International Education in the Digital University?
Web 2.0, IFLE 1.5 and Policy 1.0

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Prepared for and presented at the conference:
Internationalization of U.S. Education in the 21st Century:
The Future of International and Foreign Language Studies
A Research Conference on National Needs and Policy Implications
Williamsburg, Virginia
April 11-13, 2014

Abstract

Innovations in the "web 2.0" world are producing massive changes in the knowledge infrastructure, the learning culture, and adding new meanings of global and local. The International and Foreign Language Education (IFLE) community is responding in the form of shared courses and platforms, open access journals and textbooks, and online outreach though nested hubs of schools clustered around major universities.   IFLE needs to pursue global competence and expertise, providing the scaffolding to ensure pathways to expertise as it builds an ever deeper and stronger foundation in global citizenship.

Federal policy can help higher education make this transition by adopting web 2.0 tools, both technologic and organizational, especially focused on structuring incentives around strategic priorities and universities' strengths of creativity, community, and flexibility. Policy 2.0 needs to support the development of national platforms in three key areas: first, linking IFLE graduates and lifelong IFL skills with the job market; second, providing benchmarks of success in IFLE resources and outcomes; and third, ensuring regulatory frameworks support open educational resource and open access norms, especially in government funded research and through international organizations. Policy 2.0 needs to identify clear strategic challenges and tailor funding to enable universities to compete and collaborate, especially in developing project-program based networks, to promote approaches that maximize accessibility of scarce, precious resources and best practices. Policy 2.0 must support innovation and related research on outcomes with a set of tiered funding windows, described in this paper, perhaps taking lessons from development banks or venture capitalists. And the policy 2.0 recommendations come full circle with a national portfolio system that allows students to link their IFLE education and experience with internships, employers, and fellow travelers.

Please note. *At the time of the conference, I was Associate Director of the MacMillan Center for International and Area Studies at Yale University and responsible for federal relations with U.S. Dept. of Education, Title VI (5 NRC's; 3 FLAS's). As of January 3, 2016, I am retired from that post, serving as a Visiting Fellow in Higher Education and International Affairs with the MacMillan Center and also Principal of Gazelle International,* *http://www.gazelle-international.org.*

International Education in the Digital University?
Web 2.0, IFLE 1.5 and Policy 1.0

Web 2.0 is the shorthand that captures the user-generated internet and other digital media that have transformed the way we communicate through social media which, in turn, creates new ways and cultures of learning. International and foreign language education (IFLE) in the U.S. is stretching into v1.5. The federal IFLE policy arena still operates in a v1.0 platform. How can they both rise to the challenges of Web 2.0?

This paper and panel hope to help unpack that question, provide some examples and suggest options and opportunities. While prediction is particularly fraught in unstable times, the paper will address three challenges, each with a dip into the recent history and enabling events. #1: Re-thinking the university in web 2.0.; #2: Re-thinking the Higher Education "business model," ensuring quality/value and sustainable cost-revenue streams; and, #3: Re-thinking International and Foreign Language education, ensuring the scaffolding from global competence to expertise.

It will end with a reprise of possible policy options to be fleshed out with the panelists and larger discussion at the conference so generously hosted by William and Mary.

Challenge #1: Re-thinking the university model in web 2.0.

If disruptive innovation has winners, losers and changers, then change we must. The ways that we access, transform, create, control and disseminate knowledge has changed radically in the last twenty years. As knowledge continues to take primacy in society, the university's primacy over knowledge erodes. Long the traditional generator, validator and manager of knowledge with its key role of teaching and certifying talent and skill of the next generation, the university is no longer in charge. Rather it is caught in a froth of alternatives and competitors, formal, informal, for profit, not for profit, local, and foreign. As digital media collapse time and distance, the very meaning of international and area knowledge is thrown into question as the global is made local and vice versa. Even languages, the heart of and most concrete manifestation of authenticity in international studies, are challenged with "world Englishes" and code switching. As the technology creates a near zero-marginal cost world, the core business model of the university is both threatened and also offered new ways to make significant impacts on both quality and affordability of education and scholarship through truly worldwide connective networks.

