# Using mobile devices in the language classroom

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# Why use mobile devices in class?

Mobile devices, in particular internet-capable smartphones and tablets, have become an integral part of everyday life for many people in most parts of the world. This is particularly the case for young people, for whom mobile devices have become an essential means for connecting with the world in general and with their social environment in particular. Students at the secondary and tertiary levels – and increasingly some even younger – use their phones to stay in constant contact with friends and family. Yet when they enter the classroom, there is more often than not the expectation – or, in fact, the absolute requirement – that phones be switched off, or at least not used during class. The sentiment is widely shared among educators that mobile devices in the classroom function as a serious distraction, taking student attention away from learning (O'Bannon & Thomas, 2014). The banning of phones in the classroom, however, has several results that are not beneficial:

- A good number of students will likely continue to use their phones, but surreptitiously, possibly resulting in classroom conflict.
- Prohibiting phones leads students to view what happens in their language classroom as separate from their 'real' lives.
- Students don't see their devices as potential learning tools, in particular for language study.
- Classroom instruction does not take advantage of the wealth of tools and resources available for language practice on mobile devices.

In this paper we will be looking at how the judicious use of mobile devices in the language classroom can, in fact, have a number of positive outcomes for students and teachers. These include:

1. integrating into instruction multimodal language-learning tasks involving use of images, audio and video;
2. enabling collaborative classroom activities using mobile devices for group writing, listening or speaking;
3. enriching classroom activities with authentic language resources through apps and online sites;
4. leveraging individual preferences on mobile devices to personalize learning and develop learner autonomy;
5. enhancing students' digital literacy and other 21st-century skills needed for the workplace;
6. encouraging out-of-school and lifelong language learning.

These represent enhanced learning opportunities that are difficult, or in some cases impossible, to implement without mobile devices. Allowing students to use their devices in class breaks down the barrier between school and life. Doing so aligns teaching practices with the real world, in which mobile technology is integrated into most spheres of work and leisure. Today, mobile devices are so ubiquitous that students are likely to expect to use them in that part of their lives which happens to take place at school (Stephens & Pantoja, 2016).

If, in fact, mobile devices can offer such benefits, why is it that language teachers are reluctant to introduce their use in the classroom? It is not just the distraction factor. We tend to teach the way we were taught, which for the current generation of teachers did not include the use of mobile devices. While teachers are likely themselves to use a mobile phone, that does not easily translate into classroom use. For many teachers, the transition from an entertainment and socializing device to a learning tool may be difficult to envision (Kukulska-Hulme, 2009).

By enabling greater learner autonomy and enhanced opportunities for language practice beyond the classroom, mobile devices can supply greater access to second language input than normally is available in traditional instruction.

Another potential barrier is the very richness of options available today on mobile devices. While the ever-growing set of tools, services and apps may be empowering to students, it may seem overwhelming to teachers looking to start using mobile devices in their classes (Carrier & Nye, 2017). In addition, it is the case that integration of devices as powerful and personal as contemporary smartphones into the classroom environment changes the modality of instruction, eroding potentially the magisterial role of the teacher. Teachers beginning to use mobile devices in language learning will need help in changing their attitudes towards them as well as training. Effective use requires more than just allowing student access, namely thoughtful consideration of when mobile use makes sense and when it does not. Teacher training is needed to learn best practices in merging pedagogy and mobile technology.

Whether the time and effort are worth the investment will depend on the individual teacher and on the school context, including the following considerations:

- Is there a school or district policy regarding student mobile use in class?
- Do all students have access to mobile devices? Is pair or group sharing feasible?
- Is internet access readily available in the classroom? Is the Wi-Fi network reliable?
- Are curricular or formal testing requirements in place that dictate a particular approach to instruction, with less flexibility for introducing new teaching options?

These factors will have an impact on the feasibility (or not) of mobile device use. However, not taking advantage of this opportunity for enhancing instruction may lead students to look elsewhere for language training. In most parts of the world, English learners in particular will have a variety of options. Brick-and-mortar schools are increasingly being supplemented by opportunities for formal and informal internet-based language learning. Introducing mobile use benefits students, but it also benefits teachers. Learning to integrate mobile devices into language instruction adds another dimension to the teacher's profile, improving the quality of instruction while enhancing teacher marketability.

It is not just their availability, wide usage and social acceptance that invite use of mobile devices in the classroom, but also the fact that the capabilities they offer align well with current educational theories and practices, 'such as improving student retention and achievement, supporting differentiation of learning needs, and reaching learners who would not otherwise have the opportunity to participate in education' (Kukulska-Hulme, 2009: 157). Specifically in language learning, mobile devices can facilitate constructivist / collaborative learning, use of authentic materials, and real-world integration of language use, all areas considered important today in communicative language learning (Savignon, 1991). By enabling greater learner autonomy and enhanced opportunities for language practice beyond the classroom, mobile devices can supply greater access to second language input than normally is available in traditional instruction.

# The teacher's role

As is true for any teaching tool, mobile devices can be used in a variety of ways to support instruction. The SAMR model (Puentedura, 2014) of technology integration lays out a spectrum from using technology to do familiar tasks better or easier to, on the upper end, redesigning educational approaches, using technology to enable activities not previously possible:

- **Substitution.** Technology substitutes for a traditional approach; for example, a word processor replacing writing by hand.
- **Augmentation.** Technology acts as a direct tool substitute and adds new functionality; for example, proofing tools and text-to-speech are used to improve the writing process.
- **Modification.** Technology allows for significant task redesign; for example, the written work is shared on a blog.
- **Redefinition.** Technology allows for the creation of new tasks, previously inconceivable; for example, students combine written text with multimedia, posting the result on a media sharing site.

Using the audio function of smartphones to play dialogues in the classroom replicates an activity language learners did previously with a CD player, demonstrating substitution or augmentation. Having students use their devices to write comments on the dialogue (in the form of text messages, blog entries, or contributions to a Google doc) modifies previous use of the same materials and adds a collaborative and reflective dimension, potentially redefining teaching practice. Typically, teachers will start using mobile devices to do familiar tasks, but as comfort levels and knowledge of affordances develop, new, more transformative uses are likely to emerge. This focus on the teacher's ability to mould pedagogical content and technology is at the centre of a framework developed specifically for mobile pedagogy for English language teaching (Kukulska-Hulme, Norris & Donohue, 2015). The importance of 'teacher wisdom' in the framework points to the key role teachers play in designing activities that make sense for the technology used, the ability / interest of students, and the kind of learning materials at hand.

