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## MOBILE AND MASSIVE LANGUAGE LEARNING

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### MOBILE ASSISTED LANGUAGE LEARNING

As Evans (2013) notes, “The world is mobile!”, and data he presents show that over 1,250 million smartphones and tablets were sold in 2013 (compared with just over 250 million desktop computers). These handheld devices run small programs, called apps, that are typically downloaded from online stores. There have been over 6 billion such downloads for the two principal operating systems: iOS and Android. Mobile devices, like desktop computers, when used online, can arguably be said to serve two functions: access to information resources and shortening distances between people. Over 50 social messaging apps have had more than a million downloads on Google Play, and over 14 billion messages are sent on WhatsApp a day (Evans, 2013).

Mobile devices represent a step toward ubiquitous information access and what will increasingly become “wearable technology”. Early examples include smart watches and headsets that provide information to users without the need to take out a smart phone or tablet. Unlike previous educational technology, such as learning management platforms, it is not necessary to persuade and cajole students into using these devices. The great majority already have smartphones and even tablets so they are already online using Web 2.0 environments from their mobile devices. Beyond the use of communication apps the majority of activity on mobile devices revolves around social networks or social media. Kaplan (2012) characterises such tools and sites into four types: Space-timers (for location-sensitive messages, e.g., Facebook Places or Foursquare); Space-locators (for messages that can be read later by others at a given location, e.g., Yelp or Qype); Quick-timers (for time

sensitive messages, e.g., Twitter or Facebook updates); and Slow-timers (traditional social media content, e.g., YouTube or Wikipedia).

Given the presence of students in these networks and as consumers/producers of such media, it is clear that if a user is already studying something or on a course, then they would likely try to carry on their studies from their mobile devices (cf. Kukulska-Hulme, Traxler, & Pettit, 2007 and Pettit & Kukulska-Hulme, 2007). “Mobile learning” (henceforth, ML) has been defined by Crompton et al. (sited in Crompton 2013, p.82) as “learning across multiple contexts, through social and content interactions, using personal electronic devices”. Earlier definitions were less elaborate, reflecting a time when the field was in its infancy; for example, Geddes (2004) identifies it with learning “anywhere, anytime”, making use of the tools that mobile devices have; Traxler (2005, p.262) defines it as “any educational provision where the sole or dominant technologies are handheld or palmtop devices”, while Kukulska-Hulme & Shield (2008, p.273) define it as “learning mediated via handheld devices” in contrast to computer-assisted language learning taking place on desktop computers.

In one sense, ML is a natural extension of e-Learning, where essentially face-to-face courses were moved from classroom settings to learning management systems that students could access from any networked computer, such as ones they have at work or at home. It is not suggested that students use their mobile devices in these courses as a substitute for standard computers whose keyboards and large screens make them ideal workstations for many types of learning. However, what handheld technology offers is a degree of immediacy in that if a student is participating in an online debate related to the course or waiting for a new online resource that a teacher has promised would be available, then the student can connect to the course during his/her day, whenever some free time presents itself and they are not restricted to being in front of a computer.

Within ML there has been a consolidated effort toward the use of this technology for language learning, giving rise to Mobile Assisted Language Learning (henceforth, MALL) (Kukulska-Hulme & Shield, 2008). Here the students are able to access and interact with second language materials and communicate from their smartphones or tablet devices. According to Burston (2013) there were 345 publications released over a period of more than twenty years on different applications of mobile devices to language learning. While a great deal has been learned about their suitability for language learning, they have not been adopted in a widespread fashion for this task; there is no single “killer MALL app” that is widely used. This is argued to be due to the difficulties in finding apps that can run on a range of mobile devices and can be used for different types of language learning activities. However, over the

past decade or so mobile devices have become more powerful and sophisticated and therefore potentially valuable for second language learning. Furthermore, an improvement in network bandwidth for such devices has also opened the door for them to be used as clients for online courses, social networks and social media, thereby potentiating the mobility that they offer to language learning students.

