children with additional and/or special educational needs.

Educational requirements and **support services** are provided in an inclusive and the least restrictive learning environment.

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Greek as mother tongue and non-native speakers

Q3.2: How do the children fare at school?

Article 20 of the Constitution of the Republic of Cyprus safeguards the right to education for all pupils not only Cypriot children but also children of regular or irregular migrants, asylum seekers as well pupils of minority backgrounds.

The Ministry of Education and Culture (MOEC) offers **free and accessible education to all** students at all educational levels (pre-primary, primary, secondary general, secondary technical and vocational education) without prejudice based on the gender, the abilities, the language, the colour, the religion, the political beliefs or the ethnic background.

In 2008, in the framework of the Cyprus Educational System Reform which was initiated in 2004, the rhetoric shifted towards the need for **a holistic approach** to education for **migrant students** through developing a school which cares for, and respects all students, and which promotes opportunities high expectations and achievements for all students regardless their ethnic or other background (CPI, 2010). This was combined with research in the field (e.g., Bekerman & Zembylas, 2014; Demetriou, 2008; Gregoriou & Christou, 2011).

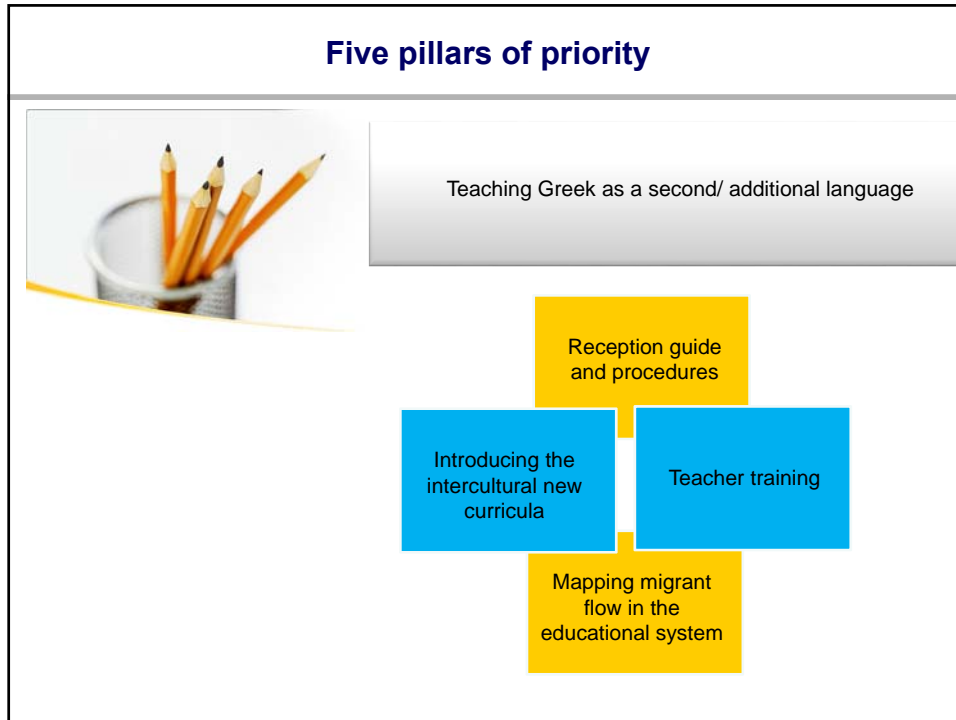## Five pillars of priority: The development of…

| …intervention measures for promoting inclusion of students of migrant origin in the school system | …institutional changes and regulations which ensure effective teaching | …empathy and intercultural competences in teachers, head teachers, students and parents | …materials and methodologies for promoting the intercultural dimension in education |

…of institutional changes and regulations which ensure effective teaching

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Five pillars of priority

Teaching Greek as a second/ additional language

Reception guide and procedures

Introducing the intercultural new curricula

Teacher training

Mapping migrant flow in the educational system

Migrant flow

There is a continuous increase in the percentage of non-Cypriot pupils in primary schools, which adds up to 14.7% during the current school year

School year	Number of non-Cypriot pupils	Percentage
2010-2011	6,047	12,0
2011-2012	6,670	13,3
2012-2013	6,672	13,4
2013-2014	6,608	13,9
2014-2015	7,225	14,7

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Re: Non-native speakers

Q3.3: Are there known associations between social disadvantage and second language learners?

No. The ongoing Educational Reform gradually leads to a comprehensive introduction of changes and innovations at all levels and all aspects of the educational system. This upgraded system aims to offer **high quality education to all**, thus assisting students to maximize their potential and acquire all necessary skills, abilities, attitudes, and key competences to enable them to become active citizens.

