

## EMERGING TECHNOLOGIES

### GLOBAL REACH AND LOCAL PRACTICE: THE PROMISE OF MOOCS

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**Keywords:** Distance Learning, Online Teaching & Learning, Web-Based Instruction.

**APA Citation:** Godwin-Jones, R. (2014). Global reach and local practice: The promise of MOOCS. *Language Learning & Technology*, 18(3), 5–15. Retrieved from <http://llt.msu.edu/issues/october2014/emerging.pdf>

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#### Introduction

If you want to attract attention to a new online course, the foolproof strategy today is to label it a MOOC, a massive open online course. The hype surrounding MOOCs has resulted in substantial interest—from the general public to university presidents—in online learning, as long as it's categorized as a MOOC. In reality, many “MOOCs” are neither open nor massive, but often simply regular online courses that have been re-branded. Courses labeled as MOOCs are being offered in virtually all disciplines. Second-language instruction, however, has not so far been a major player in the MOOC space. In this column, I will examine why that may be. That will entail discussing MOOC pedagogical models and how language learning fits into teaching and learning approaches typically used in such courses. Several existing and planned MOOC language courses will be discussed. I will also be looking at language and culture issues and how MOOC providers are dealing with internationalization and localization. Finally, the column will profile possible future developments.

#### MOOC Pedagogy

The pedagogical approach used most widely today, popularized by the major US MOOC providers [Udacity](#), [Coursera](#), and [EdX](#), is commonly referred to as the xMOOC model (from EdX). It uses essentially a “flipped classroom” approach in which lecture videos of the instructor are provided as online digital clips, shown through embedded HTML5 video, Flash files, or streaming through YouTube or another external service. The videos are typically short—5 to 10 minutes in length—and are interspersed with comprehension questions, most often in multiple-choice format. Readings are also assigned, mostly provided as PDF documents, linked webpages, or e-books (in EPUB format). Sometimes the readings or other course content are annotated by the instructor, and occasionally are supplied through a wiki. Discussion forums enable peer-to-peer discussion of course content and there is rarely any direct communication between individual students and the instructor. Quizzes or exams are provided after completion of each content unit and are usually in formats that can be machine graded. Most MOOCs are free, but many require payment for those taking exams or requesting certified course completion. Bali (2014) provides a detailed analysis of the pedagogy used in four different xMOOC examples. The [MOOC Research Institute](#), has done an [analysis](#) of the kind of learning that takes place in the typical MOOC. Eisenberg and Fischer (2014) provide a particularly useful discussion of MOOC pedagogy focusing on its characteristics seen from the perspective of research in learning sciences and contemporary theories of learning.

Commentators (such as [Paul Stacey](#)) have asserted that this model represents a step backwards in online pedagogy, contrasting the lecture-based, instructivist approach used in most MOOCs today to the more open-ended, constructivist model used in earlier MOOCs. These are often labeled cMOOCs, as they are built around constructivist theories of learning. They date back to 2007 and include courses such as [Social Media and Open Education](#) or [Personal Learning Environment, Networks and Knowledge](#). This style of

MOOC invites users to create personal learning networks: discovering, collecting, annotating, and sharing web-based resources of personal interest. Social media are used extensively, with users expected to participate actively in creating "digital artifacts" while using a variety of web services and tools. In contrast to the xMOOC model, cMOOCs tend to require participants to set up on their own personalized learning environments, which might include creating a blog or using a bookmarking service such as [Diigo](#). A [study of cMOOCs](#) provides a list of the kinds of Web tools and services often used in such courses. In comparison with xMOOCs, this model necessitates a higher level of learner autonomy and digital literacy. There has been some criticism of this approach in that it requires users to be Internet savvy, and discourages those not prepared to be active contributors to building a shared knowledge base from taking the course (Milligan, Littlejohn & Margaryan, 2014; Saadatmand & Kumpulainen, 2014). Others have [pointed out](#) that cMOOCs often deal with topics such as digital literacy or e-learning, and that they are less successful for basic introductory-level classes or in fields where structured, hierarchical teaching and learning is the norm.