## **LANGUAGE MOOCS**

Alongside mobile learning, MOOCs have also been argued to hold great potential for languages (Bárcena, Read, & Jordano, 2013; Ventura, Barcena, & Martín-Monje, 2013; Beaven, Codreanu, & Creuzé, 2014). There are different types of courses that are loosely referred to as MOOCs (cf. Clark, 2013). The most widely accepted difference is between xMOOCs and cMOOCs, where the former are like standard online courses with more students (leading to a diverse student population), and the latter (connectivist MOOCs) revolve around large distributed learning communities sharing content and constructing knowledge. Language MOOCs (henceforth, LMOOCs), can be seen to be the application of the MOOC framework to foreign language learning, including elements that are essential for effective development, namely: structured educational content together with activities, resources, and appropriate social media tools and technologies. A limitation of face-to-face (henceforth, F2F) classrooms and most e-Learning courses held on closed-access institutional platforms for language learning is that there are few opportunities for interaction in the target language. We argue that if LMOOCs are correctly structured and managed, they can represent a bridge between formal and informal learning to assist the development of second language competences, particularly the productive and interactive ones.

These courses are not without their criticisms. Bárcena & Martín-Monje (2014) and Read (2014) highlight difficulties related to the changing role of teachers in LMOOCs (changing from the 'sage on the stage' to the 'guide on the side', and not typically able to interact directly with the students). New communication, problem solving, and motivational strategies are required to provide effective feedback given such unbalanced teacher-student ratios. A further difficulty present in such large online courses is the very heterogeneous nature of the student group and the different levels of language communicative competences in such groups. The tasks that some students will find extremely challenging will provoke boredom in others. Some authors go even further and question the vary nature and suitability of MOOCs for second language learning. Romeo (2012:2), for example, argues that such self-directed study cannot be effective because it does not make students pro-active, and

furthermore, such courses provide few opportunities for actual communication with native speakers.

However, given that language learning combines both the acquisition of theoretical knowledge and the development of practical and skill-based competences, then it falls into the middle of a potential scale of 'intrinsic MOOC suitability' (cf Barcena & Martín-Monje, 2014). As Barcena (2009) notes, a range of competences, skills and data need to be finely intertwined as learning progresses. This requires both cognitive involvement (using high order mental skills) and social interaction (with competent speakers of the target language) (Read, Bárcena, & Rodrigo, 2010).

Romeo (2012:2) is correct in his assumption that a student would advance quicker if s/he has access to native speakers to undertake relevant second language learning activities. However, very few have access to such rich and controlled learning scenarios. For students actually living in countries where the target language is used, such interaction happens on a daily basis, in a lot of cases, as part of personal and professional life. In other countries and contexts such interaction is all but impossible, unless paid for as a service (so-called conversational classes).

The majority of language teaching/learning takes place in small F2F classroom learning situations, or online distance-education courses. Such learning is instructional with few opportunities for interaction in the target language. Furthermore, many people wanting to improve their foreign language competences do not even have access to any kind of language course. LMOOCs can be seen to represent a real opportunity for learning both for students in other language courses (since they complement them and offer possibilities for interaction not present in most closed courses) and also for people not able to participate in other courses. We argue that such MOOCs promote student interaction and communication in the target language (including with non-natives), and enable the same (meta-)cognitive strategies to be deployed as would be used in authentic communicative situations (e.g., reasoning, contrasting, enquiring, justifying, reflecting, etc.). However, for this to happen, careful course design needs to be employed so that students do not internalise erroneous language while at the same time being provided with activities containing some degree of flexibility and adaptability (e.g., letting the student decide what s/he wants to learn, providing a minimum of 80% of the activities are done and passed, for certification purposes).