With mobile devices in the classroom, the teacher plays a more active role as compared to the more hands-off model of drill-based, programmed learning, using self-instructional tutorials, today often associated with MOOCs – massive open online courses (see Hockly & Dudeney, 2017). Pegrum (2014: 207) comments: 'To be maximally effective, teachers need to be more than designers or collectors of material; they need to become *designers of learning experiences* for their students'. This involves a shift in the teacher role: the teacher's expertise is used not only to transmit knowledge, but also to guide students towards the best use of the technology for maximum language acquisition.

> The learner should be brought to see the potential of becoming personally empowered in his or her language learning, with the possibility of becoming part of an online community of learners.

Even if students are proficient users of personal technology, they will likely need help in using online learning materials. Although students may be aware of online resources for language learning, studies show that without guidance they may struggle to use them effectively: 'The studies suggest that learners' strategies and resource choices are largely determined by what they happen to come across as they browse the web and online app stores' (Kukulska-Hulme, 2013: 5). What this means in practice is that it is important not only for language teachers to use mobile devices in the classroom to enhance learning, but also to model their use for learning in general, with the hope that students will use their devices for that purpose outside the classroom.

The goal should be a seamless use of technology for learning, no matter in what context it may occur. The learner should be brought to see the potential of becoming personally empowered in his or her language learning, with the possibility of becoming part of an online community of learners. Teachers can contribute to achieving this goal in several ways:

- using classroom time to allow students to discuss or even demonstrate their learning 'in the wild';
- enabling students to ask questions that may have developed from language encounters online;
- encouraging students to seek out, curate and recommend online resources they find useful.

This approach could lead to useful discussions in class on the advantages of different apps or services, potentially increasing learner motivation and contributing to the development of the capacity for autonomous learning (Ciampa, 2014). By the same token, in-class activities using mobile devices can include or lead to assignments completed at home. These kinds of 'extension activities' contribute to students' understanding that their devices can in fact be useful learning tools, inside and outside the classroom (Norton, 2014).

# Functions and apps: Ready-made for language learning

Smartphones and tablets have a variety of built-in functions that support communication and multimedia use. They offer an efficient way for students to work with language, whether written or spoken. Because they are networked, they support peer collaboration and offer the opportunity to virtually bring into class individuals from outside the classroom, including more proficient speakers. Some of the built-in capabilities that support text and media use include:

- note taking;
- photo capture and editing;
- audio and video playback, recording and editing;
- email;
- text messaging;
- web browsing.

In addition to the default functions and applications present in phones and tablets today, they also offer access to a large variety of third-party apps, which in fact is a major reason for smartphone popularity. Apps were available before the iPhone arrived in 2007, but were of minor importance and not widely used. Today, the Apple App Store (for iOS devices) and Google Play (for Android devices) offer countless apps that can be easily added to phones to enhance their functionality. In contrast to traditional computer software, apps tend to be inexpensive, installed easily, and feature intuitive interfaces requiring minimal instructions for use. Many apps today offer the ability to store or sync data from the phone or tablet with an online server, often called cloud services. This enables sharing of created artefacts and thus collaborative opportunities.

The kinds of apps students are likely to have already on their devices, or that can be installed for free, include the following:

- mobile versions of social media, such as Facebook and Twitter;
- video-conferencing services like Skype or Google Hangouts;
- messaging and multimodal texting apps including Snapchat and Instagram;
- personal journaling apps like Penzu or Journey;
- video-streaming players such as YouTube or VLC media player.

None of these were developed for language learning, but all clearly have potential for language practice and socially oriented learning. Apps already used by students offer the advantage of familiarity and integration of life and learning.

Even apps and online services that were not developed for use by learners can be helpful for both language and culture learning in a variety of ways. That might include topics such as transportation (in-class groups using an online train timetable to plan a trip), entertainment (discussing movie or music reviews), shopping (furnishing an apartment), or dining (choosing a restaurant based on online menus). Such

activities are well adapted to small group work, with the added opportunity of sharing created artefacts online.

In addition to general-purpose apps, there are many designed specifically for language and culture learning (see the recommended resources at the end of this paper). Many such apps are in the category of phrase books, vocabulary flash cards, tourist guides, or grammar tutorials (Chinnery, 2006). Pronunciation apps are also common, such as Sounds Right (British Council) or Sounds: The Pronunciation App (Macmillan); see Kaiser, 2016 for reviews of pronunciation apps. These kinds of apps are designed to be used by individual users, but some could be adapted to collaborative use in the classroom. Tuttle (2013) suggests having students in pairs extract phrases from a phrase book app and then use them to create a dialogue, or as the basis of an in-class skit. Other kinds of single-purpose apps could be used in a similar fashion.

Full-featured language-learning apps are available as well, including mobile versions of services such as Duolingo or Babbel. Teachers might have students, individually or in small groups, assigned to download, try out, and then report in class on the experience of using such services. This could also be done with other language-related apps such as games, ranging from very simple concentration style to much more sophisticated. The latter include innovative place-based games using artificial intelligence or augmented reality (see Godwin-Jones, 2014, 2016). Some games (as well as some flash card and polling apps) can be set up as competitions that can be played in class with individual students or with groups.

> Apps already used by students offer the advantage of familiarity and integration of life and learning.

One of the cautions in the use of third-party apps in the classroom is compatibility. While the most popular apps are normally available for both iOS and Android, this is not necessarily the case for all. Another consideration is cost: many apps are free, but some are not. Increasingly, apps are released as 'freemium', meaning that some features or functions are free, but others must be purchased. If students are using their own devices, one might assign installation of the app before the start of class, so that class time is not taken up with getting started.