Digital convergence, the social media and web 2.0 are highly interactive and all provide, indeed demand, new ways of communicating and, in turn, promote new ways of learning. Everyone becomes both a producer and a consumer, a *prosumer* of knowledge and information.[1] In this decentralized, atomistic media network, content is created, shared, consumed, re-mixed and modified by anyone. *Prosumers* want to tailor results specifically to their interests and needs (both career and personal), ideally validated by a community they value, e.g. individual songs

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not albums, ideally with "5 star" ratings. Like the music industry or journalism, higher education is hugely affected by this tectonic shift in communication and information culture. What is the role of higher education when anyone who wants to learn a skill can click on top tutors on their screen, e.g. DIY network, YouTube or the Khan Academy?   When we can go to a search engine or a wiki to satisfy our curiosity about an event or get a synopsis of a key issue of the day, or even buy an e-book to dig a bit deeper (or go to a library?), what is the role of higher education? When the world, its events and peoples are at our fingertips along with top experts explaining it all 24/7, what is the role of IFLE?

With many more sources and providers of education, informal and formal, public and private, on-line and on-site, there is skepticism or frustration combined with greater expectations of what higher education can provide. In at least four areas, the traditional role of higher education is being tested and challenged to change and respond to the digital capacities available:

- In creating, sharing and validating knowledge, there are many competing sources and dissemination channels, sometime compared to "drinking from a fire hose." Faculty must find new ways to navigate through and engage the proliferation of channels and sources while developing new forms of digital literacy. Faculty must help students navigate these resources critically, curating and coaching, helping students determine their own voice and contribution. The also strive to locate their own research contributions in valid and reliable sites and networks.

- The notion of expertise, a source of the university's special role in society, is questioned and segmented as users seek to match their specific purposes for knowledge with the depth and intensity of results and validation they judge necessary. For IFL expertise, this becomes particularly acute. As the authentic "other" seems so easily available through so many channels, the needs for developing and using second or other language or cross-cultural skills and understanding become more particularized.

- In certification of talent and skills, there is a greater demand for something more detailed, focused and concrete than the traditional transcript and resume for college graduates. There are campus services being offered to provide students with "career skill certificates" parallel with their coursework. Mozilla, the Firefox browser home organization, is launching a "backpack" service for certifications and "badges" for students and others

- The focus on concrete outcomes and metrics possible with "big data", inconceivable and unfeasible in an earlier time, is expected and used in powerful new ways. This plays out at all levels from the classroom to the institution to the policy level.

Background: Lessons from the development of web 2.0

The open source movement that created open source software and the internet spawned this technology revolution and the digital convergence we live today. The parallels with the web 2.0 challenge to higher education and IFLE are instructive. The major change in the software development field was not only technical but social and organizational. The freedom of opening

up all code or language to all comers, rather than restricting and controlling it behind high walls with tightly managed small teams of experts, shortened learning cycles and resulted in superior quality and recurring innovation. It became the business model for creativity, combining the wisdom of crowds with creative leadership.[2] Scientists today use similar crowdsourcing methods to accelerate and improve quality in wildlife census projects. The "Kamusi Gold: Global Online Living Dictionary," similarly, crowd sources current usage and new definitions.[3] The flipped classroom shifts the focus of teaching to unlocking student creativity during "magic time" with the instructor's personal coaching, advising, critiquing opportunities rather than *ex cathedra* lectures, quizzes and exams.

Bob Young, CEO of Red Hat, Inc. a major open software services company, indicated that the open source software movement was able to materially change the world for the better for two reasons, beyond smashing the older technology's cost structures. First, it was adopted, becoming widely and effectively used. Second, language and communication were crucial in explaining the advantages of this innovation and persuading the larger world to participate and take up the open source model. [4] So the lesson is for the institutional level of the universities and the higher education system overall. How to adopt the cost-smashing technology and ensure high quality? How to communicate the value of these innovations, persuading the faculty and larger community, perhaps boards of governors or statehouses? As the technologic platforms for knowledge and information become infrastructure like electricity and highways, they will not be noticed until they break down or go out of service. What matters will be the content it carries, its availability and who has access, who controls it and at what costs.

