HOW MOBILE ARE TOP-RATED MOBILE LANGUAGE LEARNING APPS?

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ABSTRACT

A recent survey of top-rated mobile(-assisted) language learning (MALL) apps revealed four front-runners on the digital marketplace: three proprietary language course apps: duolingo, Babbel, busuu, and one flashcard/spaced repetition system (SRS): Memrise (Lotherington, 2017). The survey was followed by empirical studies of the embedded epistemological and pedagogical approaches to language in these MALL apps. Case study findings indicated that all four apps taught language through drills, and relied heavily on dated pedagogies and structural conceptions of both language and learning. This paper overviews the potential of mobility in MALL pedagogy, and examines whether and how these four top-rated MALL apps capitalized on the affordances of *mobility* in their pedagogical approaches and content presentation, concluding that mobility was used primarily for marketing and distribution rather than for innovative instructional design.

KEYWORDS

MALL, Mobility, Everywhereness, Dynamism, Augmented Reality, Production Pedagogy

1. INTRODUCTION

Digital mediation has irrevocably changed how we communicate and learn, and in the process, challenged conceptions of what it means to know a language. Over the past three decades as literate communication has shifted from page to screen, literacy has morphed and hybridized, breaking away from limited alphabetic understandings of *reading* and *writing,* and expanding dimensionally into dynamic, interactive, multimodal, and hybridized forms and practices enfolding and merging *speaking* and *listening* in new ways. The release of the iPhone in 2007 introduced wireless Internet connection untethered to place, enabling the user to communicate interactively and multimodally on-the-go, and facilitating new linguistic communication practices. Mobile smart devices have since proliferated on the digital marketplace, with the shift from desktop computing to multi-platform devices rapidly ensuing. By 2017, mobile devices were being used for 61% of digital communication in the United Kingdom; 62%, in Canada; and 71%, in the United States (comScore, 2017. p. 4).

A digital market for *apps*—third party software programs designed for mobile devices, and available at minimal to no upfront financial cost to the user—evolved alongside digital devices. Apps have been designed for an immense array of functions; among them, language teaching and learning. A decade down the road, apps selling language learning include a variety of approaches: traditional language courses (e.g., duolinguo); digital flashcard and spaced repetition systems (e.g., Memrise); educational games (e.g., MindSnacks); social media chat-based conversation (e.g., HelloTalk), and reference programs (e.g., Google Translate) (Krzemińska, n.d.; Lotherington, in press).

Language teaching has a lengthy history going back 25 centuries (Kelly, 1969). Similarly, theoretical studies of language and language learning, including linguistics, sociolinguistics, applied linguistics and second language learning as well as developmental psychology and philology have sophisticated and multifaceted academic histories. These research disciplines, though, are based largely on language and language learning in 20th (or prior) century contexts as manifested in the mediating technologies of the era, dominated by the printed page. Conventions developed for reading and writing on the static page, and speaking and listening with identifiable interlocutors are relevant to established communication contexts and

media, but they require updating for mobile contexts that enable dynamic, interactive multimodal communication, and crowd-sourced, cloud-based knowledge construction.

The capacity of apps to wirelessly network interactive multimodal communication enables just-in-time, socially-connected, customized language learning. But is that what is happening in content-oriented mobile (-assisted) language learning (MALL) apps? This paper questions whether and how top-rated MALL apps capitalize on mobile access in their approaches to language and language learning.

2. CURRENT TOP-RATED MALL APPS

An online survey of top-rated MALL apps in 2016-2017 was conducted in May 2017, using repetitive searches and varied keywords (Lotherington, 2017). The top five MALL apps from a variety of sources were tabled and weighted for frequency of rank, revealing four apps as clear market front-runners. Three of these apps offered proprietary language courses: Babbel, busuu, duolingo; one offered a flashcard/spaced repetition system (SRS): Memrise (Lotherington, 2017).

2.1 Babbel

The first of currently top-rated language teaching apps to appear in the digital marketplace was *Babbel*, founded in 2007 by Marcus Witte. Babbel claims to be the top financially grossing language app[1]. In an interview, founder Witte explains:

Actually, our first idea wasn't about language learning at all. Prior to Babbel, all of the co-founders worked in the music technology space – we initially wanted to do something in that direction.

It just so happened that one of us was trying to learn Spanish at the time. Naturally, he turned to the internet, but was surprised to find that there just weren't any viable ways to learn a language online. So we created one.