The degree to which a MOOC platform can be accessed, and its resources and tools used from mobile devices, varies between different course providers. There are two different ways to achieve this end, by modifying the course Web pages and resources so that they can be accessed from mobile devices (ensuring that they are legible on small screens) and by developing specific

apps that encapsulate the access and interaction process thereby ensuring that device-specific limitations are overcome (and also, in some cases, provide offline access to course resources). Examples of the former include EdX and Khan Academy that have resources within their courses that can be accessed from mobile devices. FutureLearn have complete courses that can be undertaken from a mobile device. An example of the latter is Coursera's app that enables students to participate in courses and also stream or download the course videos. However, it is recommended that a computer is used for the activities and homework. Furthermore, new collaborative projects are beginning to appear that are specifically targeting mobile devices, for example, the EdX partnership with Facebook for African mobile course access. The Indian My Open Courses initiative, can be appreciated to have been developed to be mobile friendly from the very start.

Questions regarding mobile access to a language MOOC can be seen to be part of a larger question of heterogeneous course access across different devices and contexts. As Event (2013) noted, life is mobile, but this applies not only to people moving around with their devices on them, it also refers to the desire to use different computers and devices in different locations to access the same networks, media and courses, as if no device change has taken place. Such continuity in informational access across different devices and contexts is referred to as seamlessness in the area of ubiquitous and pervasive computing (Chalmers & MacColl, 2003).

In the context of online courses, a student can start, for example, to read an online document or undertake a given activity from a computer at home and then, later on at work, connect again from a different computer to carry on with the work or event to check whether a question raised by them has already been answered. The presence of mobile devices complicates this example. The student might start off at home, as above, but then use his/her smartphone to access a course to check for updates to a question (while on public transport to/from work), and connect back later from a tablet (maybe from the sofa in the evening) to continue working in the course. The potential difficulties that such access and work approaches create are not only an issue for technologists, responsible for the correct and seamless functionality across different devices, but also for course developers. It is argued that when developing a MOOC that will be accessed from different platforms, including mobile devices, there are three options available: either the course is designed so that it cannot be used from such devices, and the students warned to the effect a priori; or nothing is said and the students can explore what they can and cannot do from such devices; or a course can be designed specifically for heterogeneous access, taking into account screen size, file formats, activity structure, etc. Such course design and tool selection is still very much an activity for future research. In

part the actual type and focus of a given MOOC influences how effectively mobile technology can be used. In second language learning, it is not just a case of acquiring new knowledge but more specifically developing and refining a series of related language competences that are used to comprehend and produce meaning orally and textually in the target language.

As such, the communicative and social parts of LMOOCs are not a means to an end, as in MOOCs in general, but actually a central part of the second language learning (2LL) process, directly reinforcing competences involved in comprehension and production. Hence, mobile devices that were developed originally as communication tools offer many affordances for such courses. They may not be ideal for all activities (for example, reading a long document) but may be ideal for certain tasks that can be undertaken even easier than they could from desktop computers. It would seem logical, therefore, to consider a priori a mobile device as a tool that can be used to complement computers for task types that profit from mobility and context, and/or increasing the frequency with which a student is connected.

## **MALMOOCS**

We argue that mobile devices are particularly potent tools for students on LMOOCs since they complement the learning experience by providing three affordances, namely as: portable course clients, mobile sensor-enabled devices, and powerful small handheld computers. Firstly, as portable course clients, they offer anytime-anywhere access. Students can continue to participate in their courses making the most of the time they have as they move around every day. This would generally lead to more frequent interaction within the course, thereby extending, and hopefully improving, communication and collaboration. Such interaction has been argued by Bárcena & Martín-Monje (2014) to be essential for second language learning since it would take place in the target language, enabling valuable application of what has been learnt during the course. It is not just a question of frequency but also ‘fluidity’, in that since the time between connections to the course would arguably decrease, then the actual practice would be more continuous and gradual, providing a more fluid learning experience. Part of this experience comes from the continued use of students’ own devices, referred to as BYOD (bring your own device), since a person is more familiar with his/her own device (and the apps on it) than one provided by an educational institution, and hence, the sense of ownership extends from the device to the content used on it (de Waard, 2013).

