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#### How to cite:

Charitonos, Koula and Charalampidi, Marina (2015). Designs for Heritage Language Learning: A Photography project in the UK Supplementary Education. In: Brown, Tom H. and van der Merwe, Herman J. eds. The Mobile Learning Voyage - From Small Ripples to Massive Open Waters: 14th World Conference, mLearn 2015, Venice, Italy, October 17-24, 2015, Proceedings. Communications in Computer and Information Science (560). Cham: Springer, pp. 198–216.

For guidance on citations see [FAQs](#).

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Version: Accepted Manuscript

Link(s) to article on publisher's website:

[http://dx.doi.org/doi:10.1007/978-3-319-25684-9\\_15](http://dx.doi.org/doi:10.1007/978-3-319-25684-9_15)

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## Designs for Heritage Language Learning: A Photography Project in the UK Supplementary Education

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keywords

mobile learning, photography, supplementary education, heritage language learning

### 1. Introduction

The popularity of mobile devices equipped with various cameras and apps makes possible for people to take photos and share their experiences on various media ‘anytime, anywhere’. Indeed, mobile photography has advanced rapidly over the last few years and is increasingly gaining traction among young people (OfCom, 2014), who seem to adopt the ‘image-as-conversation’ (Williams, 2014). Whereas such practices are well ‘embedded’ in young people’s lives, it is also recognised that these relationships are formed primarily ‘in the domain of popular culture’ (Buckingham, 2007) and not in schools. Therefore, examining how learning occurs within the context of young people’s activities with mobile technologies and on social network sites—how knowledge is produced and represented through interaction—might contribute to gaining an understanding of their experiences, cultures and communication practices, which can then be built within formal learning programmes. This paper focuses on the practice of taking/crafting and sharing photos to put forward the argument that this could be used as a resource within formal learning settings and a way to break down the classic distinction between formal and informal learning.

In this paper we present an intervention study ‘#ItsAllGreekToUs’ with a focus on heritage language learning to examine the integration of mobile photography in the classroom and beyond. This study emphasises creative learner content outputs and draws attention to a learning design that blends the physical and the digital contexts and directs the learners to use the mobile technology to interact with their physical environment. It also highlights a design that incorporates an arts dimension—the art of photography—into the learning and teaching of community languages. This intervention locates itself within a body of research seeking to identify more clearly a pedagogical approach to the use of technology in a learning setting which is sensitive to the context, the situation of the learners and which also has the potential to contribute significantly in creating opportunities for the teacher to engage with this pedagogic practice.

The study is informed by sociocultural perspectives of learning with a focus on mediating artefacts in the development of understanding in situated learning activities. Using largely qualitative research methods, data was collected from two

Greek Supplementary Schools in London and in Leicester. Through an ‘action research’ orientation of this study important insights were gained into identifying the impact on learners, the pedagogy and the use of technology and these are also commented upon in the paper.

## **2. Literature Review**

### **2.1 Community/Heritage Language Classroom**

In the United Kingdom (UK) community languages are typically taught in supplementary/complementary schools. These schools offer educational support (language, core curriculum, faith and culture) and other out-of-school activities to children attending mainstream schools (Evans & Gillan-Thomas, 2015). They operate in community centres, youth clubs, religious institutions and mainstream schools. There are an estimated 3000-5000 such schools in England (NRCSE, 2015) and while many are run by small local groups, others are part of larger organisations that provide a range of services. An example for the latter are the Greek Supplementary Schools, that provided the context of the study presented in the paper. They run under the auspices of three institutions: the Cyprus High Commission in the UK (as a branch of the Ministry of Education and Culture in Cyprus), the Embassy of Greece in the UK, and the Greek Orthodox Archdiocese of Thyateira and Great Britain.

In this paper we are using a broad definition of ‘community languages’ as “languages in use in a society, other than the dominant, official or national language” (McPake et al., 2007, p.7). We are also employing the term ‘heritage language’, to point to the language used in home or familiar contexts, and at the same time to emphasise its broader cultural associations and significance (for a discussion around definitions see King & Ennser-Kananen, 2013). In other words, we differentiate heritage language learners from first or second language learners whilst recognising that this creates an issue in the context of teaching and learning a heritage language because it cannot be assumed that the heritage language is in fact the students’ native language; many students may only have a passive knowledge of the language or not speak it at all, as it was the case with many of the participants of the study in this paper. This is the reason why Anderson (2009) expresses a concern within the area of community language teaching which is the question of pedagogy and how best to address the needs of a highly diverse group of learners for whom neither a ‘foreign language’ approach nor a ‘mother tongue’ approach is appropriate.

