



LANGUAGE LEARNING TECHNOLOGY REVIEW

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Augmented Reality

Augmented Reality (often shortened to AR) mixes digital assets with a perception of the physical world, mediated by technology. These assets can be graphical or textual; commercial or public; persistent, temporary, or recurrent; or anywhere between and among these points. The term, as a label for this interweaving of digital and physical, dates to 1992, when it was used at the Hawaii International Conference on System Sciences and then at SIGGRAPH '92, with publication coming in the proceedings from each. Later, Azuma (1997) provided AR with perhaps the most cited definition, stating that it combines real and virtual, is interactive in real time, and registers in 3D. EDUCAUSE (2005) summarized AR more broadly as consisting of adding “information and meaning to a real object or place.”

Though AR is not a well-known or -researched technology in language education, it can be seen in small doses across society. For instance, television sportscasts sometimes make use of AR to show action vectors, positioning data for players, and advertising. A ReadWriteWeb article (2009) noted its existence in some digital cameras, “overlay[ing] the position of faces on the screen.”

Current Examples in the Wild

A handful of Augmented Reality browsers have been created, among them *Layar* (<http://layar.com/>), *Wikitude World Browser* (<http://wikitude.org/>), *Acrossair* (<http://acrossair.com/>), and *Sekai Camera* (<http://sekaicamera.com/>). Each of these introduces additional data into a view of your surroundings. For *Layar* and *acrossair*, this data is mostly commercial, such as real estate offerings, nightlife spots, and

eateries. Wikitude and Sekai Camera allow users of the applications to add information into the system for other users to find. This information can be about objects in a particular location or simply fun and creative “tags”¹ intended as communication with fellow early adopters. Wikitude also pulls selected data from Wikipedia.

One mobile application that made quite a splash at its debut is *WordLens* (<http://questvisual.com/>), which claims to be able to translate printed words in a short amount of time. Despite splashy promo videos and some colleagues cooing over it, user reviews^{2, 3} demonstrated flaws in the literalism of the translations provided and in the instability of the visual interface.

The most notable example for language learning is *Mentira* (<http://mentira.org/>), created by Julie Sykes and Christopher Holden at the University of New Mexico. Sykes and Holden (2011) describe *Mentira* as “the first place-based, augmented reality mobile game” for language learning. In it, through it, and with it, fourth-semester Spanish language learners make themselves physically present in a Spanish-speaking neighborhood of Albuquerque and collaborate, using any of a variety of *iPhone or iPod Touch devices* (<http://mentira.org/the-game>), to solve a murder that took place in the neighborhood nearly 100 years before. Before students are sent into the community, Sykes and Holden take time to familiarize the students with the game ecology through classroom teaching.

How Might It Be of Use?

We see in *Mentira* one example of a high-investment way to use AR as, in parallel with its connective physical-digital nature, a bridge between the very physical communities of a target culture and a class of students. Building your own augmented reality application for technology-mediated language learning allows you to build in your preferred and considered cultural, political, and epistemic commitments, but it also may require significant time, personnel, and funding.

Looking at the commercial products available, an AR browser such as Wikitude or Sekai Camera could enable students to construct and modify knowledge around physical culture or locative events. From a sociocultural perspective, this could be a way to afford language learners asynchronous place-based scaffolding — glosses on physical objects, complexes of objects, or even recurring events — from previous learners and to afford them the ability to learn through adding their own glosses for subsequent learners. From an interactionist standpoint, carefully designed and

¹ Though it’s not spelled out on the site, we can look at their use of this word in the taxonomic/folksonomic sense and the graffiti sense.

² <http://www.youtube.com/watch?v=CCLAeskvC90#t=0m54s>

³ <http://www.youtube.com/watch?v=uDBFeghJ1OA>

implemented AR applications could facilitate place-based collaborations, especially during language learning experiences abroad.

What Are the Risks?

Because the concept and implementations are evolving at the same time that the topic has become an industry buzzphrase, early adopter risks abound. For instance, not all implementations are available on all device platforms. Moreover, as AR is closely tied to mobile devices, there is no guarantee that all students in a class have a capable device. Further, in some circumstances of learners' reading, creating, and editing texts about the location, there may be a critical mass of glosses needed before the AR implementation becomes worthwhile. LCTLs, in this scenario, might fall victim to the relative neglect seen in such crowdsourced enterprises as Wikipedia (where common language article counts are in the hundreds of thousands and LCTL language article counts are in the hundreds) or many corporate language hedges, such as the frequent neglect for RTL script support. Without a proven funding model, corporatization of many AR opportunities is certain. A glance at Wikitude, acrossair, and Layar shows that they foreground their ability to push commercial content — not necessarily advertisements per se — to users of their programs.⁴

How Do I Start Using It?

In moving toward AR, reconsider the dissolved edges between physical and virtual. For instance, as noted by Sykes, Oskoz, and Thorne (2008), "internet-mediated communication is no longer a supplement to, or practice arena for, communication in everyday life." The same could be said for many students' daily non-communicative interactions with their physical, social, cultural, political, and intellectual worlds, especially those with smartphones or similar devices with persistent network connectivity and awareness.

With that in mind, you can give your students some of the same benefits of current AR by creatively working with software that intermingles the physical and digital in a less avant-garde way. Applications such as *Voices* (<http://voices.com/>) allow language learners to listen to or create multipoint audio tours mapped onto the physical world using Google Maps. For the more bricoleur types, learners could create a voiceover to a screencast of a Google Street View or *MapJack* (<http://mapjack.com>) walkthrough and present a place-based narrative. (See examples, in English, from *Luke Waltzer* (<http://cac.ophony.org/2008/12/02/an-experiment-in-digital-storytelling/>) of CUNY and *Jim Groom* (<http://blip.tv/file/>)

⁴ In fact, some of these AR browsers look like nothing so much as location-based programs available in the mid-1990s for PDAs, in a parallel to me of Garrett's (1991) observation that in the CALL world "software lessons tend to follow familiar designs for conventional purposes, rather than exploiting new capabilities for implementing and testing theoretical principles of classroom language acquisition for learners' benefit."

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1542030) of UMW.) Task-based learning can be accommodated with *inventive uses of location-based mobile applications* (<http://chronicle.com/blogs/profhacker/location-based-gaming-for/26720>) such as *SCVNGR* (<http://scvngr.com/>) and *Gowalla* (<http://gowalla.com/>).

On a grander scale, projects such as Matt Gold's National Endowment for the Humanities funded *Looking for Whitman* (<http://lookingforwhitman.org/>) metacourse demonstrate the possibilities of creating an intellectual augmented reality with colleagues at remote physical locations. Naturally, your collaborations don't need to be of this scale to have an impact. Defamiliarizing your students' physical reality by getting them to operate in it in the target language and with neighboring institutions can be fruitful.

Take the broad view of the term, rescue it from jargon, and your possibilities spring to life, since for as long as foreign languages have been taught and learned, language teaching and learning has involved augmenting learner realities.

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