Secondly, as mobile sensor-enabled devices, modern smartphones enable students to interact with the world around them, taking photos, making recordings, obtaining geographical data and other location specific

information. Such activity can be seen to enrich and complement standard online learning activities (e.g., take a photo of a specific type of object, label its parts and upload it to the course for fellow students to work with). Furthermore, the mobile device can also form part of immersive augmented reality learning scenarios, where context-specific language scaffolding can be provided as required. The results can be logged on the mobile device for later analysis in subsequent learning activities. This is an important complement to any online course since it enables the students to 'blur' the edges between online learning and real world activities, thereby giving rise to what can be referred to as 'generalised digital living', where the informational ubiquity overlaps into a continual learning process. Kilickaya (2004) argues that second language learning activities should be authentic or at the very least realistic, based on real world situations and scenarios. A smartphone or tablet can be considered as the digital equivalent of a Swiss army knife; containing functions that are particularly useful for immersive 2LL experiences. If a student is in a country where the target language is used, then his/her second language comprehension/production can be scaffolded in a just-in-time fashion. If they are in their own countries, such activities can be included in the learning experiences to carry the learning activities from the online course into the real world context. For example, students can search for specific objects in their environments, and then photograph them for later use in the LMOOC as part of role-playing activities or as a way of comparing and contrasting cultural differences in a given area of life.

Data gathering undertaken with mobile devices does not have to be limited to online courses but can form part of any classroom-based language activity. However, the advantage it offers for LMOOCs is that it represents a bridge between the digital and the real world, extending the scope of the learning from the online course to the everyday events of the students' lives. Extending online learning activities to include real world tasks using mobile devices encourages the students to dedicate more time to the course with an increase in associated second language usage and corresponding improvement in related competences.

Thirdly and finally, smartphones and tablets are powerful handheld computers containing apps that can both provide general tools to be used to complement second language competences and online course activities. There are already a considerable number of MALL apps for developing language competences that can be used as part of LMOOCs (Godwin-Jones, 2011). They include apps for training in vocabulary, sentence structure, pronunciation, etc. There are also other apps that while they are not specifically designed for second language learning can be used to support it, for example, apps that permit the manipulation of sensor data (photos, audio and video recordings,

GPS locations), basic office-type apps (that offer text processors, spread sheets, etc.), miscellaneous multimedia streaming and reproduction apps, games and social media apps, and so on. Such apps can be used in an LMOOC to complement learning but cannot be made mandatory for the course since not all students there will have the corresponding mobile device.

This difference in access to mobile devices represents an added degree of complexity for a language teacher when designing the course. How should the apps be used in the course? What can students who do not have access to such devices do to compensate for their lack? However, such question may have less importance as time goes on, since as Evans (2013) notes, it is estimated that over 4 billion people will be connected to the Internet by smartphones by 2020 (cf. over 7 billion people alive on the planet). Therefore, developing LMOOCs that are principally intended for deployment on mobile devices may become more of a reality since the number of students not able to participate in the course because they do not have a smartphone or tablet is likely to be very low. Such Mobile Assisted LMOOCs (henceforth, MALMOOCs) are a real possibility and one that could improve the language learning experience significantly by extending the time and activities that a student would undertake into their everyday life.

It should be noted that as has been the case previously in all technological advances applied to learning, methodological considerations will be key for MALMOOCs to be effective. In the authors' experience, a scaffolded spiral approach is most effective for second language learning involving the use of technology (Bárcena, 2004). Such an approach moves the students from teacher-lead instruction to self-directed learning, and back again, in a circular fashion, which combines an instructivist stage with subsequent social-constructivist ones. LMOOCs are different from standard online courses since the teachers are not typically present when the course starts. Hence, the course structure must take into account difficulties that can arise at different points. Possible learning paths need to be identified in order to provide adequate and relevant scaffolding.