Another issue well recognised within this context is that English tends to become the dominant language for students from ethnic or other minority backgrounds, with the shift towards English increasing across the generations. Therefore, it is not necessary for these students to learn their community language in order to communicate. Yet, there are good reasons for learning the language, including the benefits of having a second language for further language learning. Having said this, the United Kingdom suffers from a general lack of emphasis on development of multilingual skills within the general population and within the education system (Speak to the Future, 2015) and as a result, a decline in the take-up of languages has been observed (Handley, 2011). Apart from motivational issues to study the community languages, other factors influencing the operation of the supplementary schools include constraints on resources, e.g. qualified teachers, infrastructure.

### **2.2 Mobile learning in the language classroom**

Mobile learning has been one of the most significant areas of research across education over the last fifteen years with many studies focusing on second/foreign language acquisition. According to UNESCO (2013) the unique benefits of mobile learning include the ability to bridge formal and informal learning. For language learners, for example, this

might be translated to access to supplementary materials beyond the classroom or to capture and document difficult terms and phrases which can be brought back into the classroom (UNESCO 2013). Mobile-Assisted Language Learning (MALL) has emerged as an area of Computer-Assisted Language Learning (CALL) and maintains important promise “for significant change in teaching and learning practices” (Kukulska-Hulme, 2009, p.1) since it allows the learners to locate resources and information in context ‘anytime, anywhere’ and ultimately to “re-interpret their everyday life contexts as potential resources for learning” (Pachler, 2009, p. 5). It is precisely the situated nature of learning allowed by mobile technologies that distinguishes current MALL research from previous studies in early 2000s, which were either content or design-oriented studies (Kukulska-Hulme & Shield, 2008). In addition to the connectivity, portability and flexibility afforded by mobile technologies, such technologies are also a means of communication and social interaction in the target language.

Many studies in CALL or MALL focus on vocabulary learning, since it is one of the most important aspects of language learning. Burston’s (2013) comprehensive bibliography of MALL studies shows that there have been more than 150 reports of studies related to vocabulary acquisition—almost a fourth of all the published work relating to MALL over the period 1994-2012. Many studies in this context often employ mobile devices and develop systems to ‘push’ content to learners (e.g. Kennedy & Levy, 2008), often adapted to the needs of the learners, i.e. interests, proficiency level (e.g. Li et al., 2010).

A study particularly relevant to the work presented in this paper is the project ‘Move, Idioms!’ (Wong et al., 2012) carried out with primary school children learning Chinese as a second language. This project emphasised contextualised learner content creation and meaning making with their daily encounters. As with Wong et al.’s (2012) work—albeit in a different cultural and educational context—the aim of our study was to foster our students’ skills in identifying and appropriating in situ resources to mediate their learning activities in any learning space, rather than always being directed by the resources that the teacher provides. Also, unlike most of the published MALL studies (approximately 85%) which have been conducted within higher education (Burston, 2013), our study took place within K12 settings and aimed to address questions about how technologies mediate representations of learning and the production of meanings by young people.

It is noted that in an extensive review of CALL in English as a second language in the primary and secondary education, the evidence that technology has a direct benefit on linguistic outcomes is ‘slight’ and ‘inconclusive’ (Macaro et al., 2012). Macaro et al. (2012) find it difficult to recommend that technology in general or specific software should be used to improve vocabulary development. Their review, however suggests that technology may have an indirect positive impact on learner attitudes, behaviours and collaborative work. Importantly, the pedagogical approach underpinning most of MALL implementations has been criticised as adopting “a behaviorist, teacher-centered, transmission model of instruction” (Burston, 2014). It is also our view that any successful implementation of MALL depends less on the technological advancements and more on the pedagogy. It is therefore important to examine the affordances of mobile technologies in ways that support constructivist, collaborative, task-based learning across formal and informal settings.

A key point that needs careful consideration in introducing technology in formal learning settings is the tension that might occur between students’ informal uses of such tools (e.g. peer communication) and the rather more formal aims and activities of teachers, e.g. assessment (Crook, 2012). The nature of Web 2.0 might be seen as having “a disruptive influence... and present[ing] specific challenges to existing notions of academic authorship and authority” (Selwyn et al., 2012, p. 25), which may not be desirable in the current school culture with rigid practices and behaviours in place.