# Getting started

Following Crompton (2013), mobile devices here are considered to be portable digital screen devices with instant on/off, i.e. phones and tablets, but not laptops. In recent years, there have been a number of initiatives in which mobile devices – especially tablets – were purchased and made available to students, which specific devices are available for use will depend on the context of use. Increasingly, however, there has been interest in having students use their own phones, tablets or laptops in a BYOD model – 'bring your own device' (Rogers, 2016). Having students use their own devices means they are working in a familiar context and are able to continue to use the devices outside the classroom. This may be an especially important consideration for students with disabilities who have configured their devices to accommodate visual or hearing issues (Kukulska-Hulme, Norris & Donahue, 2015).

Teachers need to be aware of potential disparities in device ownership among their students which may affect use in the classroom. In some instances, it may be necessary for students to share devices. Indeed, having students collaborate is one of the important ways in which mobile devices can enhance the classroom learning dynamic. Al Zahrani and Laxman point out that there may also be cultural factors at play in the use of mobile devices in the classroom, finding that 'suitable awareness of cultural diversities and the effects this has on the individual user is vital to the success of e-learning systems' (Al Zahrani & Laxman, 2015: 85).

How mobile devices are used for second language learning in the classroom will vary based on a variety of factors:

- the specific lesson and the teacher's learning goals;
- how the work with mobile devices fits in with other planned activities for the day;
- the language skills involved and how the features of the device / app facilitate their use and practice;
- the availability of devices for all students (or the need to share) and the reliability of the network, if used;
- the familiarity of students and teachers with the device / service / app;
- the extent to which the mobile device use can serve as a springboard for in-class communicative activities.

The experiences of language teachers who have used mobile devices in the classroom point to some best practices:

1. As with any technology used in the classroom, it is important for teachers to do a technology-related activity first themselves, so they have a clear understanding of its usage. For activities involving access to a website, it is good practice to check in advance to make sure it is up and available. One should avoid sites (or apps) with long load times.
2. The instant on / off of mobile devices allows them to be used with great flexibility in the classroom. To avoid tempting students to use their devices for other purposes, the teacher might explicitly call for devices to be taken out, and, at the end of the activity, put away.
3. Keep activities with mobile devices short. Tuttle (2013) recommends limiting activities to three to five minutes. Actual time on the device will likely not be the principal learning gain, but rather that task will be used to generate active language use in the classroom through pair / group discussions or other follow-up activities.
4. Keeping mobile use short also means that activities should not be overly complex. While the use of mobile devices for an assigned task might involve several steps or even different apps or websites, the focus should be on using the devices to generate active language use. More elaborate tasks should be assigned for homework. Complex assignments may involve more teacher talk, giving directions, than is desirable in a communicative learning environment, even if the instructions are provided in the target language.

# Using mobile devices for language learning

## Discussion starters and warm-up activities

Mobile devices can be used to provide a brief interactive introduction to a lesson, functioning as a kind of advanced organizer (Hunsu, Adesope & Bayly, 2016). For this purpose, one could use a so-called clicker or polling app such as Socrative, Kahoot! or GoSoapBox. Such apps enable a teacher to ask a question, to which students respond on their mobile devices. The answers are tabulated and the responses (depending on the app) can be displayed on users' devices or on the instructor's console / screen. This could be used to introduce a new set of vocabulary through a word-picture matching exercise. Such apps could also be used as a way to check student knowledge in a particular area, providing the instructor with a way to gauge the range of prior knowledge and thus the appropriate starting point for introducing a topic. A set of questions in a clicker app can also be used for a quick review of prior material.

The feedback students receive on their answers can provide positive reinforcement of their progress, crucial to learner motivation. One ESL teacher reported that students enjoyed the use of the Socrative app on their phones:

> Basically it's a sort of validation, isn't it, instant feedback that tells them if they've got it right or wrong ... or it feels like a fun game I guess ... It's nice to see as a class and they talk about it before going on to the next one and people can ask why something is wrong, you know it builds discussion about the language in itself (cited in Kukulska-Hulme, Norris & Donohue, 2015: 6).

As is often the case with the use of mobile devices in the language classroom, student use of the device for carrying out the task is useful in itself, but even more productive for learning can be the group or class discussions generated by the activity.

One could as well introduce a grammar point by displaying a set of sentences containing the form in use. Students are asked to read the sentences and see if they detect a pattern. If so, they can respond through multiple-choice or short-answer questions. This kind of guided induction lends itself well to pair work, allowing students to reflect and discuss (Godwin-Jones, 2017a). For more open-ended or longer responses, one could use Google Forms, which features more question types than clicker apps.

> A good way to get started with the use of multiple devices in the classroom is to explore with the students the features of the mobile devices that have the potential to support language learning.

One practical issue with the use of Google Forms is the necessity of supplying a URL (web address) to the students. For clicker apps, a short code is provided once the instructor creates an exercise. The instructor displays the code on a classroom screen or writes it on the board. One option for providing students with easy access to a web address such as is generated by Google Forms is to create a 'mobile companion' page which lists links to websites and other class resources (Godwin-Jones, 2017b). This could be done using an HTML editor, or more easily with a sharing service such as Padlet or lino or a

class management service such as Edmodo or ClassDojo. Once such a page (or site) is created, students can save it as an icon on their devices' home screen (see Figure 1). This makes it easy to click on the icon to display the page.

We know that a good way to get started with the use of multiple devices in the classroom is to explore with the students the features of the mobile devices that have the potential to support language learning (see Hockly & Dudeney, 2014 for multiple related activities). For this activity, one might assign the students to work in groups, exploring together ways to use the functions and apps of their phones to support language learning (Kukulska-Hulme, Norris & Donohue, 2015). Dividing into groups encourages collaboration but also enables separating students into groups with the same devices, or at least with the same operating systems. Each group might have a designated reporter / scribe jot down the findings, including the relevant vocabulary in the target language. This information could be saved in a shared notebook using an app such as Evernote or Microsoft OneNote or added to a communal page on Google Docs. Students in this activity could engage in a variety of tasks which combine exploration of the devices, target language use, and students getting to know one another. These include:

- Switch the user interface of the device to the target language.
- Send each other text messages or emails to experience familiar apps in the target language.
- Conduct sample searches using a target language search engine, then share and discuss resources found.
- Compare installed apps which might support language learning (such as audio / video recording).
- Try out the voice-activated virtual assistants (Siri for iOS or Google Now for Android) in the target language.