While the early cMOOCs went unnoticed outside of a relatively small group of digital technorati, the xMOOCs have created an immense media buzz. This began in 2011 when Stanford engineering professors offered three of the school's most popular computer science courses as MOOCs. The course that garnered the most attention was [Introduction to Artificial Intelligence](#), taught by Sebastian Thrun and Peter Norvig. The course attracted over 160,000 students from nearly 200 different countries. Being free, the course (and other MOOCs) attracted many casual students curious about the topic, but who did not actually complete the course. Dropout rates for most MOOCs tend to be very high: this is sometimes taken to be symptomatic of failure, but in fact it is not an unexpected phenomenon with any freely available, online learning resource. As [others have remarked](#), the experience of taking a MOOC is for many participants more akin to attending a conference than to taking a regular university course—participants naturally tend to drift in and out. Sebastian Thrun was so taken with his first MOOC that he left Stanford and founded Udacity as a commercial MOOC platform. This was soon followed by Coursera, founded by Stanford computer science professors. EdX, out of MIT, is the third major US MOOC platform.

As MOOCs have attracted such attention in Western media, traditional providers of online learning platforms have unsurprisingly jumped on the MOOC bandwagon. Vendors of virtual learning environments or learning management systems (LMS) have encouraged the use of their platforms for delivering MOOCs or have created cloud-based platforms with that market in mind. That includes Blackboard's [CourseSites](#), the Instructure [Canvas Network](#), and Desire2Learn's [Open Courses](#). The open source Moodle platform is also being [used for the delivery of MOOCs](#). The typical LMS offers a wider array of tools and features than MOOCs, allowing more flexibility and variation in structuring an online course. Given the estimate that two thirds of MOOC users are outside North America, it's no surprise that new MOOC platforms are emerging in a variety of countries. In contrast to North American MOOC platforms, these have not all originated in computer science departments. The [FutureLearn](#) platform from the UK, for example, was developed as a collaborative project between the Open University and the BBC. It was designed as an alternative to the pedagogical model of US xMOOCs, as it places more emphasis on social constructivist learning. In contrast to the typical MOOC structure, content in FutureLearn is connected directly (i.e. on the same webpage) with user discussion of that content. The system also encourages learners to "follow" (as in Twitter) other learners in an effort to build community. It stresses the importance of storytelling as both a learning strategy and as a means of making personal connections. Another model is [OpenUpEd](#), a collaborative EU MOOC platform which has made sure that users perceive the distinction that its design reflects "European values such as equity, quality, and diversity" (Bayne & Ross, p. 9). Also from Europe are [Eliademy](#) (Finland), [iVersity](#) (Germany), and [UniMOOC](#) (Spain). It's not just Europe that is getting into the MOOC business. From Australia comes [Open2study](#) and from Japan [Schoo](#) and [JMOOC](#); China has [Ewant](#) and [XuetangX](#) (in partnership with EdX), and

from Brazil comes [Veduca](#).

### **MOOCs for Language Learning**

The role of the instructor in a MOOC can vary considerably. In the constructivist model, the instructor's role is that of facilitator, suggesting avenues to explore as well as coordinating course activities. That's quite different from MOOCs built around video lectures, in which the professor is front and center and, as the content expert, is responsible for designing the learning path, providing course materials, and devising assessments. This role has pedagogical consequences, but it also serves to raise the profile of the MOOC instructors, potentially making them into the educational equivalent of rock stars. This is an unlikely role for language teachers, unless the MOOC were to deal with a popular topic within language or culture. For basic language instruction a course built around an instructor giving lectures is not likely to be successful. In fact, the nature of language learning as skill development has led some to not only rule out language learning MOOCs, but to suggest, as [Andrew Delbano has done](#), that due to MOOCs and other technological developments, language teachers will soon be sharing the fate of the dodo bird:

Today, as star professors increasingly work for themselves, more faculty members at less prestigious institutions face low wages, meager benefits, and—since many lack tenure—minimal job security. But if the new technology threatens some professors with obscurity, others face obsolescence. Language instructors may someday be replaced by multilingual versions of Siri on your iPhone (Delbano, 2013).