- **extra tutoring**, in subjects such as Language Arts, Math, and Science is provided to these students
- **initiating the acquisition of services of Bilingual Teachers**, so students can be also instructed in their native language in order to acquire the skills and knowledge covered in the curriculum, while also learning Greek
- **adequate exposure to the language of instruction**; free private lessons in Greek are given to all interested pupils in the afternoon at the State Funded Institutions for Further Education
- **Greek as a Second Language (GSL) instruction**, whether formal or informal, is an integral part of all bilingual education programs
- **realizing full potential** by taking into consideration pupils' linguistic and cultural attributes across grade levels throughout the entire curriculum.

Re: Non-native speakers

Q3.4: Are there known associations between second language learners and other factor?

Aim: to promote tolerance and dialogue and in order to eliminate stereotypes through education

Strategy: of positive discrimination (UNESCO), which is based on the unequal treatment of inequalities and the quality of opportunity in education

Community: Each ZEP consists of one Gymnasium (Lower Secondary School), the main Primary Schools (in its capture area) and the main kindergartens linked with these primary schools, in degraded areas

Zones of Educational Priority
Cyprus Schools

The criteria: for defining an area as ZEP is a high record of school failure and functional illiteracy in the area's school units, a high share of migrant or foreign language speaking pupils, a high number of drop-outs and high incidence of violence and anti-social behaviour.

TIMOTHY C. PAPADOPOULOS
DEPRT. OF PSYCHOLOGY, UNIVERSITY OF CYPRUS
papadopoulos.timothy@ucy.ac.cy

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Re: Non-native speakers

Q3.3: Are there known associations between social disadvantage and second language learners?

ZEP Schools' **objectives**:

- The democratic school that functions for the social inclusion of all children and for combating dropping out of the system and social exclusion
- A school system that respects difference, pluralism (cultural, language, religious) and multiple intelligence
- The reduction of functional illiteracy until completion of primary education and its elimination until the end of the ten year compulsory education
- The elimination of the dropout phenomenon, especially during the ten year compulsory education
- The dramatic reduction of school failure at all levels of education.

Re: Non-native speakers

Q3.3: Are there known associations between social disadvantage and second language learners?

Actions taken within the framework of ZEP's include:

- Reduction in the number of children per classroom;
- Employment of teachers speaking the mother tongue of foreign language speaking pupils;
- Offer of free meals to underprivileged pupils of the kindergartens and primary schools;
- Offer of afternoon activities (groups, clubs) at the Gymnasium included in the ZEP's;
- Posting of two educators in each ZEP as coordinators;
- All-day functioning of the primary schools and Gymnasiums covered by ZEP's

External Committee appointed by the MOEC for the evaluation of ZEPs

Indexes of improvement of school success
- reduction of pupil drop-outs
- reduction of school failure (referrals and repetitions) and of referrals to the Educational Psychology Service.

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Support for non-native speakers

Q4.1: Are there any strategic attempts through education to reduce the impact of language barriers?

The Policy Report of the Ministry of Education and Culture for Multicultural Education serves as the main pillar on which the philosophy as well as instructional methodology and support material are produced by all Education Department of the Ministry (Pre-Primary, Primary, Secondary General and Secondary Technical and Vocational Education and Training).

- Parallel classes for fast acquisition of the Greek language through intensive instruction
- In-service training seminars for teachers teaching Greek as a second language organised by the Pedagogical Institute and University of Cyprus
- Preparation on an induction guide for the new coming foreign language speaking students (children and adults) which has been translated in eight languages: English, Turkish, Russian, Georgian, Bulgarian, Rumanian, Ukrainian and Arabic. The guides are uploaded on the Ministry's website and are accessible to all stakeholders
- Addition of intercultural elements in the new Curricula and the school textbooks.

Support for non-native speakers

Additional Program for the teaching of Greek as a second/foreign language in the public secondary schools and technical schools the last five years

School Year	Number of Migrant Students	Teaching Periods
2010-2011	1,253	**700**
2011-2012	1,204	**705**
2012-2013	1,100	**680**
2013-2014	777	**505**
2014-2015	593	**531**

Note: Students are coming mainly from Romania, Bulgaria, Syria, United Kingdom, Russia, Ukraine and Egypt.

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Major Challenges

Q5.1: In your country what are the major challenges for a multilingual Europe?

Following the accession of Cyprus in the European Union as a full member (2004), economic migrants have been arriving in the country **in larger numbers than ever before**.

- The development and promotion of programs and actions that target the special needs of newcomers
- The development of educational programs for non-native speaking adults supporting the learning of GSL
- The design, development and implementation of in-service programs for all teachers at all levels of education in the subject area of Multicultural Education
- The introduction and implementation of a system for collecting and analysing data and information regarding the educational and other needs of non-native speaking students.