Babbel has a unique approach to getting people conversational as soon as possible. And right from the very first lesson, we encourage them to communicate in their new language. (Slagel, 2016, online version).

Babbel claims, egregiously:

Learning a language is about speaking a language, and with the help of Babbel, our novice challenge participants were able to start having conversations in just three weeks time, proving that Babbel is, indeed, the shortest path to a real-life conversation. (Stoyanoff, 2017, online version).

2.2 Busuu

Busuu was founded in 2008 by Bernhard Niesner and Adrian Hilti (busuu, 2017). The app makes the claim that "busuu is the world's largest social network for language learning, providing courses in 12 different languages on web and mobile to more than 70 million learners worldwide" (busuu, 2017, online version). busuu allies its program design with Council of Europe standards, which "provide a transparent, coherent and comprehensive basis for the elaboration of language syllabuses and curriculum guidelines, the design of teaching and learning materials, and the assessment of foreign language proficiency"[2].

Each language course on busuu is developed using the Common European Framework of Reference (CEFR), an internationally recognised standard for creating language lessons. The CEFR is broken down into six stages, ranging from complete beginner to completely fluent. busuu courses cover the first four stages of the CEFR, from A1 to B2 level.

Our lessons are designed by experts in linguistics and pedagogy to help you achieve fluency in a structured and engaging way. Each lesson is designed around a useful topic, and contains vocabulary, grammar, and practice exercises which gradually build conversational and writing skills. We teach you all the

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[1] https://press.babbel.com/en/releases/
[2] https://www.coe.int/en/web/common-european-framework-reference-languages/?

language we need before asking you to form sentences, have a conversation or do a writing exercise. Each lesson repeats language you've learned in previous lessons, reinforcing your memory and building your confidence. We've chosen topics that are relevant to your language level and to the types of conversation you're most likely to be having at each stage of your language-learning journey. (busuu, 2017, online version).

2.3 Duolingo

The most commonly downloaded language app in the Education category on both iTunes and Google Play is duolingo, which was founded by Luis von Ahn and Severin Hacker in 2011, and launched in 2012 (O'Conor, 2014). duolingo boasts 170 million users (Woods, 2017), though statistics on users are nebulous, given that those who download the app may not be active users.

> "What I wanted to do was create a way to learn languages for free," says von Ahn. "If you look at language learning in the world, there are 1.2 billion people learning a foreign language and two thirds of those people are learning English so they can get a better job and earn more. The problem is that they don't have equity and most language courses cost a lot of money." (vonAhn quoted in O'Conor, 2014, online version).

> A deeper dive finds the principal app developer's motivation to be not quite so altruistic. According to Siegler (2011), von Ahn, who is also co-developer of CAPTCHA and reCAPTCHA, tools for distinguishing humans from nonhumans online, wanted to enable people to translate the web for him for free in order to decode fuzzy environmental print in different languages for book digitization (Jašková, 2014). duolingo was invented as a free language teaching app that could capitalize on language learners' multilingual responses to disambiguate unclear text.

2.4 Memrise

Memrise was founded in 2010 by Oxford University graduate and Grand Master of Memory, Ed Cooke and Greg Detre, a Princeton University computational neuroscientist, specializing in the science of memory and forgetting (Nicklas, 2017). Memrise describes their spaced repetition system approach as combining science, fun and community[3] in vocabulary memorization, which it must be noted does not equate to language learning. Cambridge University Press affirms the Memrise app is allied with Cambridge Dictionaries Online and the Common European Framework (Cambridge University Press, 2012), which bolsters the app's lexicographical and linguistic grounding, though this information does not feature on the app's "about us" material. Google Play awarded Memrise: "Google Play I/O Award Winner for Best App of 2017"[4]. Cambridge University Press promotional materials advertise:

> A unique approach that promises the easiest route ever to learning English words has been launched by Cambridge University Press and online language platform Memrise.
> The project is the brainchild of Cambridge lexicographers from Cambridge Dictionaries Online (CDO) working with experts in neuroscience and one of the world's 122 Grand Masters of Memory. Together they have created a Memrise course with 1,000 words and phrases for English learners at upper intermediate level, based on the Common European Framework levels for English vocabulary. (Cambridge University Press, 2012, online version).