Despite these issues, researchers refer to ‘missed opportunities’ (Kukulska-Hulme, 2015) regarding achieving mutual benefit between formal and informal learning. Formal education is seen as ‘detached’ from rapid socio-technological change, whereas informal learning is ‘sidelined’ or ‘ignored’ when it could be used as a resource or a way to discover more about evolving personal and social motivations for learning (Kukulska-Hulme, 2015). This paper describes a study that sought to allow connections between formal language instruction and informal practices associated with Web 2.0 tools. It also sought to allow connections between the heritage language and the English Language and to highlight creative approaches to heritage language learning.

### **3. Research questions**

The key questions we sought to address in this study were:

RQ1: What contribution can creative work with mobile technologies make to the learning and teaching of heritage languages in supplementary school contexts?

RQ2: How do students experience the innovative pedagogic practices?

RQ3: What are the implications for pedagogy, i.e. opportunities opened up, conditions for learner’s participation?

RQ4: What are the enablers or barriers of how students’ practices associated with mobile technologies are integrated into teachers’ practice?

### **4. Mediation by artefacts**

Within the sociocultural perspective of learning, knowledge is seen as being mediated through the use of ‘tools’ or ‘artefacts’. A broad definition of artefacts is the one that includes physical and symbolic artefacts (e.g. signs, language, text, objects, instruments and machines). Tools are essentially a part of the ‘cultural tool kit’ (Wertsch, 1991) available in a particular sociocultural setting. It is through engagement in socioculturally situated goal-oriented activities that tools are given meaning and both activities and artefacts are transformed (Wells, 1999). In this paper, the photographs (online and physical) are products of specific social contexts and are viewed as a mediating artefacts for the participants across time and space. Essentially, photographs are viewed as material representations of meanings (Kress, 2010) made by the students within and outside the classroom and are accessible to us through the specific medium (i.e. Pinterest). The focus of this paper is to examine the role of the photographs as part of the resources available for meaning making within the context of heritage language learning.

## **5. Context of the study**

### **5.1 Aims and objectives**

The research design involved a classroom intervention that had a broad focus on the concept of ‘loanwords’, defined as “a word that at some point in the history of a language entered its lexicon as a result of borrowing (or transfer, or copying)” (Haspelmath, 2009, p. 35). The stated aim of the project was to develop students’ vocabulary knowledge, as well as to raise awareness among the students about the concept of borrowing words from one language to another. The learning objectives included the students to identify and collaboratively form a list of loanwords; to create visual representations of the loanwords through the medium of photography that would be uploaded online; to curate content and communicate their knowledge and understanding to an audience; and to evaluate and reflect on the artefacts they produced.

## 5.2 Participants

The study took place in two Greek Supplementary Schools, one in North London (School A) and the second in Leicester (School B). The participants were a pre-GCSE class (12–13 years old, N=14) and a GCSE class (12-14 years old, N=9) respectively. School A operates twice in a week for five hours in total, while School B once in a week for a total of 4.5 hours. The study was implemented in two phases: in School A from February to July 2014 and in School B from March to June 2015. All the participants had personally owned mobile devices or access to tablets owned by their parents and an initial assessment determined that their perceived familiarity with their use was ranked from very good to excellent.

## 5.3 Tools

### 5.3.1 Pinterest

Pinterest ([www.pinterest.com](http://www.pinterest.com)) is a popular social networking site that lets people discover, collect, and share pictures. It saw significant growth between 2012 and 2014 and according to Pew Internet Research it is now the third largest social network site in the US (Duggan et al., 2015). The users of Pinterest can ‘pin’ pictures with links to items they find on the web or upload themselves and organise them into boards representing themes (e.g. recipes), tag/title and share them with their social network on the site.

Pinterest was targeted for the present study precisely because of its focus on pictures. Also, the way the pictures are displayed resembles a school display board. Images or pictorial information were shared on the site through a secret board #ItsAllGreekToUs that was created by the teachers (see Figure 1). However due to the age of the participants (12-14 years old), the use of the site as a social network site (i.e. create a profile, establish a relationship with other users) was not utilised to its full potential. To explain, Pinterest ‘Terms of Use’ refer to thirteen years old as the minimum age for a user. As a result, the teacher in School A was the administrator of the board and the one uploading the pictures to the site. In School B the students had access to the board and could upload the pictures themselves through a common username/password. Due to the two different time phases, students from School B could view the pictures taken by the participants of School A.

**Figure 1 Pinterest board**



### 5.3.2 Mobile technologies - ‘Bring your own device’

Most schools have policies in place that ban the use of mobile phones in the school, as was the case with both the supplementary schools in the study. Having said this, the ‘Bring your own device’ (BYOD) (JISC, 2013) policy is gaining traction among educational organisations, encouraging or requiring students to provide their own device for learning purposes. Proponents of BYOD suggest that it helps promote better outcomes via a more personalised learning and an enhanced engagement between home, school and other spaces, hence an increasing number of studies examine how BYOD works in a learning environment (e.g. see Song, 2014).