A useful adjunct to this activity is to encourage students to consult online help and reference sites when they need assistance or clarification with either technical or language issues. This 'contributes to both learning skills and digital literacies' (Kukulska-Hulme, Norris & Donohue, 2015: 27). Exploring mobile devices for language learning should be a process which continues throughout the semester, as students are encouraged to try out other apps and online services, adding both to individual student skill sets and to the class knowledge bank. Another option for sharing this kind of information-gathering and individual testimonials is to use a class blog or wiki. Free blogs for education can be created through services such as WordPress, Blogger, or Edublogs, wikis through Wikispaces or eduhub.

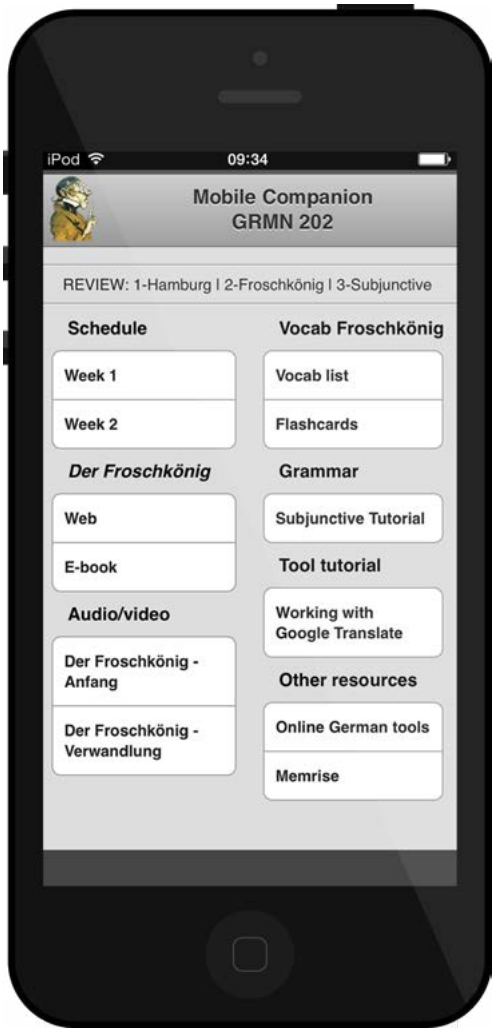


**Figure 1: Example of a mobile companion**

## Vocabulary and grammar

The largest volume of published articles, teacher blog posts, and apps related to mobile language learning target vocabulary acquisition and grammar study (Pegrum, 2014). For the most part, mobile activities involving these areas of language learning represent amplifying or modifying activities following the SAMR model discussed earlier. They represent more efficient ways for students to advance their skills and knowledge, with usage extending from the classroom to home use. Most of the sites for grammar and vocabulary learning and practice are mobile friendly. Some have created entertaining game-based activities, such as Grammaropolis for English grammar or Quizlet for vocabulary exercises. Johnny Grammar's Word Challenge (British Council) incorporates game-based questions on grammar, vocabulary and spelling for a variety of learning levels. The Phrasalstein app (Cambridge University Press) reviews the use of phrasal verbs through cartoon figures resembling Frankenstein.

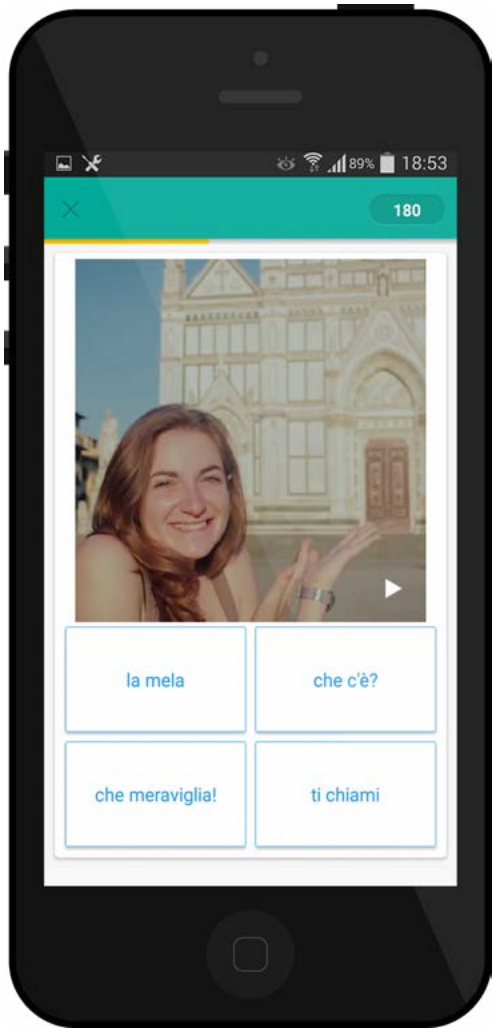


**Figure 2: Memrise app**

Rosell-Aguilar (2017) advocates that teachers demonstrate the use of recommended apps in the classroom. While the basic functionality of most apps is readily apparent, there may well be preferences or advanced features of which the casual user may be unaware. This is certainly true of the sophisticated flash card apps available today, such as Anki or Memrise (see Figure 2), which feature a multitude of advanced features including spaced repetition, multimedia glosses, automatic syncing across devices, and collaborative / gaming functions. Discussing the use of these features in class can provide valuable insights into what cognitive psychology and second language acquisition theory have revealed about how human memory works and about optimal methods for vocabulary study. Results from studies on effective language-learning strategies point to the importance of explicit discussion with students of optimal strategies, with research showing 'the most beneficial strategy instruction to be woven into regular, everyday L2 teaching' (Oxford, 2003: 12). Periodic discussion in class of mobile apps and services for language learning provides an ideal opportunity for doing that.

Students can engage in a constructivist activity with vocabulary by collaborating to create their own multimedia glosses (Pollard, 2015). Apps such as yodio and ThingLink enable audio or video to be added to texts or photos. Pictures and audio / video clips can be sourced online or can be taken / recorded with the students' devices, done outside of class. Alternatively, the teacher could supply a set of images for use in class. The multimedia glosses could be sent to a teacher-designated location (for example, through text messaging or email), or could be added to a multimedia sharing site such as Snapguide or Pinterest or saved to a virtual learning environment (VLE) such as Moodle, if used. In class, the submissions could be displayed and discussed through the teacher console.