2.5 Experiencing MALL

The survey and historical situation of top-rated MALL apps led me to road-test the four top apps to ascertain the pedagogical and philosophical approaches each took to language, and language learning. As an experienced language learner and research professor in the field of multilingual education, I conducted an auto-ethnographic study of my acquisition of Italian using the top four MALL apps. The results were tallied with those of a concurrent case study of experienced and inexperienced language learners similarly road-testing one or more of these apps. A question emerged from the findings as to how mobile these mobile

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[3] https://www.memrise.com/about/
[4] https://play.google.com/store/apps/details?id=com.memrise.android.memrisecompanion&hl=en

(m-)learning apps were, given the dated pedagogical approaches evident in the highly structural presentation of language in all apps (Lotherington, in press). This paper probes the mobility of these four top-rated MALL apps.

3. WHAT IS MOBILE ABOUT MOBILE LEARNING?

How does *mobility* change the experience of language learning?

Bo-Kristensen and Meyer (2008) historicize mobile language learning technologically as a descendant of the language laboratory, which was developed in the 1950s. The language lab was a behemoth: students were established in individual booths, connected to computer terminals, equipped with headsets and microphones, and drilled in second language (L2) exercises using audio-taped material—a far cry from mobile, flexible, or contextually relevant learning. The habitual repetition pedagogy of behaviourism used in 1950s language labs fit poorly with the complex project of second language learning:

> Following Skinner's model, one is led to believe that virtually any subject matter can be taught effectively and successfully by a carefully designed program of step-by-step reinforcement. Programmed instruction had its impact on foreign language teaching, though language is such complex behavior, penetrating so deeply into both cognitive and affective domains, that programmed instruction in languages was limited to very specialized subsets of language. (Brown, 2007, p. 36).

Concurrent with language teaching pedagogy moving away from the rigidity of what Kramsch (2006) describes as 1960s drill-and-kill exercises and towards communicative, interactive and integrative pedagogies (Bo-Kristensen & Meyer, 2008), technologies shrank from large immobile computers to mobile devices that are multifunctional and wirelessly networked. Smart mobile devices merge what were once standalone technologies, such as cameras and audio-video recorders, with pedagogical software, such as online dictionaries, to offer an expanded platform for language learning that is multimodal and portable. As such, both the device and the learner are physically mobile.

Reinders and Pegrum (2015) distinguish a mobile device from a portable technology, such as a laptop, in terms of contextual use: a mobile device is on and connected for on-the-go, as-needed use, whereas a portable device is more likely to be transported from one location to another for static use. *Mobile* thus captures perpetual, context-free connection.

Scott (2015) probes how the dimension of time is understood differently in mobile communication, where interactions cross time zones and global distance in a nanosecond. He terms the ensuing expanded sense of personal reality, "everywhereness" (p. 8). Bo-Kristensen and Meyer (2008) describe a similarly conceptualized expanded sense of personal reality in terms of "immediacy" (p. 33) engendered through enhanced flexibility in time and place.

Sharples, Arnedillo-Sánchez, Milrad and Vavoula (2009) understand learning, itself, to be mobile across devices (via cloud computing), social contexts, and conceptual space. Guo (2014) describes m-learning as part of a mobile lifestyle. The mobile lifestyle includes aspects of communication that are digitally-mediated, whether mobile or not, such as multimodal affordances, immediacy in connection across global space and time zones, distributed cognition and sociality, and software tracking of the user's behaviour. *Mobile learning* is thus characterized by perpetual connection (enabling a sense of *everywhereness*), dynamic processing (of consequently dynamically changing language), and cognitive distribution across devices as well as physical and social spaces.

4. HOW MOBILE ARE TOP-RATED MALL APPS?

Given that m-learning can be locally grounded and globally shared, perpetual through instant connection across digital platforms via cloud computing, and distributed across social and conceptual space, the mobile learner can, theoretically, learn anywhere and everywhere, and connect on-the-spot learning to dynamically changing landscapes. Trail-blazing examples of language professionals working in coordination with software developers to develop innovative m-learning designs include augmented reality (AR) language trails, such as Holden and Sykes' (2011) *Mentira* AR trail for Spanish language learners in the southwestern United States, which leverages "place-based, augmented reality mobile games for language learning" (p. 1).

Similarly, Pegrum (2017), working with a Singapore-based software developer, created an urban AR trail for Asian English language learners (ELLs). On Pegrum's AR trail, ELLs make and share short videos of themselves in designated locations along the AR walk, using video-making, which is an example of a production pedagogy (Thumlert, de Castell, & Jenson, 2015). Production pedagogies require the learner to make and do, using contemporary digital tools and practices. Given these innovative professionally-designed models of experiential m-learning, using mobility in imaginative ways, I turn to top-rated MALL apps, to investigate how they exploit perpetual connection, dynamic processing, and cognitive distribution.