The decision to introduce the BYOD policy in the study was made partly due to lack of access to technological infrastructure in the school and partly due to practical reasons. We determined that the external environment (i.e. students’ access to mobile phones/tablets that were Internet-ready and with a camera) was mature enough to proceed with this option.

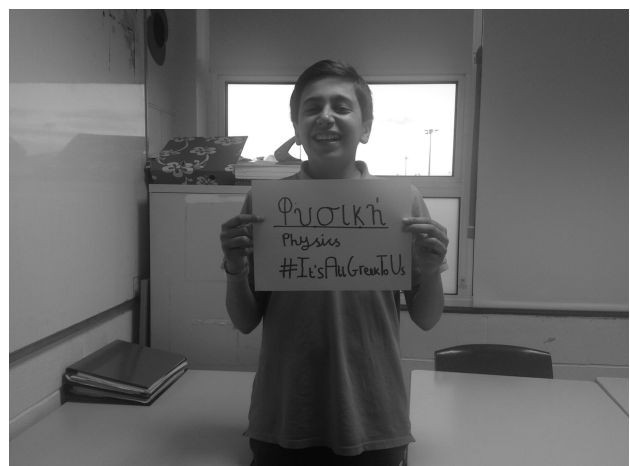
### 5.4 Description of the study

In the study we facilitated the participants to examine Greek ‘loanwords’ in English and vice versa. We also considered other borrowing phenomena that are more or less closely related to loanwords, such as words that had phonological or morphological adaptation (e.g. use of prefixes such as ‘mono-’, ‘tri-’, ‘tele-’). A number of activities with specific goals that span over several sessions took place in the classroom (see an outline in Table 1). The plan varied from one school to another due to time restrictions (i.e. participants from School B had to sit the GCSE in Modern Greek exams).

The students were instructed to use their smartphones to take photos in their daily lives or in the school that could represent words identified in the classroom. Each student was asked to select a few loanwords that s/he could capture with their mobile phones. In School A, often the parents (and less the students) were emailing the pictures to the teacher and the teacher was then uploading them on Pinterest. In School B, the students could upload the pictures themselves, although most of them opted for sending them to their teacher.

An outcome of the project work was the organisation of a photography exhibition in the schools to display the students’ photographs (see Fig. 3). The exhibition took place as part of the end-of-year activities for parents and members of the community. During this event the audience was asked to vote for the best photograph, i.e. the one that represented the word more succinctly/creatively.

**Figure 2 ‘Campaign word posters’**



**Table 1 Outline of #ItsAllGreekToUs activities per school**

Description	School A	School B
1. In groups of three or four, students brainstormed words that are borrowed or are similar in both languages. An initial list was created, which was then put in alphabetical order. The list was updated throughout the project work with words identified during classroom instruction (e.g. in texts) or through discussions with parents/grandparents and the teacher.	x	x
2. Students grouped the words identified in categories (e.g. medicine, mathematics, sports).	x	x
3. Each group was assigned specific letters (e.g. A-D) and students in groups selected words and gave definitions/brief descriptions of these words in Greek.	x	
4. Students explored the school and a few took photos based on their encounters in this space and associations they could make with loanwords.	x	x
5. Students selected loanwords that they would like to photograph.	x	x
6. Students practiced grammar activities with loanwords, e.g. nouns, endings, plural formation	x	x
7. Students in groups created a 'probe' and an invitation for the photography exhibition. The probe was left in the school space prior the exhibition for others to find it. The invitation was sent to parents and school staff.	x	
8. Each student created one or two 'campaign word posters' associated with a loanword. They were then photographed by fellow students (see Fig. 2).	x	
9. Students curated content and set up a photography exhibition. Students and members of the community voted for the best photograph (see Fig. 3)	x	x
10. During the exhibition, the audience added new words to a display that included all the words identified by the participants.	x	
11. Students with their teacher created a short film about their project utilising the school spaces and their photographs. The film was screened for the parents and fellows students to see during the assembly.	x	
12. Students created a power point with all the pictures and their labels. The power point was projected for the parents to see during the photography exhibition.		x
13. Photographs on Pinterest were screened on the Interactive Whiteboard in the class on a weekly basis.	x	
14. Printouts of the photographs were displayed in the school and the class throughout the duration of the project.		x