Delbano is likely not alone in his view of language learning as a simple, mechanical process that could be efficiently accomplished through interactions with an intelligent machine; no actual courses are needed. There's no question that artificial intelligence (AI) can be a helpful tool in language learning. Intelligent language tutors can provide valuable assistance to students in particular areas of language learning, such as structured grammar learning or vocabulary development. While programmed conversation partners can also be useful, the complex cognitive and affective dimensions of language acquisition require social interactions. A [recent study](#) on students exclusively using the [Rosetta Stone](#) language learning software for beginning Spanish shows that, while the Rosetta Stone students scored well in vocabulary acquisition, they performed less well in actually being able to carry on a conversation in Spanish. They were weak in strategic competence, the ability to ask for help in the target language, or to find other ways to formulate what they wanted to express. Although not part of the study, I wouldn't be surprised if they were also inferior to the control group in pragmatic competence, the ability to not only make the right semantic choice, but to take into account context and language register. Real-world communicative ability is developed through real world communication, by way of conversational exchanges with other speakers in which language use is dynamically adjusted to the situation. This can happen by connecting with others over a network, but it's less likely if one's unique partner is virtual.

Rosetta Stone is of course not the only option for intelligent language systems. There are a good number of [intelligent language tutors](#), which provide adaptive learning built around a learner profile generated dynamically by interactions with the system. Such tools can be integrated into a language learning MOOC and provide a valuable resource for learners, but for genuine language acquisition, they need to be integrated into an environment which also supplies rich social interactions. Artificial intelligence is used extensively in mainstream MOOCs, so as to be able to provide feedback to a very large number of students (the [average enrollment](#) in mainline MOOCs in Spring, 2014 was 43,000 students). This is not surprising, given the fact that AI professors are the founders of both Udacity and Coursera. AI tools can be fruitfully deployed in learning content for which there is a specific range of acceptable responses, such as performing a calculation or completing a programming assignment. Depending on the assignment or assessment, nothing more complex than pattern matching may be needed. This approach is well known to CALL practitioners (computer aided language learning), as there have been a great number of software

tools developed over the years to analyze user input with pattern matching and regular expressions, often referred to as [Tutorial CALL](#).

More substantial written assignments may require automatic or semi-automatic evaluation using AI. Indeed, today AI is playing a role in assessment of free-form assignments such as essays. Alternatively, for assignments that are not machine analyzed, MOOCs typically use a combination of self and peer assessments. This is found most often in the evaluation of participation in discussion forums or other collaborative course activities. This assumes that the number of users precludes the possibility of the instructor or teaching assistants being able to evaluate student work. Participants are often split (either formally or informally) into groups, and evaluations are performed within those groups. In other cases, ranking systems are used to differentiate the quality of user contributions or assignment completions. Model responses are sometimes supplied. There is some evidence that a “reputation system”, such as that used in sites like [StackOverflow](#) can be beneficial in MOOCs (Coetzee, Fox, Hearst, & Hartmann, 2014). A peer assessment system for online language learning is likely to require a more formal mechanism than is used in the typical MOOC. That would include clear guidelines and rubrics for evaluating student work and assessments, as well as substantial user training and oversight. As is generally the case for other MOOCs, “super users” could be identified to provide assistance and guidance to other students. This might take the form of volunteer (or paid) native speakers.