Pollard (2015) suggests that, where possible, vocabulary sets be coupled with targeted grammatical structures, such as combining a unit on people's appearances with relative pronouns. This provides 'the opportunity to objectively describe the setting, as per the appearance aspect, and also allow the student to speculate on other aspects of the image, such as the possible personality traits of the individuals' (Pollard, 2015: 29).

> Studies on effective language-learning strategies point to the importance of explicit discussion with students of optimal strategies.

Having students create projects using the lexis and structures under study can serve to make them more aware of language structures in context, leading to more 'noticing' of forms (Schmidt, 1990):

> Since learners need to consciously notice language forms in order to take them in, mobile learning can assist this process by encouraging learners to pay close attention to how language is used around them and record their observations in the real world, subsequently sharing their notes in the classroom or informally (Kukulska-Hulme, 2013: 5).

Students could collaboratively use a tool such as H5P to create their own interactive grammar and vocabulary exercises. That can provide more insight into language forms, as well as encouraging reflection on approaches to language learning.

One of the opportunities to combine lexis and structure is having students use their devices to consult a target language corpus (i.e. large collection of texts), with the use of concordancing software, which provide examples of words, expressions and idioms as used by proficient speakers. Some such software are available through the browser on mobile devices, although, depending on the site, the interface may not display optimally on a small screen (Godwin-Jones, 2017a). The British National Corpus, for example, can be searched using the BYU interface for retrieving in-context use of individual words / phrases, collocations (words frequently found together), or comparisons of word usage. Access is also provided by BYU to the Corpus of Contemporary American English. English Monstruo (Cambridge University Press) provides insights from the Cambridge English Corpus, with information on frequent errors made by native Spanish speakers. The app features interactive exercises using corpus examples. An alternative is for the instructor to preselect examples from a corpus and make them available on a shared class page. In class, groups can be assigned a certain number of sentences containing a construction, then asked to list usage patterns. Groups can then report to the class, with the instructor or designated student serving to coalesce the input from the different groups.

## Reading and writing

Social media, widely used by students, provides an ideal vehicle for reading and writing in the target language. Social media engages students in real language use and contributes to their ability to use the language not only grammatically but in ways that are socially and pragmatically appropriate. That includes learning about genre conventions, language registers, and cultures of use for different media and online communities (Thorne, 2003). Knowing how and when shorthand texting language is used, for example, is an important competency for English learners today. It is likely that students already use available mobile versions of social platforms such as Facebook. This provides the opportunity to engage in class activities which can be extended to homework assignments or used later informally by students.

Mahoney (2014) describes how she uses blogging to provide reading / writing practice and motivate students by personalizing the choice of content. She starts by showcasing a blog with students in class. She then has students take out their devices, and asks them to browse and compare posts from three different blogs. The students are then assigned to 'blog on five separate subject areas from a choice of eight subject areas' (Mahoney, 2014: 36, cited in Richards, 2015: 9–10). Mahoney has found that allowing students to choose their own material and express their individual point of view in their blogs has a highly motivating effect. She makes sure as well that as part of the assignment, students read each other's blog posts and write comments. In another kind of shared reading / writing activity (see Figure 3), students were able to use

an annotator on their mobile devices to make notes on readings or to add translations, which were then shared with other students in the class (Hsu, Hwang & Chang, 2013).

> Social media engages students in real language use and contributes to their ability to use the language not only grammatically but in ways that are socially and pragmatically appropriate.

One of the factors to consider in reading and writing on mobile devices is the limited screen size, which may limit functionality in both areas. In fact, mobile users are used to dealing with short text formats, not long form writing. One recent study that compared student writing on mobile devices with writing on computers or by hand found that writing on mobile devices tended to be more superficial, less reflective (Heflin, Shewmaker & Nguyen, 2017). In line with this reality, it comes as no surprise that most reported projects focusing on second language writing on mobile devices have used text messaging (SMS, WhatsApp or other messaging platforms) or tweets (Twitter).


An annotation made by the student

Detailed information of the annotated vocabulary

Cakir (2015) surveyed different uses of SMS for language learning and concluded that 'the research has shown that the studies based on the use of mobile SMS for learning English encouraged classroom interactions, motivated students to learn English, promoted vocabulary acquisition and tested their progress'. Pollard (2015) used text messaging to have students exchange both photos and short texts. Reinders (2010: 22) suggests having students engage in circular writing through messaging, 'creating a story together, contributing one text message at a time'. He also recommends experimenting with different genres and writing styles, including narratives, news reports and instructions.

This kind of activity could be carried out through Twitter as well. Twitter is especially well suited for activities in which students report on their own daily activities or on language encounters (particular idioms encountered in reading, for example). Norton (2014) suggests the following uses of Twitter for English language learning:

- **Tweet a summary.** In pairs or small groups, ask students to summarize a piece of text in 140 characters or less. Provide students with a hashtag, so the whole class can follow the conversation on Twitter and discuss it at the end.
- **What did you do at the weekend?** Ask students to tweet photos of their weekend. Provide a hashtag for all the tweets. They could include photos of interesting people they met, a funny sign, or a meal they enjoyed. This will provide students with plenty of material for discussion on a Monday morning.
- **Describing people.** Ask students to describe someone they are following on Twitter, in English. What were the reasons for following them? Do they read their tweets daily? Do they follow them on other social media channels? Is there anything in particular they admire about them?

Kukulska-Hulme, Norris and Donohue (2015) suggest posing a question at the end of a class, to which students then tweet or message a response from home. Using a hashtag with Twitter allows students and teachers to follow the conversation easily. They also suggest having students in groups summarize a reading in a tweet or 'create their own microstories and flash fiction'. Examples can be seen at sixwordmemoirs.com.