**Figure 3 Photography Exhibition**





## **6. Methods and data collected**

### **6.1 Action Research**

The project was largely driven by the authors' desire to examine how to create learning designs to incorporate effective use of mobile technologies within language learning and teaching. We follow an action research orientation because the study presented in this paper is firmly located in the realm of us, as practitioners who look to "improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out" (Carr & Kemmis, 1986, p.162). Our intention is to link practice and ideas with an aim of investigating an inquiry in which questions examined are brought to bear on significant practical issues regarding teaching and learning with mobile technologies. The study is an example of engagement with a small group of learners in an attempt to work toward practical outcomes, and also about creating new forms of understanding. Our approach, drawing on Lewin's definition of action research as "proceed[ing] in a spiral of steps, each of which is composed of a circle of planning, action and fact finding about the results of the action" (1946/1948, p. 206), involved more or less systematic cycles of action and reflection. In action phases practices were tested and evidence was gathered. This paper can be seen as an outcome of the reflection stage, where we attempt to make sense of the evidence, discuss and plan further actions. In doing this we acknowledge, as other have, that this inquiry "had different purposes, is based in different relationships, has different ways of conceiving knowledge and its relation to practice" (Reason & Bradbury, 2008, p.8) compared to conventional academic research.

### **6.2 Data**

In order to build up a picture of the processes and perspectives as they have manifested themselves through the project, various types of data were collected:

- Pre-test Questionnaires (School A) (N=14)
- Field-notes by the two teachers
- Reflection forms (School A) (N=9)
- Focus group interview with participants (N=6) (School B)
- Teaching plans and resources (School A and School B)
- Students' Artefacts (photographs, film)

In this paper we present content generated by the participants (photographs) and we focus on the analysis of the interview data and the self-reflection forms to examine how students perceived and experienced the innovative pedagogic practices and whether this work opened up any opportunities for the students.

## **7. Findings**

### **7.1 Reflection forms**

Following the completion of the project work students were asked to fill in a reflection form, which included four direct questions and one open-ended question, as following:

Q1. What did we do well?

Q2. How I felt we achieved?

Q3. What could we have done differently/better?

Q4. What was the value of doing this project in the Greek School?

Q5. I think my overall benefit from this project was...

Nine forms in total were collected from the participants in School A (five students were absent).

For each of the questions a content analysis was performed. Codes were assigned to describe the thematic content of the comments. Responses per theme were quantified to make their relationship to the wider population apparent. Table 2 shows the themes and a few exemplar responses that demonstrate the analysis.

**Table 2 Analysis of the reflection forms (N=9)**

Questions	Themes	Exemplar Quotes by participants
Q1. Project work perceived as successful or well implemented	<ul style="list-style-type: none"> <li>• team work (n=6)</li> <li>• artefacts created (n=4)</li> <li>• specific tasks (n=4)</li> <li>• performance/presentation (n=3)</li> </ul>	<ul style="list-style-type: none"> <li>• All the photographs were colourful and creative (Student #6)</li> <li>• I think that it was a very good idea for people to vote for pictures and to add new words (Student #5)</li> <li>• I think our presentation was brilliant (Student #7)</li> </ul>
Q2. Feelings	<ul style="list-style-type: none"> <li>• accomplishment (n=5)</li> <li>• satisfaction (due to audience's reactions/feedback) (n=3)</li> <li>• purposeful (n=4)</li> <li>• enjoyment (n=3)</li> </ul>	<ul style="list-style-type: none"> <li>• I felt that we did very well as we got very positive feedback and everybody seemed to enjoy it (Student #8)</li> <li>• We achieved by working as a team and having fun while doing it (Student #6)</li> </ul>
Q3. Project work perceived as requiring improvement	<ul style="list-style-type: none"> <li>• inclusion of contextual information (n=4)</li> <li>• reach out more people for bigger impact (n=2)</li> </ul>	<ul style="list-style-type: none"> <li>• We could have had a bit of information with each picture to make it easier to understand. (Student #8)</li> <li>• We could have involved more people to make it well known (Student #4)</li> </ul>
Q4. Perceived value	<ul style="list-style-type: none"> <li>• learn vocabulary (n=5)</li> <li>• develop an awareness about 'loanwords' (n=4)</li> <li>• raise awareness in their audience (n=4)</li> <li>• reinforce the value of heritage language (n=3)</li> </ul>	<ul style="list-style-type: none"> <li>• This project helped us and our audience understand how much of the english language is influenced by greek. Also it was very fun making it and we learnt a lot of new vocabulary as well (Student #5)</li> <li>• To show how important and special Greek Language is (Student #3)</li> </ul>
Q5. Perceived benefit	<ul style="list-style-type: none"> <li>• learn vocabulary (n=8)</li> <li>• develop an awareness about 'loanwords' (n=4)</li> <li>• advance skills (e.g. team work, ICT) (n=5)</li> <li>• bond with peers (n=2)</li> <li>• enjoyment (n=2)</li> </ul>	<ul style="list-style-type: none"> <li>• I think we made people more aware...(Student #7)</li> <li>• learning how to work as a team properly...(Student #5)</li> <li>• ...getting to know my classmates better through a group activity (Student #8)</li> </ul>