The way in which mobile devices can be used in a MALMOOC can be illustrated by an example, which goes beyond just accessing the course. The LMOOC in question is on Professional English (B1 level). In one section, the importance of intercultural factors in job adverts is being studied. The students are provided with videos (with written scripts for scaffolding purposes) and examples that illustrate and explain how job adverts are typically structured and what type of sublanguage is used. They have also undertaken both individual and collaborative activities. The former are closed activities whose objective is to help the students internalise basic concepts,

and in the latter, they are asked to prepare a job advert, working in small groups. For this specific activity the following description is presented:

“In the job advertisements in some countries it is common to find references to what could be considered ‘personal’ traits and require candidates to be of a specific sex, or within a certain age range, have certain physical characteristics, follow a given religion, etc.”

The students are provided with some open reflexive questions to help them structure their participation in the peer interaction activity:

“What do you think of this? Do you consider that this procedure is discriminatory or not? Can you identify any circumstances (types of jobs etc.) where these personal requirements could make sense and be appropriate?”

The students are then instructed to use websites and social media on employment to locate evidence that supports their ideas, opinions and arguments. This can be done from both desktop computers and mobile devices. Furthermore, specific online job hunting services like LinkUp and Monster Jobs and their corresponding mobile apps (LinkUp app<sup>1</sup> or Monster app<sup>2</sup>) can be used for this purpose. As this task advances, the students can share their opinions in the forum and/or in small groups. Such collaboration can be useful to help the students refine concepts and terms that are relevant when searching for evidence, for example: “sexist job adverts”, “job adverts and age discrimination”, “religious job adverts”, etc.

Subsequently, the activity can be extended out of the online course, and the students can be instructed to look for jobs which do/do not include physical characteristics, preferably in the target language (in this case English) in their daily life. Gamification can be applied to the task by quantifying the number of different jobs that can be found, or the oddest, funniest, etc. Mobile devices can be used here to take photographs of examples that are subsequently shared online. Even if such examples are not in the target language, they can still be translated before sharing in the MALMOOC.

Finally, the students can work in small groups to generate some conclusions on the reflexive questions presented earlier and prepare a final written summary that can be compared and contrasted with what other groups have done. If each student reviews the work of two other groups then some peer feedback will be available. The students can then demonstrate that they have understood the relevant intercultural competences and related terminology by undertaking a closed test previously elaborated by the course designer.

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<sup>1</sup> <http://www.linkup.com/mobile>

<sup>2</sup> <http://career-services.monster.com/mobile-apps/home.aspx>

This example combines activities that can be undertaken from desktop computers and with a mobile device, and as such, is not a pure MALMOOC but does illustrate how different types of device can be used. However, the use of smartphones or tablets, while the students are undertaking their daily activities (for example, to record job card summaries found in windows of employment agencies or on supermarket noticeboards), can help extend and consolidate different conceptual and skill-based language competences. This kind of overlap between online learning and real world activities can provide students with access to situated and task-based learning, that go beyond what is contained in the online course. In general terms, any exposure to the target language is beneficial to students. Since the use of mobile devices provide students with an opportunity to integrate learning activities with their current usage of communication and social media, they are provided with more opportunities to internalise language structures and practise what they see/hear.

Furthermore, as was noted above, mobile phones were originally conceived as communication devices before their increasing sophistication converted them into digital Swiss army knives. They are therefore useful for students to be able to go beyond standard textual production and record audio/video that can be used as part of an activity within the MALMOOC. Such audio recording, or similarly conferencing (if the students connect in real time) have been shown to be effective for second language learning (e.g., Hampel & Hauck, 2004). Since these language courses have high student numbers then arguably there are many opportunities for students to interact using the target language via their mobile devices. Often the distributed nature of the student population in distance-learning means that it is hard for them to take part in synchronous communication and collaboration. In this case, given the large numbers of participants it is more likely that at any given time people are available online. By extending the course into everyday activity, when students find themselves with some unexpected free time they can pick up their smartphones or tablets and begin to interact with their peers.

The mobility factor present here offers, amongst other things, advantages of increased access time, richer learning scenarios involving real world situations and objects, and greater opportunities for students to interact and communicate with their peers. Further research is needed to actually explore the way in which students use their mobile devices in relation to digital media and online courses. The results will help language teachers to map out effective learning routes for students participating in MALMOOCs.

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