The case of Greece

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Majority Languages

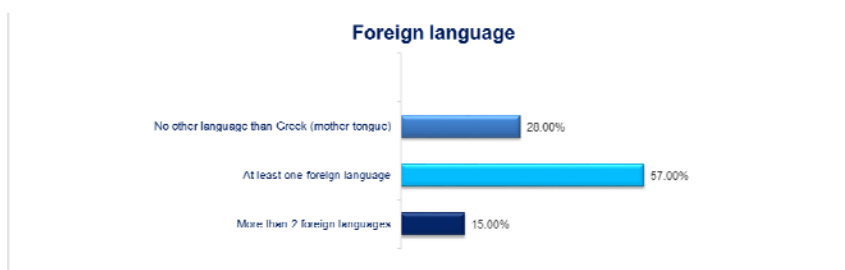**Q2.1:** **Are there geographical differences in distribution of the majority languages spoken in your country?**

Major Language	East Macedonia - Thrace	Central Macedonia	West Macedonia	Thessaly	Epirus	Ionian islands	Western Greece	Central Greece	Peloponnese	Attica	North Aegean	South Aegean	Crete
Albanian	0	0.47	1.12	1	0	0	0	0.62	0.67	1.55	0	1.33	0
Arabic	0	0	0	0	0	0	0	0	0	0.55	0	0	0
Bulgarian	0	0	0	0	0	0	0	0	0	0	0	1.33	0
Dutch	0	0	0	0	0	0	0	0	0	0	1.92	0	0
Georgian	0	0	0	0	0	0	0	0	0	0.11	0	0	0
German	0.67	0	0	0	0	0	0	0	0	0	0	1.33	0
Modern Greek	99.33	99.3	98.88	99.00	100	100	100	99.38	98.67	96.68	98.08	94.67	100
Polish	0	0	0	0	0	0	0	0	0	0.11	0	0	0
Romany	0	0.23	0	0	0	0	0	0	0	0.33	0	0	0
Romanian	0	0	0	0	0	0	0	0	0.66	0.33	0	1.33	0
Russian	0	0	0	0	0	0	0	0	0	0.22	0	0	0
Syriac	0	0	0	0	0	0	0	0	0	0.12	0	0	0

Source: European Social Survey 3.2 (2014)

Majority Languages

Q2.2: **What proportion of the population speaks more than one major language for your country fluently?**

English is the first best known language (excluding mother tongue) among 25-64 years olds, with French and German coming second and third, respectively

Foreign language

No other language than Greek (mother tongue)	28.00%
At least one foreign language	57.00%
More than 2 foreign languages	15.00%

Source: Special Eurobarometer 386 (2012)

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Non-native speakers of the majority language

Q3.1: What are the demographic features of this group?

NATIONALITY	N
Albanian	480,824
Bulgarian	75,915
Romanian	46,523
Ukrainian	17,006
Russian	13,807
Georgian	27,400
Polish	14,145
Moldavian	10,391
Egyptian	10,455
Others	215,436
Total	**911,902**

Source: National Statistical Service of Greece (2013)

Non-native speakers of the majority language

Q3.1: What are the demographic features of this group?

Second generation immigrants
Births in Greece of foreign
nationals and Greek nationals in
2010 (Source: NSSG)

Nationality of mother	N
Greek	89,812
Albanian	10,690
Bulgarian	1,025
Romanian	982
Ukrainian	506
Russian	439
Georgian	403
Polish	368
Moldavian	293
Syrian	265
Egyptian	200
Others	2,562
Subtotal	**17,733**
TOTAL	**107,545**

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Other issues

Q3.3: Are there known associations between social disadvantage and second language learners?

There is no valid data available

Q3.4: Are there known associations between second language learners and other factor?

There is no valid data available

Q4.1: Are there any strategic attempts through education to reduce the impact of language barriers?

The national intercultural educational policy defined by the law 2413/1996.

"*Greek educational policy is based on the principles enshrined in the Greek Constitution, the international (UNESCO) and regional (European) conventions on the rights of children, the principles of non-discrimination and the right to an education*" (Triandafyllidou & Gropas, 2007, p. 4).

There are 13 primary and 13 secondary intercultural schools in Greece.

Acknowledgements

Dr. Irene-Anna Diakidoy
Cyprus Deputy MC ELN
University of Cyprus, Cyprus

Dr. Athena Michaelidou
Director
Cyprus Pedagogical Institute, Cyprus

Dr. Ioannis Dimakos
Greece MC ELN
University of Patras, Greece

Dr. Menelaos Sarris
Greece Deputy MC ELN
University of Patras, Greece

COST IS1401 ELN
AN INTEGRATED AND INCLUSIVE FOUNDATIONAL
APPROACH TO LITERACY ACROSS EUROPE

JUNE 22-23, 2015
UCL, London, UK
ELN-WG1 meeting

Thank you

Correspondence:

Timothy C. Papadopoulos, PhD
email: papadopoulos.timothy@ucy.ac.cy