Two important themes emerge from this analysis: the first, importantly, is a perceived development of vocabulary knowledge, alongside an enhanced awareness of the concept of 'loanwords'. The second, is an acknowledgment of an audience, since many of the students' responses considered the impact and the value their work had, not only for themselves but for other people as well.


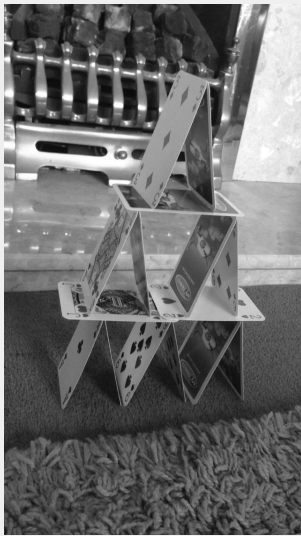
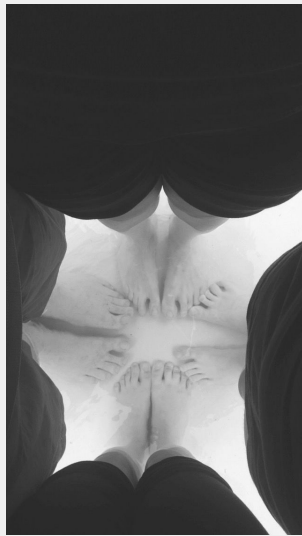


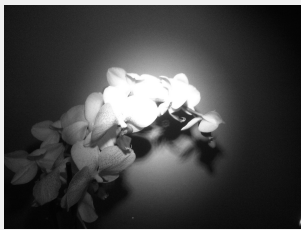

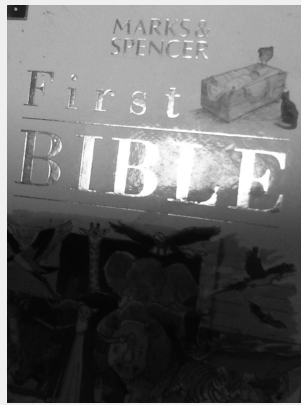
## 7.2 Students' Photographs

Students created 83 photographs in total (N=83), (n=51 from School A, n=32 from School B). All the participants, except four, contributed photos. For the analysis of the photographs we drew on the analysis suggested by Wong et al. (2010) in the 'Move, Idioms!' project. The researchers analysed the photographs with respect to two dimensions: (1) types of physical setting and (2) types of meaning making. Of the two dimensions only the first is relevant to our analysis since it refers to the sources of the physical setting captured by each photo. Following this, the researchers classified the photos into categories: (1) natural setting, (2) physical object manipulation, (3) human enacted scenario

and (4) previously published materials, e.g. TV illustrations, screenshots. Table 3 features examples of different types of photos.

The analysis shows that the photographs predominately depicted objects (n=37). Few (n=10) were based on a ‘human-enacted scenario’. Notably, the top photos—as ranked in the exhibitions—are included in the latter category. The students were not given specific instructions about how to approach the task of taking pictures. Therefore, the photographs are viewed as evidence of students’ creativity by crafting contexts that associate with specific loanwords. The variety of artefacts reflected students’ engagement with, and attention to their surroundings. This is also verified by the interview data that is discussed in the following section.

**Table 3 Analysis of the students’ photographs (N=83)**

‘Types of physical setting’			
Natural setting	Physical object manipulation	Human-enacted scenario	Previously published materials
n=17	n=37	n=10	n=19
			
Geography (Γεωγραφία)	Pyramid (Πυραμίδα)	Octopus (Οχταπόδι)	Frappe (Φραπέ)
			
Museum (Μουσείο)	Photosynthesis (Φωτοσύνθεση)	Phobia (Φοβία)	Bible (Βίβλος)

### 7.3 Focus Group Interview Data

The focus group interview took place with six participants (School B). The interview was structured around three main themes: (1) views about the Greek Supplementary School (2) views about the use of mobile phones, including questions about the practice of taking photographs and (3) the project experience. Due to the fact that the interview took place prior to the completion of the project work no data related to the photography exhibition was collected. The duration of the interview was approximately an hour. All the data was transcribed and thematic analysis was performed. A few themes that emerged from this analysis are discussed below.