## Listening and speaking

One of the characteristics of online interactions that has emerged with the explosive growth of mobile technology has been the merging of modalities, i.e., text, image and audio / video, often today converging in texting, blogging, and in all forms of social media (Goldstein, 2016). This convergence will necessarily be reflected in the use of mobile devices in language learning. Tasks – in class and at home – are likely to combine text with other media. A recommended activity in Kukulska-Hulme, Norris and Donohue (2015), for example, has as its final product a draft letter to accompany a job application. Before working on the letter in class, students watch an online job interview video at home, then in class discuss with other students what they found useful in the interviews. Thus, the activity involves writing, listening and speaking. As is the case here, assigned tasks involving mobile use should ultimately lead to active student language use, collaborative opportunities, and, whenever possible, a connection to the 'real' world outside the classroom.

One of the ways in which language teachers can bring the outside world into the classroom – and in the process authentic linguistic and cultural learning materials – is through the use of online audio and video. There is now a wealth of videos of all kinds available on YouTube and through other online video services. Podcasts are also widely available and have been used for some time in language learning as a source of information on current affairs (Beckmann & Martin, 2013) or in the form of student- or teacher-created podcasts (Abdous, Camarena & Facer, 2009). Some apps feature slowed-down audio for language learners, or may, as does the Audio News Trainer for English (see Figure 4), offer audio recordings at different levels of difficulty (Read, Bárcena & Kukulska-Hulme, 2016). The great variety of topics available means that teachers are likely to find sample clips to fit any thematic focus. This provides options as well for students to find audio / video resources that align with personal or academic interests. While language coursebooks try to appeal to young learners with, for example, texts of songs from contemporary pop artists, they are likely to be out of date as soon as published (Lieberman, 2017). Using online sources keeps content current.

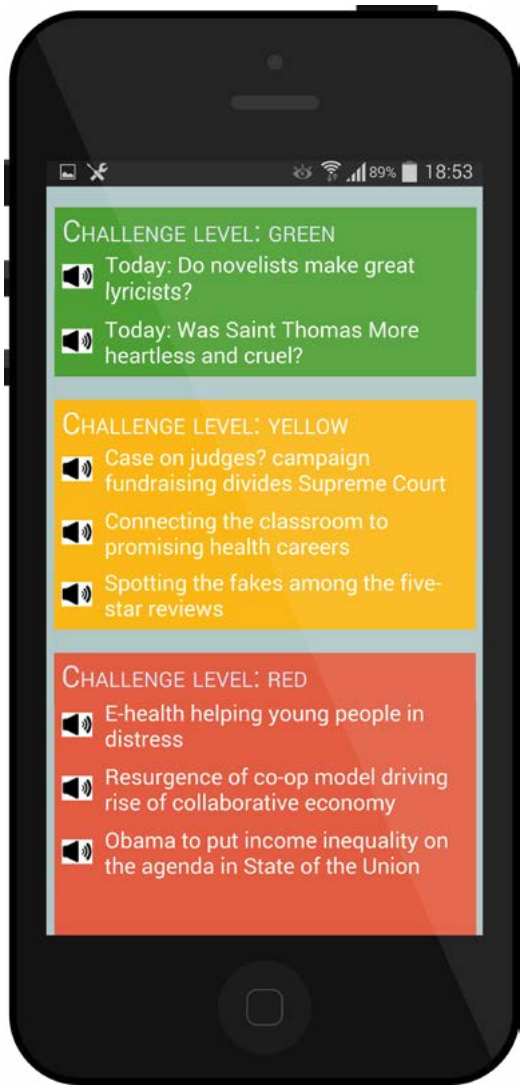


**Figure 3: Audio News Trainer for English**

Watching video clips or listening to podcasts can serve as models for students themselves creating multimedia. This is in fact one of the most used features of modern phones, to take pictures and record audio / video. The voice-recording feature can be used to record selected classroom activities for later study, reflection or transcription. Voice and video recording are ideal vehicles for practising presentations, assigned dialogues or classroom skits. Final versions can be posted online to a class webpage, a video-sharing service, or to a public folder on a cloud service such as Dropbox. Students might use their phones to conduct video interviews with each other, related to

topics currently being studied. They could use available models on YouTube to create how-to tutorials related to a hobby or particular interest. Hockly and Dudeney (2014) suggest having students collaborate to create short movie trailers based on imagined movie plots or favourite books.

Students could use a service such as Voki to create animated characters engaged in dialogue, related to course themes and using studied vocabulary and language structures. Voki supports 25 different languages and allows use of voice recordings or text-to-speech to add audio to animated stories (Picardo, 2011). In fact, there are multiple options for multimedia storytelling, which has shown to be an effective language-learning activity (Kukulska-Hulme, Norris & Donohue, 2015). Depending on students' interest, age and proficiency, they might tell stories through creation of comic strips (using, for example, the Strip Designer app) or create scenarios involving augmented reality with apps like Aurasma or Layar.

Such collaborative multimedia-integrated projects align well with the criteria Kukulska-Hulme, Norris and Donohue (2015) outline for evaluating use of mobile devices in language learning. The criteria supply a useful set of questions to ask about any technology-related assignment:

1. **Outcomes:** How does the activity lead to improved language proficiency and other outcomes?
   Creating multimedia projects leads students to use language in a real-task context, based on content and structures studied in class. Posting a group project as an online artefact can motivate students while at the same time connecting to real-world contexts, contributing to digital literacy.
2. **Inquiry:** How does the activity relate to ever-changing contexts of language use?
   Multimedia projects mirror how language is in fact used today in online communities. Students might engage in additional 'mashup' activities (frequent online) such as supplying alternative soundtracks for a video, adding subtitles or describing photos (as common in the Flickr photo-sharing service).
3. **Rehearsal:** How does the activity make the most of circumstances and resources to enable more practice?
   Recording and playback enable multiple practice opportunities, encouraging reflection and revision. The digital files can be easily shared with others. Feedback from peers and teacher provides valuable input for repair and iterative improvement. Being online also offers connection possibilities to virtual learning communities.
4. **Reflection:** How does the activity design ensure reflection on learning?
   Teachers play a crucial role here, both in commenting on student production and creating space and time for thoughtful re-examination and revision by students themselves.

# Learner training and teacher training

Language teachers are likely to have quite divergent views on the desirability of having students use mobile devices in their classrooms. One perspective is expressed by an ESL teacher:

> Smartphones are here to stay. For English teachers, that means we need to either ban iPhones, Androids, Blackberries and whatever next flavor arrives – or – we have to learn how to incorporate the use of smartphones into our routine. I've discovered that just ignoring their use in class doesn't help. After all, I am an English teacher trying to encourage my students to communicate in the English language (Beare, 2017).