To my mind, the optimal approach to structuring a language learning MOOC is to provide an adaptive learning system within an extensive social and personalizable learning environment, in effect combining an xMOOC style format with a cMOOC. The mix between machine learning and social learning will depend on proficiency levels and on the skills being learned or assessed, with the social dimension gaining in importance as proficiency develops. Among the relatively few language MOOCs offered today, several have in fact implemented this model to some degree. The [SpanishMOOC](#), for example, uses the [Instreamia](#) adaptive learning system, to personalize feedback and content sequencing. Instreamia features an advanced spaced repetition system to optimize review and retention of new vocabulary and structures. The course incorporates an extensive set of social networking options (using Google Groups and Google Hangouts), to provide opportunities for real language exchange. Several other intelligent learning systems have been adapted to language use. The [Open Learning Initiative](#) (OLI) from Carnegie Mellon University offers self-study materials in several different languages. Beginning French ([French Online](#)) has been available for several years; [Arabic for Global Exchange](#) and [American English Speech](#) are also offered, with [Elementary Spanish](#) under development. The language offerings from OLI make use of Cognitive Tutors, which require AI programming, and also incorporate simpler, example-tracking tutors, which do not require programming, and can be created directly by content experts. There has been considerable work in recent years in developing more effective learner models for use in adaptive learning systems. Of particular interest are “open learner profiles”, which are built principally from learner interactions with the system, but which are also open to input from other sources (Bull & Kay, 2007).

There are currently a small, but growing, number of language learning MOOCs being offered on a variety of platforms, although most offerings deal with culture or literature rather than with basic language instruction. EdX offers [College Writing 2x: Principles of Written English](#) and [Spoken English for Doing Business in Asia](#); Canvas Network has a course on [Spanish pronunciation](#), and Open2Study a basic [Chinese course](#). OpenUpEd provides courses in [Gaelic](#) and [Business Russian](#). Alison, a MOOC provider from Ireland, offers [Arabic](#), [English](#), [French](#), [German](#), [Irish](#), and [Swedish](#). The Spanish MOOC platform Myriada X is teaching (in Spanish) [Professional English](#) and [German for Spanish Speakers](#). Udemy hosts courses in [Writing Korean](#), [Elementary Serbian](#) and other languages. Coursera offers [Beginning Mandarin](#) as well as a bilingual English-Spanish course in [Global Business](#). Self-paced courses, rather than formal MOOCs, are offered by the Foreign Studies Institute in a variety of languages, including [Bulgarian](#), [Yoruba](#), and [Czech](#). [Open Culture](#) lists courses, podcasts, and web site resources in 48 languages. Pablo

Ángel Vega has put together a [list of MOOCs](#) (in Spanish) of potential interest to professional translators. The Virtual Linguistics Campus from Philipps University (Marburg, Germany) offers a [variety of MOOCs](#) dealing with different areas within linguistics.

One of the more interesting language MOOCs I am aware of, planned for 2015, is [Spoken Communication: English/Spanish in Tandem](#) to be offered by a consortium of Spanish universities. It is designed to improve students' spoken ability in English and Spanish as foreign languages using online technologies. As it is structured around tandem partners, there is a built-in availability of native speakers to help learners and to provide assistance in assignment marking and in evaluating assessments. The course also stresses development of digital literacy skills, with rich use of online language learning tools. It will use locally developed tools for working on oral communication, a challenging area for any online language course. The [SpeakApps](#) platform, out of the Open University of Catalonia, as well as [LANGblog](#) and video conferencing will all be used to provide an extensive environment for language practice and exchange. The tools provided can all be integrated into a Moodle course, a popular platform for online language instruction.

A possible model for leveraging participation in a MOOC for language learning is represented by a pilot project at the Technical University of Munich. Students there are able to earn up to 2 ECTS credits (European Credit Transfer and Accumulation System) by participating in a MOOC conducted in English. Students need to find a MOOC on their own they find of interest, then submit a request to the language center to participate in [Guided English Self-Study](#). Here according to the [info sheet](#) is what then happens:

If your proposed course is accepted, you will set up a plan with an English instructor to do 60 hours of language-related work to supplement your online course work. This might include summaries of lectures, drafts of homework assignments, exercises tailored to your needs, and use of online learning resources. You will receive regular written feedback on the texts you submit and meet with your instructor several times over the semester to monitor your progress and get individual feedback (Guided English Self-Study, 2013)

A MOOC not specifically designed for language learning but which may hold interest for those in the field due to its innovative approach and focus on storytelling is [DS106 Digital Storytelling](#), offered as an independent MOOC from the University of Mary Washington. The course is richly collaborative, with users invited to create course assignments (put into the [Assignment Bank](#)), which are then used in subsequent versions of the course. The course web site is available to function as a resource for parallel courses at other universities. Despite its constructivist nature, DS106 does not discourage “lurkers”, announcing on its [info page](#) that users can “join in whenever you like and leave whenever you need”. The course is built around a WordPress blog, in itself a structure that invites connections. In fact, WordPress and other blogging platforms are being used for other MOOCs as well. There is actually an LMS/MOOC platform built around WordPress—[LearnDash](#)—which adds typical LMS features to WordPress, such as the ability to create self-correcting quizzes.