A third point that can be drawn from the open source story, but which is often missed, was the key role of the universities in incubating and providing the community space for these innovators to find each other, experiment and thrive. MIT was particularly pivotal in challenging UNIX with its own open source operating system project, possibly pre-figuring its current cutting edge role in the Open Course Ware Consortium (OCW) and the non-profit EdX. Berkeley, Carnegie Mellon and others were also pivotal, not to mention Helsinki University, where Linus Torvald was a student who activated his fascination with the idea of "open source" into Linux.

As flexible learning organizations, universities concentrate bright people in one place, and are thus uniquely positioned to tackle the challenge of bringing IFLE up to date in the web 2.0 world. How can the institutions and the policy sphere promote and support the innovative capacity, the creative serendipity of the university community to incubate new, powerful IFLE platforms and programs taking full advantage of the digital convergence and web 2.0?

Challenge #2: Re-thinking the Higher Education "business model," ensuring quality/value with sustainable cost-revenue streams

The citizen and the student who are plugged into this web 2.0 world expect virtually free and unlimited access to a wealth of information online. The university librarian and the publisher and the campus IT Director expect high and increasing costs for that content for teaching, learning and research communities. Where is the disconnect? Somewhat simplistically, the "knowledge wholesaler" has had a valuable and thus privileged role in the traditional knowledge

and learning system. When textbooks and journals were labor-intensive, time-consuming and expensive to produce and distribute, authors and librarians made what David Wiley calls the "access compromise."[5] Authors ensured access to a large readership by giving publishers rights to control and distribute their intellectual work or content in exchange for a royalty payment and defined copyright privileges. University libraries bought books and paid subscriptions to journals that vetted and bundled the larger scholarly networks' materials so the entire university community could have "free" access to them. In the new digital environment, costs are near zero to produce an extra copy of a book or a journal, the marginal cost of production. In moving toward near zero marginal cost of reaching each additional reader, the knowledge economy is being fundamentally restructured. What, then, is the rationale for "knowledge wholesaler" privilege if the value of their role is fundamentally weakened? How should journals and publishers work in this new economy? Does it make sense for the author to forego ownership to support wider access if both are possible? Analogous to the musician and the record company, the listener is more willing to pay a small fee direct to the musician for creating the song than to the company.

As the new knowledge economy emerges, the struggle is underway to redefine the roles and re-set market rules for creators, distributors and users. And, lest we forget, it is a global knowledge economy and a global market re-set, not simply a U.S. phenomenon. Like the open source computer movement, there is a pair of "open" movements particularly focused on re-writing the market rules for higher education, one focused on open education resources (OER) for teaching and learning and the other, open access (OA) for research and publishing. Like most movements, they are vying to reshape fundamental political and economic relationships across the entire system and they share similar patterns with such movements.

To start, we will consider two enabling factors: first, the creative commons as an alternative to traditional copyright legal frameworks for ownership of content and its usage; and, second, the development of "learning objects" as an organizational, pedagogic mechanism enabling education to deploy teaching and learning content seamlessly across a multitude of digital platforms. Then we will attempt a reprise of some of the major functional and market segments, contrasting the private, for profit with the OER/OA and other, mainly, non-profit approaches.

Enabling innovations for digital and open education: Creative Commons

Creative Commons licenses and Open Content are the two main frameworks providing a more open-friendly set of operational legal rules and alternative conceptual frameworks supportive of OER/OA than traditional copyright. In 2001, Lawrence Lessig who had been a professor at Harvard Law School and was just taking up a new faculty post at Stanford, created the legally binding expression of the open content framework.[6] With foundation support, he and several colleagues created a non-profit organization that began implementing Creative Common licenses or deeds with Version 1.0 in 2002. Now in their third release, the non-profit CC actively, "develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation." Two major projects focus on expanding open access for science and for education. In 2009, 350 million works were CC-licensed and Wikipedia migrated to CC Attribution-ShareAlike as its main content license. In 2012, the World Bank adopted a new open access policy using the most accessible CC license, CC-BY allowing others to reuse,