Other teachers and school administrators may feel quite differently, viewing student phone use in the classroom as harmful to learning, as it distracts the student using the device, as well as possibly those seated nearby. The fear is that students will not be using the phones in ways that relate to the work being done in class, but rather will be texting friends and checking Facebook. This fear is widespread. O'Bannon and Thomas (2014), in a broad survey of teachers, found that there were differences according to teachers' ages – older teachers being strongly against classroom phone use – but that in none of the age groups did the majority of teachers support allowing student use of mobile devices in class.

Discussing the issue with all stakeholders – teachers, students, administrators, families – is a recommended first step (Carrier & Nye, 2017). Studies have shown that students are very much aware of the distraction factor and are amenable to finding a workable set of guidelines (Stephens & Pantoja, 2016). One possible procedure is to reserve a specific time for allowing students to check phones (Kuznekoff, Munz & Titsworth, 2015). That might come during a natural break time or be available within groups when tasks have been completed.

One practical option, recommended in Kukulska-Hulme, Norris and Donohue (2015), is for students to place their phones into 'flight' mode during class. There are also 'do not disturb' settings, which have the advantage of allowing emergency contact by designated family members or friends. Another possible direction is to install classroom management software such as Netop or the Cambridge ClassServer (Carrier & Nye, 2017). Such systems can limit access to particular functions or apps, such as Facebook or email. On the other hand, there is this advantage to full, unfiltered internet access, that students learn to deal with digital distractions and moderate compulsive behaviour.

In any case, it is advisable to have a clearly set out policy for when mobile phones are to be used. Having student phones on and available at all times during the lesson is likely not optimal. As discussed here, best practices in mobile use for language learning indicate that they be used in short periods of time, with follow-up activities built around information generated by the mobile use, but no longer needing mobile access.

Teachers may want to follow a pattern in which they instruct students, 'Now take out your phones,' and then after the activity remind students to put them away. An important aspect of using mobile devices in the classroom is to share with students their affordances for language learning, but also their problematic side, which includes the addictive need to check in continuously with social media. We want to develop in our students good habits for language learning, but also nurture behaviours helpful in other contexts, such as once they enter the world of work.

Students continuously using their phones in class may be a signal to the teacher regarding the class environment:

> Whose fault is it if distracting activities are going on in the classroom? What caused the distractions other than the availability of technology? Will alternative distractions occur if the technological tools are removed? Without implying that students are always right, I would say that the issue gives educators a reason to reflect on their own teaching (Fang, 2009).

In a classroom in which students are fully engaged in the learning at hand, there are likely to be fewer bored or distracted students. In communicative language learning, we expect students to be using the language actively as much as possible, collaborating and communicating among themselves, not listening to the teacher lecture. In that sense, introducing mobile devices as a new teaching and learning tool follows this instructional pattern, with the teacher as guide and facilitator.

It is undeniably the case, however, that even language teachers who have accustomed themselves to relegate more responsibility and authority to students for learning, may still feel uneasy about introducing mobile devices into the classroom and relinquishing even more control. Teachers should not be expected to integrate mobile devices into their teaching without sufficient training. This is in fact a concern in research in this area, that teacher training is an absolute necessity, 'in fact, it's hard to find a point more widely made in the research literature' (Pegrum, 2014: 188).

Teacher training is most effective if it targets the specific context in which teachers work. How mobiles are going to be used most effectively depends on the instructional goals, students' proficiency levels, and the ages of the learners. The local context may provide little individual leeway for teachers, as there may be curricular mandates in place or specific classroom guidelines that make mobile use problematic. An important starting point is to ensure that teachers and students understand institutional policies, if any, in place regarding mobile use in class. Having a clearly articulated, widely understood, and universally implemented mobile use policy leads students to anticipate (and maybe accept) expectations in each of their classes. This helps both students and teachers, and lessens the probability of classroom clashes over phone use.

Professional networks, local workshops, and online resources can all provide opportunities for teachers to learn. Hands-on training is important, optimally with teachers using mobile devices themselves. Effective training will involve learning about what technology is available and how to use it, and, importantly, how technology use fits into student learning. Teachers need to adjust to a shift in classroom control, as digital learning 'gives students some element of control over time, place, pathways and pace' (Digital Learning Now, 2014: 5). Technology integration only works effectively if teachers are actively engaged in thoughtful and critical consideration of what digital tools and services fit instructional goals for their students. Pegrum (2014: 155) maintains that 'teachers may well find themselves increasingly called upon to fuse pedagogical and technological understandings and become designers – of digital learning tasks and activities, and potentially of digital learning software itself'.

Teachers are well advised to start small, using devices initially for familiar classroom tasks, perhaps using activities outlined here and by others (see the recommended resources at the end of this paper). As confidence increases, teachers will find new ways to use the technology that fit their own curricular needs and student proficiency / interest levels. Eventually, they may find that mobile devices offer an optimal vehicle for bridging the gap between classroom and out-of-school learning. While teachers may start by doing with mobile technology what they have always done, they are likely to find many more opportunities that exist for motivating and empowering student learning, both inside and outside the classroom.

One of the practical lessons all teachers need to learn is what to do if technology plans go awry. This can occur in any number of ways. A school's Wi-Fi network may go down, for example, meaning that planned tasks based on accessing online sites will not be possible. It is good practice for teachers to cache locally on their devices or laptops webpages or other online materials intended for class use, so that these are available for offline viewing.

When dealing with student devices, there should not be the expectation that teachers will supply technical support. Of course, basic problems are inevitable, such as rundown batteries, connection issues, or memory storage problems. In such cases, peer support is likely to be forthcoming. It is possible as well to designate several students in the class to be 'digital leaders', responsible for finding personal or online help for technical issues that may arise (Hockly & Dudeney, 2014). Despite all precautions and established support networks, it is still possible that there could be technical problems. If mobile access is an integral part of the day's lesson plan, one should always be sure to have a Plan B which does not necessitate technology use.