### **Internationalizing MOOCs**

Sebastian Thrun [famously remarked](#) that with the rise of MOOCs internationally, in 50 years there would only be 10 universities worldwide. In fact, he envisioned his own company, Udacity, as among those 10 institutions. In this vision it's likely that North America and Europe would be heavily, if not exclusively, represented in that elite group. This is certainly a paternalistic, if not downright neocolonial, perspective on higher education. It assumes that education can be served out from universal knowledge centers, without regard to local pedagogical and cultural considerations. It also assumes that all people learn the same way and that local educational opportunities at the university level are not needed. On the other hand, there is an admirable idealism and optimism about this vision, namely that it should be possible for anyone on the planet to receive a first world education over the Internet. This is a [view](#) embraced by other



MOOC entrepreneurs such as Coursera's Daphne Koller. Indeed, this is one of the original promises of MOOCs: to provide free courses offered by leading experts in their respective fields anywhere on the planet. There is no doubt that MOOCs have found a receptive audience in many countries in which higher education is not as universally available as it is in North America. After the US, the country with the next highest number of MOOC participants is India. Numerous [personal anecdotes](#) have been reported in the US media about underprivileged learners using a MOOC experience to gain opportunities not available locally. The best-known case may be [Khadijah Niazi](#), a Pakistani girl who started taking MOOCs at age 10. At age 12, after successfully completing courses in AI and physics, she was invited to speak at Davos about online learning.

While there are likely to be a limited number of exceptional individuals in a variety of countries who will take advantage of MOOCs, there are a number of practical roadblocks in the way of students worldwide participating in a MOOC experience. The first is infrastructure. Michael Trucano from the World Bank has [written informatively](#) about this and other aspects of MOOC use in developing countries. It's not a given that reliable electricity will be universally available, let alone Internet access. Particularly problematic are high-definition streaming videos, which are not typically available in more than the default MP4 or Flash formats. As many of the videos feature talking heads, providing an audio only version would not represent much of a loss of content. That would also enable the audio file to be downloadable when Internet access was available, so that off-line playback would be possible. This could be done with other course materials as well, which could be packaged as e-texts in EPUB format, so as to be available off-line as well as on mobile devices. Udacity has recently enabled content download for some of its courses. Despite the much greater penetration of Internet capable cellphones, MOOC providers have not focused much effort on making courses fully available to the many users for whom a phone is the only viable networked option. There has been some general recognition of the problem of Internet access. Coursera, for example, has created a series of "[learning hubs](#)", partnering with local schools, libraries, and universities to supply access to courses. The company also has a partnership with the US State Department to provide access through some US embassies.

A second issue is language. The vast majority of MOOCs are taught in English. Despite its role as a lingua franca, non-native English speakers may need language support in being able to participate effectively in an online English environment. MOOC providers have begun to address this issue, supplying video subtitles or transcripts by volunteer translators, such as Coursera's "[Global Translator Community](#)". Other materials may also be available in multiple languages. This can help in working with the videos and readings, but does not address working with English in discussion forums or other collaborative course activities. One approach some MOOC users have taken is to organize local groups, which can offer in-person networking and assistance. As commercial MOOC providers, especially Coursera, strive to expand globally, course offerings are being increasingly localized. Coursera has partnered with a Chinese Internet provider to supply full Mandarin versions of selected courses through a dedicated Chinese portal, [Coursera Zone](#) (site in Mandarin). Coursera is also [partnering with the World Bank](#) to produce courses for developing countries. US Embassy employees and Fulbright Fellows have been sponsored by the US government to host "[MOOC camps](#)" in a variety of countries including China, Bolivia, and India. As [Anya Kamenetz points out](#), providing this kind of educational opportunity can be a boon to individuals in a position to pursue it, but it doesn't help local educational systems:

It's easy to imagine a future in which the educational equivalent of reruns of Baywatch—a limited menu of glossy American fare—comes to dominate the cultural landscape in developing countries around the world, making it more difficult for cash-starved universities in those countries to pursue scholarship relevant to local contexts. This potential undermining of local education becomes especially problematic when the U.S. government takes an official role in promoting the use of MOOCs as a form of public diplomacy. The trick going forward is to figure out how MOOCs can enhance, instead of just compete with, existing national education systems

(Kamenetz, 2013).

The danger here is the wholesale importation of the beliefs and pedagogies of a particular US model of higher education, represented by institutions like Stanford, Harvard, and MIT and depending heavily on teaching techniques in the fields of engineering and computer science. The [Generation Rwanda](#) project through the Kepler Institute (funded by a hidden corporate foundation), very positively profiled in both *Scientific American* and the *Chronicle of Higher Education*, has been a [controversial](#) example of this approach. It uses a competency-based system, but that system ([College for America](#)) was developed based on US contexts. One of the co-founders of Kepler has [defended the adopted approach](#) in an article in *Slate*.

There are projects in Africa that are using a more collaborative model. [Global Exploration of Water](#), for example, was developed with content input from experts in a variety of countries. Students in the venues represented (Nigeria, Pakistan, Bulgaria, Lebanon, USA) go into the field to report on local water use issues and report back, using the technology available locally, ranging from video to text reporting. The course content is shared using an open Web site, making it easy to access on multiple devices. [Ubongo](#) is a nonprofit organization in Tanzania trying [a different approach](#). It is introducing content through television, with follow-up learning materials available on tablets and screen projectors in Tanzanian schools. Also, content is localized, [as given in an example](#) from elementary school instruction by Nisha Ligon, Ubongo's managing director:

Localization is key because American examples don't always translate. 'There was this black and white textbook with kids eating doughnuts, and apparently the children were all asking: why are they eating tires?' Ligon said. 'Why would you eat this round black thing?' Doughnuts aren't big in Tanzania. It remains to be seen if bananas go over better (Sperber, 2014).

The Commonwealth of Learning (Canada) provides a [good analysis of issues](#) arising from introducing MOOCs to Africa. There has not been much commentary on such cross-cultural issues with MOOCs, despite the fact that interactions among participants from different cultures in discussion forums or other online collaborations is liable to result in occasional (or frequent) misunderstandings or conflict. The few studies that have been done, such as a recent paper on [Cultural Translations in MOOCs](#), seem unaware of the substantial research of the last decade dealing with telecollaboration in language learning and intercultural communication. The experiences of early collaborative projects such as [Cultura](#) or the analysis of projects such as those by Thorne and Kramsch (2002) or Dorothy Chun (2011) could be invaluable in anticipating and preparing for intercultural and linguistic issues.

Local efforts can help in a third difficulty: a lack of familiarity among students with online learning and with the teaching and learning methods used in a MOOC (Liyanagunawardena, Williams & Adams, 2013). At the Universidad Carlos III de Madrid, a service connected to a mobile app called MyLearningMentor has been created specifically to help students adjust to MOOC style learning (Gutiérrez-Rojas, Alario-Hoyos, Pérez-Sanagustín, Leony, & Delgado-Kloos, 2014). It

aims to scaffold self-learning in MOOCs and improve learners' performance by providing personalized planning, tips and hints for time management, study habits and teamwork, and a meeting point for people who need help to keep pace with the MOOC and need to know who can offer them support (mentors). (p. 44)

Such an approach enables local customization of support needs. The Open University (UK) has created a MOOC which has a similar goal, but specifically geared to language professionals and second language learners. The [Open Translation Tools and Practices MOOC](#) deals with topics such as the use of online dictionaries, translation tools such as Google Translate, and subtitling tools such as [Amara](#). Building this

kind of literacy in information retrieval and language learning tools can be of significant help to students in isolated environments.