4.1 Perpetual Connection and Everywhereness

Everywhereness is a state generated by the potential for instant connection across space and time. All four apps could be accessed with wifi availability, technically enabling perpetual connection to course materials. But to what or whom, apart from MALL app drills, could I, as a learner, be connected?

Social media sites, such as Facebook and Instagram, facilitate and build on everywhereness in friend accumulation. busuu offered limited interactional opportunities with globally-located speakers of the target language via a social media feature, but connection was neither instantaneous nor practical, as it was geared to grammatical correction. Grammar correction is not a particularly motivating reason to connect informally with a speaker of the target language; furthermore, a random user may not be linguistically reliable. The *native speaker* cannot be tasked with canonical grammatical analysis; this requires an educated specialist. Moreover, is native language to be assumed from a user's place of residence in the same shrinking world that is characterized by social population flows and remix? Shouldn't a language course that charges for lessons beyond the basic be able to teach and correct grammatical forms without resorting to crowd-sourcing?

Language was approached as an abstract structure rather than as a medium of human social communication on all four apps, though semiotic context was included in formulaic ways that had potential for connecting the learner to a social landscape where the target language was used. Tiny video flashcards in Memrise offered single words or short phrases spoken by real people. However, the opportunity to put language in grammatical and social context was sacrificed to an authentic-looking streetscape and speaker, and the grammatical distractors were of very poor quality (see Figure 1).
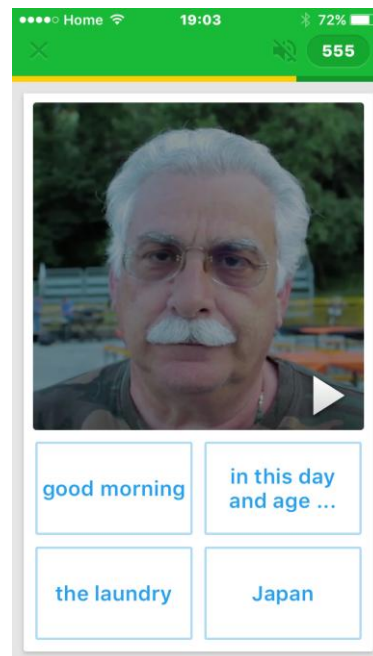

Figure 1. A video flashcard on Memrise

4.2 Dynamic Processing and Dynamically Changing Concepts of Language

Language is a complex concept. Where the edges of language lie in communication is difficult to ascertain. In contemporary society, language is visibly part of a larger suite of multimodal communication not only in physical space (with gestures and facial expressions) but importantly, in literate environments, where language is folded into suites of semiotic resources, including photos, videos, music, and voice-overs. Should language be extracted and studied in isolation from the communicatively illustrative aspects of a social media post, for example? What about the evolving grammar of tweets? Should Twitter grammar be ignored for static page grammar?

In all four top MALL apps, language was conceptualized as a static abstract structure to be learned as a *standard*. Indeed the incorporation of artificial intelligence (AI) in speech models and responses to exercises, assures a lack of the variation typical of human speech. Lessons were structured for transmission learning—content to be memorized and regurgitated—despite the fact that the material was delivered using digital multimodal forms. Structural approaches to language traditionally parse language as *reading-writing-speaking-listening*, despite the fact that communication has continued to morph and hybridize in digital environments, breaking out of the traditional four skills mold theorized for 20th century print and audio-video recording. Teaching the grammar of static writing for the page is limited and backward-looking in a digital era where communication is dynamic, interactive, multimodal, hybridized and multidirectional.

Where multimodality kicked in was most noteworthy in the speech record and playback feature on duolingo, where new words could be pronounced through the inbuilt microphone and checked against a programmed AI speech model. Apart from the apparent embarrassment of repeating decontextualized words in another language in public places (a strike against perpetual connection enabling constant use), the mike picked up environmental sounds without a headset and microphone, thus remixing my verbal responses with background noise, and, in the process, invalidating my tries. I could not practice spoken vocabulary in my own back yard, where duolingo captured birdsong, children's voices, and traffic rumble in my vocabulary repetitions, eliciting the programmed rejection: "Hmmm… that doesn't sound right. Give it another try."