# Conclusion and future directions

There is not a great deal of published professional research specifically on the effectiveness of the use of mobile devices in the second language classroom. Much of the research in this area has focused on technology rather than pedagogy, exploring how different features of mobile devices have been used, often for out-of-class purposes. Many studies before the advent of the touchscreen smartphone focused on the limited functions users were able to carry out, with physical constraints such as small screens, awkward text entry, poor user interface and slow networking. This all changed with the advent of the iPhone and Android phones in 2007–8 (Godwin-Jones, 2017c). Despite these devices including many features which invite collaborative and communicative uses in language learning, studies have shown that most projects have been oriented to behaviourist, drill-style uses, duplicating teaching practices out of step with communicative language learning, which favors a learner-centred, socially oriented approach (Rosell-Aguilar, 2017).

Published research on mobile use in education generally has indicated that mobile devices are being used increasingly in schools and universities. A meta-analysis in 2017 of use in primary and secondary schools showed widespread use of mobile devices in a variety of subjects, with science being most widely targeted, followed by literacy and language (Crompton, Burke & Gregory 2017). Surprisingly perhaps, there were more studies on usage in primary school than in secondary school. The majority of studies came from Asia, with Taiwan contributing the largest number of articles. A meta-analysis by Al Zahrani and Laxman (2015) of mobile use in higher education found that science, languages and professional training were most often the subjects of published research. The most frequent use of mobile devices was for multimedia access. Few focused on collaborative or communicative uses. The studies generally showed overall positive results. A meta-analysis by Sung, Chang and Liu (2016) showed a larger effect on learning with mobile devices than with desktop technology or without technology at all. Crompton, Burke and Gregory's meta-analysis (2017) of studies in primary and secondary education found that 70% of the studies done on mobile learning resulted in positive outcomes.

> Helping students be aware of their natural and preferred learning style is helpful, as is encouraging students to stretch beyond their comfort level, to try out different approaches to learning.

One area in which there has been substantial research on the use of mobile technology in the classroom is related to clickers. Originally, starting in the 1960s, these were small dedicated devices which were used for polling purposes. Increasingly, hardware clickers have given way to software, with a large number of available apps. In the comprehensive study of clickers and software clickers in education (Bruff, 2009), several reports on their use in language learning are discussed. A Spanish teacher found they were effective in use in warm-up activities, as well as in facilitating class discussions based on poll results. In a reported use in ESL, clickers were used to facilitate group interactions and to help shyer students participate more. Bruff highlights in his study what he terms 'peer instruction' through the use of clickers, namely opportunities for student collaboration.

Recent studies have called for research that goes beyond whether mobile devices are useful or not, instead exploring how to use them to maximize learning (Stephens & Pantoja, 2016). Kuznekoff, Munz and Titsworth (2015) provide an example of this direction in research as they studied how texting was actually used in class, finding that students text-messaging on topics related to the course content had higher test scores, with negative results for students texting on topics unrelated to the course content. Such nuanced and specific studies are helpful, and, given the growth of mobile devices in all spheres of life, we are likely to see more research of this kind, including work addressing case studies of mobile use in the second language classroom.

> All four language skills, as well as cultural learning, can be addressed using different mobile functions, apps, and web-based resources.

Research in the use of mobile language learning tends to recognize the value of using the device in collaborative activities:

> Within the classroom, it has been shown that mobile devices, with appropriate software, can be highly effective in supporting small group collaborative learning, improving on what was possible to achieve without these tools … The design of the learning activity is predicated on close interaction, conversation and decision-making between members of a group, which includes some physical movement and can be difficult to achieve with the use of fixed computers (Kukulska-Hulme, 2009: 160).

Studies in cognitive psychology and educational practice have shown that physical movement may have a positive effect on some kinds of learning and some types of learners (Hannaford, 1995). The physical act of using mobile devices is likely to appeal to students who favour kinaesthetic or tactile learning styles (Oxford, 2003). The more exploratory nature of mobile use can energize 'open learners', who 'want to stay available for continuously new perspectives' (Oxford, 2003: 6).

The variety of activities possible through mobile devices aligns with the recommendations from Oxford and other researchers to provide a 'wide range of classroom activities that cater to different learning styles' (Oxford, 2003: 7). Helping students be aware of their natural and preferred learning style is helpful, as is encouraging students to stretch beyond their comfort level, to try out different approaches to learning. Viberg and Grönlund (2012) note that little attention has been paid to students' learning styles and strategies in mobile language learning. This is an area ripe for more research.

The fact that mobile device use can address a variety of student learning styles points to the flexibility and versatility in their use in language learning. All four language skills, as well as cultural learning, can be addressed using different mobile functions, apps, and web-based resources. Mobile use in the language classroom can serve as a welcome break, start-up, or concluding activity. Mobile-based activities can stimulate rich collaborative work, as students work together to communicate in the target language, based on what they have heard, watched, read or written through the mobile devices. Teachers are likely to find that students react quite positively to integration of their devices into classroom instruction. This positive experience may well lead students to continue to use their mobile devices for informal language learning beyond the classroom. A companion paper in this series offers insights into this personalization of language learning through mobile technologies.[1] The prospect of enabling a seamless learning process in and out of school should provide a strong incentive to language teachers to consider seriously introducing mobile devices in their teaching.

1 Personalization of language learning through mobile technologies, by Agnes Kukulska-Hulme. Available at: www.cambridge.org/elt/blog/wp-content/uploads/2017/06/CambridgePapersinELT_M-learning_2016_ONLINE.pdf

# Recommendations for further reading

British Council, (2016). *Continuing Professional Development (CPD) frameworks for English language teachers.* [online] Available at: https://englishagenda.britishcouncil.org/continuing-professional-development/cpd-managers/continuing-professional-development-cpd-frameworks-english-language-teachers

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The Consultants-E (2016). Online EdTech training courses. Available at: www.theconsultants-e.com/trainingonline

Further sources of ELT apps

- Android and iOS apps for ELT http://list.ly/list/6qC-byod-apps-for-elt
- British Council apps http://learnenglish.britishcouncil.org/en/apps
- Collins ELT apps www.collins.co.uk/page/ELT+Apps
- Cambridge University Press apps (Android only) www.cambridgemobileapps.com/
- Macmillan apps www.macmillanenglish.com/educational-apps/

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