### **Outlook**

MOOCs seem likely to be more than a passing fad, but they also are likely to evolve in a variety of ways in the future. How that will happen no one knows for sure, but below are seven possible directions.

#### ***More Options for Credentialing from Completion of MOOCs***

Most MOOC platforms now offer some form of certification for course completion, which usually comes with a fee attached. Also of increasing interest is awarding "badges" for course completion, such as Mozilla's [Open Badges](#) system. Through the [Iraq University Linkages Program](#) and its Community Solutions Program, [IREX](#) is launching a digital badge program. Badges and other forms of learning certification are likely to be a growing component of e-portfolios, as students seek to document learning of all kinds, both formal and informal. We are already seeing a movement towards professional development in MOOC offerings and certifications, which is likely to accelerate. As MOOC-based training gains traction, it's likely we will see more mechanisms for verifying student identity and preventing fraud, cheating, and plagiarism. Grouping courses together, such as Coursera is doing now with their [Coursera Specializations Program](#), is likely to be a growth area, as professionals seek to gain certification by completing a sequence of courses. The company [Academic Partnerships](#) has created a new program called [Mooc2Degree](#), which aims to integrate MOOC courses into a student's academic degree. We are also seeing MOOC platforms dedicated to specialized areas of study, such as the [Marginal Revolution University](#), for studies in economics. Also likely are more MOOCs from alternative providers, such as museums, professional organizations, or interest groups. There is also a [growing interest](#) in MOOCs for corporate training.

#### ***Growth in Learning Analytics Applied to MOOCs***

There is tremendous interest in taking advantage of the extensive data tracking by the major MOOC platforms to analyze learning patterns and identify key areas likely to need additional learner support. Online learning is a relatively new phenomenon, so that more research is needed to learn more about what works and what doesn't. Of particular importance are differentiated studies identifying discipline-based techniques: what works in computer science is not likely to be successful in art history. One typical aspect of MOOCs that would be useful to analyze is the effectiveness of peer ranking of contributions to discussion forums or other course assignments. Useful as well would be studies examining what mix of MOOC components optimizes learning outcomes. This would require some experimentation with different pedagogical models and the use of control groups to draw meaningful comparisons. For the most part, MOOC platforms have instituted their own proprietary analytics systems, which are available only within that platform. However, we are seeing substantial interest in open analytics architectures (Siemens, 2011). Examples of such systems are [edX Insights](#) and [Tin Can](#). They provide options for integration beyond the MOOC platform by providing a common data repository and a set of APIs (application programming interface) to access that data (Mitros, Agarwal & Paruchuri, 2014).

#### ***More Involvement in Planning and Teaching by Information Specialists, Especially Librarians***

Students enroll in MOOCs because they are curious about a topic. Helping students find additional resources should be part of all MOOCs. That might seem obvious, but many MOOCs are structured and delivered as one-time events, with little regard to how the knowledge from the course might be extended or integrated with other resources related to the course topic. Librarians can be of substantial help in this process, as demonstrated in a MOOC recently taught at my university ([UNIV 200: Inquiry and the Craft of Argument](#)), in which librarians played a substantial role. Librarians are beginning to evaluate their changing role in an educational environment where MOOCs are likely to remain a major player (Wilson & Gruzd, 2014). As is the case in the development of educational games, collaboration is key to a



successful MOOC. Helping users learn to learn and to find reliable information is of great assistance in developing learner autonomy.