#### *Vocabulary learning*

All the interviewees held strong views about the project contributing to the development of their vocabulary knowledge (Q. What was the value of doing this project in our school?). Participation in the project was seen as helping towards preparation for their exams, and as such, taking pictures was treated as a weekly homework. They referred to the value of this learning method and evaluated it as fun, enjoyable and effective. Importantly, four of the interviewees referred to the notion that taking pictures assisted them in remembering the words. This is evident in the following quotes:

I didn't know there were so many words that sound and mean the same. I didn't know the meaning of some words but now I do and this also helped me with the exams, like the word "seminar" or the word "Europe" which I used to forget sometimes. After taking the pictures, I can now remember the meaning and it stuck in my mind (Girl A)

We learned words we didn't know before and even if we knew them before we just wouldn't think to use them but now they come to mind straight away cause we've taken a picture of them. But even if we knew them before we probably wouldn't think of them while doing an essay but now we think of them. If you take a picture of them it stays in your head (Girl B)

#### *Selection of words to photograph*

The interviewees elaborated on how they approached the task of selecting words that would be captured in a photograph (Q. How did you go about deciding which word to photograph?). Half the interviewees referred to being attentive to the surrounding environment and taking pictures of objects available to them. One was particularly driven by his interests (i.e. music) and another one by identifying words viable to capture. Two interviewees tried to make associations with loanwords after having a picture of a random object taken. This, as well as the involvement of the student's social environment, are illustrated by the following quote:

Basically, me and my brother were trying to make one of them [a pyramid], and I thought I should take a picture cause it took me ages so once I did I took a picture of it and then I realised it was like a pyramid so then I remembered it was on the list... (Girl B)

#### *Constraints*

Time and workload emerged as the main factor influencing students' participation in the project. The following quote provides evidence for this:

We had to spend more time to revise rather than taking pictures. Even though it helped before, as we got closer to the exams we needed to do some proper revising and to practise essays, past papers (Girl A)

Moreover, the interviewees referred to a need for guidance and being reminded, e.g. one student said “Once you forget to do it once, you just forget to do it all the time!” (Boy A)

### *Value of Heritage Language*

Almost all the interviewees referred to the idea of the project creating or reinforcing positive attitudes towards their heritage language. One interviewee referred to “feel[ing] proud for being Greek” (Girl C).

## **8. Discussion**

In this section we discuss the evidence presented earlier and we provide some insights from our engagement with this study to address the four research questions and discuss implications for using mobile technologies in the language classroom.

- *RQ1: What contribution can creative work with mobile technologies make to the learning and teaching of heritage languages in supplementary school contexts?*

The study overall has highlighted how the practice of photography encouraged learner creativity and provided a means of developing language skills as well as cultural understanding. The integration of mobile photography in the classroom, as presented in this paper, shows that learning can occur in ways which incorporate experiential, affective and cognitive dimensions. For example, the analysis of the reflection forms and the interview data points to a perceived development of the vocabulary. Additionally, it reveals the creation or reinforcement of a feeling of valuing the heritage language. Importantly, a sense of achievement and pride felt by the participants is noted. As discussed in earlier section of this paper, our students often lack motive or question the value of the heritage language, hence this “renewed sense of pride in their bilingual and bicultural identities” (Anderson & Chung, 2012, p.278) might provide an incentive for studying the language.

### *RQ2: How do students experience the innovative pedagogic practices?*

The evidence collected from the reflection forms point to the participants largely valuing the opportunities given to work with fellow students and to draw upon each others strengths. Each one’s contributions was becoming a part of a bigger whole, while curating content and setting up the exhibition created a sense of solidarity and a feeling of accomplishment among them. Students appeared to be seeing their classmates in a new light, since the project work brought a realisation of others’ skills and competences beyond language skills. It is noted that the students’ involvement flourished in the weeks preceding the exhibition whereas their appreciation of what they achieved was consolidated upon experiencing the final event. Importantly, the use of the mobile technologies seemed to make the participants ‘oriented to an audience’ (Charitonos, 2015) and as a result they viewed the project work as helping them towards presenting, performing or making an impact to this audience.

Observation data revealed that a few students were less engaged in the project work and it could be argued that the total amount of photographs is not particularly high. This might be because many of the mobile devices that learners have access to provide services that were not designed for learning, hence learners find them difficult to use for the activities that teachers expect them to undertake. Related to this is Stockwell’s (2010) review of studies suggesting that while learners have a positive view of mobile learning, and feel that there are the potential benefits, not all students are willing to engage in it. It might also be the case that the students were not sufficiently motivated to contribute photos, perhaps due to the fact that the project was seen as another school activity.