The pedagogies tapped in all four apps relied heavily on drills and vocabulary memorization (which does not equate to language learning). These exercises, though likely easier to program, are driven by outdated theories of language learning, including behaviourism—the methodology of the ancestral language laboratory—and audiolingualism. Grammar translation, which is the oldest methodology in L2 learning and teaching, was prominent in all, but conspicuously missing the required grammatical explanations to translations in both duolingo and Memrise. The top MALL apps, thus, repackaged outdated, discredited pedagogies in shiny new digital containers. What was mobile was access to the material. Dynamic processing was not required.

4.3 Cognitive Distribution

Teamwork uses the principle of cognitive distribution. Contemporary digital devices activate cognitive distribution in a variety of ways: by facilitating crowd-sourcing knowledge, incorporating digital memory in human processing, and hosting digital role-playing games that require individuals to seek and share information.

4.3.1 Cognitive Distribution across Devices

The learner first has to locate the MALL app in a digital store, such as iTunes or Google Play, and then download it. All four MALL apps are cost-free initial downloads, though each, including duolingo, which advertises itself as gratis, requires financial or data sharing payment down the line. All four apps have desktop versions, enabling continual mobile and situated learning across mobile and desk-top devices.

4.3.2 Cognitive Distribution across Social and Conceptual Space

The four top MALL apps provided static textbooks in a convenient mobile package. Mobility was tapped for distribution and consumption of materials, not for linguistic processing, interactive communication, role game-playing, or even practice communication with voice-enabled AI conversational agents (beyond words and phrases in electronic flashcards). In fact, using an AI chatbot could be more effectively implemented

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were the learner to reprogram their phone in the target language, such that the digital assistant, e.g., Siri on iPhone, responded to real questions in the target language. Cognitive distribution in all four top-rated MALL apps was evident only in the learner's potential to use device memory.

5. DISCUSSION AND CONCLUSION

This paper probed whether and how top-rated MALL apps utilized *mobility* in their pedagogical designs, specifically looking at perpetual connection, dynamic processing, and cognitive distribution. Given the pedagogical engagement of virtual tours and massively multiplayer online role-playing games (MMORPG) with opponents or teammates using different languages, and opportunities to connect to geographically distant interlocutors in communicative exchanges, the opportunities to exploit the mobile character of m-learning as part of a mobile lifestyle are emancipatory in the face of centuries of desk-based language teaching.

In this study, the mobility of the device, the learner and the program, though, did not translate into mobile pedagogies for this century. MALL apps used mobility for cheap individual course delivery, changing the model from educating the learner to using the learner for profit, whether for marketable data, product advertising, or financial subscription. In return, the learner is supplied with a MALL app that provides easily accessible though boring, inflexible language drills that rely on outdated pedagogies. Perhaps drills are simply easier to program than a theoretically sound, professionally-orchestrated, communicatively interactive language resource? There is huge scope for imagination in creating production pedagogies appropriate to a mobile lifestyle, using a multifunction mobile device that captures data in multiple media, mixes modes of telling in social media genres, and shares texts instantaneously. There was unfortunately, no evidence of contemporary production pedagogies in any of these top-rated MALL apps.

With a retail orientation to learning and direct access to a product, learners are prey to advertising, online app popularity, and so forth in their choice of MALL apps, and, for novices, particularly, their understanding of how language learning works. Indeed, a skeptical view is that accessible language learning is rapidly moving online and into the hands of app developers, whose know-how and motivation privilege mobile app development and making a profit over progressive, professional language teaching and learning.

This paper discusses whether and how top-rated MALL apps utilize mobility in their pedagogical design and content presentation, finding that language is treated as static structure, grammar as print-based, pedagogy as mid-20th century drills, and mobility as a marketing ploy. Moreover, though MALL apps are marketed to the individual, they are not pedagogically flexible or customizable: they provide one-size-fits-all programming, making the methodology trademark rather than user-friendly.

The conclusion of this paper is directed to learners, teachers and software developers. Firstly, *caveat emptor* to potential language learners, who may find what little they learn of a target language was paid for in data-sharing (on duolingo), and interest in the language (on all four top MALL apps). Language teachers and professionals must become active in designing viable 21st century mobile pedagogies, such as Holden and Sykes' (2011) and Pegrum's (2017) augmented reality trails and their attendant requirements for contemporary production pedagogies. Lastly, designers cannot simply claim to be using professional standards and then come out with discredited, outdated pedagogies. Software designers and language professionals need to work together more closely and more respectfully towards pedagogical innovation that utilizes the affordances of mobility for learning, not simply for course sales and distribution.

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