### ***More Openness in MOOC Content***

With the exception of EdX, the major MOOC platforms are proprietary and closed. Even more locked down is the course content from MOOCs. Content is typically available only during the length of the course, and the terms of use preclude out-of-course use, reuse, or distribution. Some individual MOOCs are moving away from such restrictions and making content available as open educational resources (OER). This is the case, for example, with the [SpeakApps](#) tool and data from the Open University of Catalonia, which is part of the [European Lifelong Learning Program](#). As Liyanagunawardena, Williams, and Adams (2014) comment, the incorporation of OER into MOOCs would be a boon to local development of educational resources:

For higher education policymakers, administrators and educators in the developing world, while (used judiciously) OERs might offer them a basis for more cheaply developing their own fit-for-purpose (socially, culturally, and targeted to the needs and abilities of their learners) higher education systems, MOOCs may offer their learners a take-it-or-leave-it...colonial educational experience dependent on technologies only available to the already-privileged in those countries. (p. 5)

The [OER University](#) has been founded to facilitate the use of OER in MOOC's; the project represents over 20 universities from a variety of countries. The African Virtual University (15 universities from 10 African countries) has developed OER in math and science and is likely to be moving from an emphasis on developing textbooks to an emphasis on shared online learning. Developing a language learning MOOC could be jump-started by using open learning resources from the [Foreign Service Institute](#), the [Center for Open Educational Resources and Language Learning](#) (COERLL) at the University of Texas, or other OER repositories.

### ***Greater Modularity in MOOC Structure***

EdX is the only major MOOC platform that enables and encourages full integration of third-party tools and content into a MOOC. Learning content and assessments from the [LearningOnline Network](#) (LON-CAPA) repository, for example, can be incorporated into an EdX course. Because it supports the [Learning Tools Interoperability](#) standard (LTI), integrated content from outside services and tools can be authenticated and integrated into the assessment system. Scores for quizzes or tests offered by an LTI tool provider such as a publisher or content repository can automatically be sent to the online grade book. This enables rich content—commercial or open source—to be fully integrated into the course, with the possibility of incorporating more sophisticated assessment types than are typically used in a MOOC. Also possible through a modular structure is the integration of digital games—a course component that has the potential for maintaining student interest and motivation (see the recent [special issue of LLT on gaming](#) and language learning). The [e-adventure gaming platform](#), which has been used to create language learning games, has been successfully integrated into the EdX platform (Freire, del Blanco & Fernández-Manjón, 2014). The [OpenMOOC](#) platform (from Seville, Spain) has been designed to be open and modular.

### ***Increased Adaptation of MOOCs to Mobile Environments***

A [recent study](#) showed that the vast majority of MOOC users are not the educationally underserved, but those already holding university degrees (Christensen, Steinmetz, Alcorn, Bennett, Woods, & Emanuel, 2013). An [article in the Guardian](#) has similar findings. There are mobile apps available for the major platforms but they do not support all course activities. Additionally, they typically require smart phones running recent versions of iOS or Android. If the content were made available in HTML5 or EPUB 3,

wider access would be possible. In platforms being developed specifically for [wide distribution and use in developing countries](#), web apps, rather than proprietary apps, would allow for possible browser-based access outside the major mobile vendors. Developing new courses using the techniques of progressive enhancement would provide basic access to all users and an enhanced experience for those with better hardware and access to a fast network. IREX's [Community Solutions Program](#), which offers professional development across the globe principally through mobile learning, could be a model in this effort. The [Qualt](#) platform (UK) was designed specifically for mobile course delivery; not surprisingly, it is targeting its offerings to India.

### ***More Language MOOCs in Targeted Areas: English as a Foreign Language, Less Commonly Taught Languages, and Languages for Special Purposes***

The British Council will be offering an [English MOOC through FutureLearn](#). This is likely to be a high-profile project, given that it promises to prepare participants to pass the [IELTS](#) exam (International English Language Testing System). The reputation of the British Council, along with the free cost, should make this an enticing alternative to the commercial prep courses available online. The University of Oregon has partnered with Coursera to offer short [MOOCs on teaching English](#) as a foreign language. While the British Council's MOOC addresses a worldwide interest in learning English, courses in less commonly taught languages address a scarcity of opportunity for instruction. The courses are not likely to be "massive" in enrollment, but instead in geographic reach. MOOCs may offer a compelling opportunity for more wide-spread study of indigenous languages. A third area within language learning in which we are seeing significant activity is in languages for special purposes. MOOCs offer a convenient vehicle for reaching professionals or trainees who need specialized language skills. They are also already being used for students wanting to focus on a particular needed skill such as reading or writing.

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