- *RQ3: What are the implications for pedagogy, i.e. opportunities opened up, conditions for learner's participation?*

Drawing on our involvement in this project, our current thinking supports the view that the integration of mobile technologies in the language classroom is most effective when based on a learning design which involves: (1) aligning the work with the curriculum; (2) blending physical with digital artefacts and allowing their visibility within the classroom/school space; (3) working towards a 'tangible' creative output, e.g. the photographs and the exhibition (and the film in School A); (4) drawing on practices that are well established among young people (e.g. taking pictures) and (5) engaging an 'audience' (e.g. parents, school community to vote for the best photograph). Related to the design of the activities are the issues of structure and guidance a teacher should provide to his/her students. Throughout the project we felt that in designing the activities (see Table 1) we adopted a rather rigid 'schooling' perspective (e.g. assign homework, grammar activities). This was partly due to our aim of maintaining a focus on the learning objectives of a curriculum and partly due to a concern of a change in the dynamics of the classroom when mobile technologies are brought into this context. Throughout the project work we were questioning whether this approach was 'appropriate'. We now believe that it is necessary to maintain such a perspective for the following reasons: (1) students (and parents) view this work as associated with regular classroom activities; (2) alignment with the curriculum and school events (e.g. end-of-year show) releases anxiety from the teacher that this work takes time away from 'real work'; and (3) levels of structure with direct guidance provide a frame within which students can work creatively. In other words, it is important to work within boundaries, but at the same time to allow certain levels of choice (e.g. select words, content).

- *RQ4: What are the enablers or barriers of how students' practices associated with mobile technologies are integrated into teachers' practice?*

It is our view that the practice of photography offered the children a 'known territory' for engagement with issues of language. Though this arts-related task, learners were encouraged to be creative, whilst their creativity could be made visible by everyone. Moreover, the specific medium allowed the artefacts to be shared in both digital and physical form and this, arguably, affords different uses in the classroom. Further to this, we view the notion of 'trust' as key in any work with mobile technologies in the classroom. Our experience showed that when we showed trust to our students and "once they sense they're trusted, kids [a]r[o]se to the occasion" (MacGibbon, 2012). On the other hand, the issue of students' familiarity with technologies might be a barrier. Evidence from this work points to lack of skills among young people. For example, three students did not know how to email their photos from their smartphones and many could not adjust settings for higher quality of pictures. It is a fact that when designing studies with young people and technologies it is often assumed that they have advanced ICT skills. This might be true for some students, but not for all. In line with this, it is noted that the BYOD model was employed assuming that this would cause the minimal disruption to learning because the student will know how to use the device. In actuality, this apparent convenience opened the door to a more complex set of challenges, e.g. there were different devices/apps/software for which we were required to provide support. While no one questions the central role a teacher has in orchestrating the activities with technology (Dillenbourg & Jermann, 2010), at times this was felt like an 'additional burden' (Sharples, 2015).

## 9. Conclusions

This paper offers an account of a study which approached vocabulary learning based on student-generated resources rather than resources that the teacher supplied to the students. It provided some insights into ways in which activities with mobile technologies could be integrated into heritage language learning through an example of engagement with a small group of students. Its importance lies in that through such micro-practices the practitioners increase their ability to reflect upon, make sense and improve their practices in a meaningful way.

The paper considered new opportunities to develop language skills by acknowledging that learners' expectations are changing and would welcome the chance to use their mobile device in ways that could help them enhance their learning. The analysis showed that students had a positive experience, while the benefits from this intervention are viewed mainly in terms of vocabulary learning and an enhanced awareness of the concept of 'loanwords'. Moreover, the analysis highlighted that the use of technology should be aligned with the adoption of appropriate pedagogies and points to some considerations regarding the learning design, such as blending physical and digital artefacts, working towards 'tangible' creative outputs and engaging an 'audience', while maintaining a focus on the curriculum.

Still, there is clearly a need for further work on the way this can be achieved most effectively at different levels. The insights gained here allow us to engage with yet another 'cycle of action and reflection' to link practice with ideas and inform learning designs with the use of mobile technologies.

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**This is a pre-print of an article accepted for publication in T.H. Brown and H.J. van der Merwe (Eds.): mLearn 2015, CCIS 560, pp. 198–216 Springer International Publishing Switzerland. The final publication is available at Springer via DOI: [http://dx.doi.org/10.1007/978-3-319-25684-9\\_15](http://dx.doi.org/10.1007/978-3-319-25684-9_15)**