remix and redistribute works, even commercially so long as attribution is given to the appropriate copyright holder. The CC website provides a brief statement of their overall goals in their description of the licenses, raising the low-cost, high service mantra of the digital age, saying,
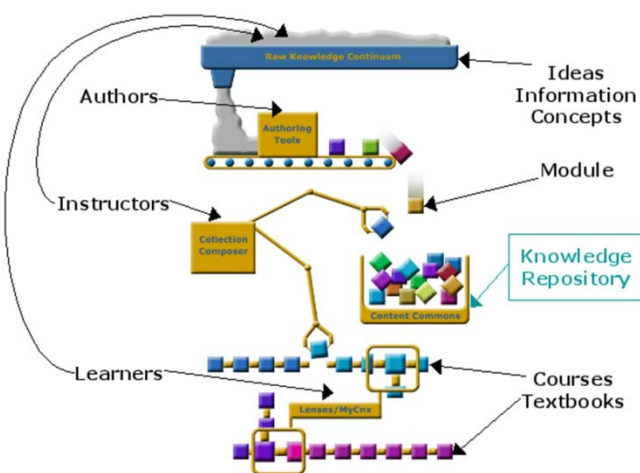
> "Creative Commons licenses do not replace copyright, but are based upon it. They replace individual negotiations for specific rights between copyright owner (licensor) and licensee, which are necessary under an 'all rights reserved' copyright management, with a 'some rights reserved' management employing standardized licenses for re-use cases where no commercial compensation is sought by the copyright owner. The result is an agile, low-overhead and low-cost copyright-management regime, profiting both copyright owners and licensees.[7]

Enabling innovations for digital and open education: Learning Objects

David Wiley articulated Open Content as a guiding framework as early as 1998 while he was a doctoral student at Brigham Young University studying instructional psychology and technology. He created a website, <opencontent.org>, around 4 R's (2-5R below). Much later in 2014, he added the fifth R* for "retain." Wiley's proposed rights would be free and designed to encourage fewer restrictions and more permissions to foster truly open exchange and sharing of these intellectual products.

1. *Retain - the right download, duplicate, store, and manage
2. Reuse - the right to use the content in a wide range of ways
3. Revise - the right to adapt, adjust, modify, or alter the content itself (e.g., translate in second language)
4. Remix - the right to combine the original/revised content with other open content to create something new)
5. Redistribute - the right to share the original content, your revisions (e.g., give a copy to a friend)

The concept of "learning objects" was the enabling instructional device that allowed for both truly open education and for open education to be fully operational across many, varied technology platforms. Credited to David Wiley in 2000, the "learning object" innovation called for designing teaching materials in self-contained units of instruction so they could be reused or combined in various educational contexts. This also helped to produce the requisite standardization of materials and their preparation in linked packets or modules so that they could be stored and retrieved as Learning Objects in multiple repositories and be inter-operable on different educational and technology platforms. A connexion, at Rice University, is an open educational resource depository that encourages educators to use their materials to re-mix and create their own courses and textbooks. A graphic they provide shows neatly how Learning Objects work.[8]

Effects of the new business model on higher education

With this overview of a few key enabling events to create the OER/OA alternative to the traditional higher education business model, we move to consider concrete examples of how the business model is affecting core areas such as courses, textbooks, journals and credentials. As possible, we will provide at least cursory contrasts between the private, for profit with the OER/OA and other, mainly, non-profit approaches. In the next section, we will explore how these innovations are working in several cases in the IFLE arena.

Effects of the new business model: Courses and learning platforms.

The Massive Open Online Course is probably the rawest form of attempting to capture the benefits of the near zero marginal cost structure for higher education. It has captured the headlines and the hype cycle, at least since 2012 with the creation of Udacity (January), Coursera (April) and EdX (May) and, the British FutureLearn, Ltd. (December), though with less ballyhoo in the US. With Coursera taking the for-profit route with venture capital start-up funding, and EdX, taking the non-profit route and foundation funding, these new organizations will likely play important roles in shaping the system.[9] European, African and Latin American countries, universities and consortia are also developing system-wide organizational platforms to develop, support and utilize MOOCs and other ways of sharing infrastructure and content in different forms. While MOOC's get the headlines, a slower burning but truly significant shift in higher education is the growing proportion of for credit course offerings that are now online across the entire higher education system. In 2013, Pantò indicated that there were 20,000 open courses online and she also cited estimates from 2011 that by 2019 50% of courses will be provided online and many of them for free.[10]

Stepping back from the recent headlines, it is useful to consider the roots of the MOOCs in the open courseware initiatives that started in 2000 to 2002. OCW, with 100 participating universities and colleges worldwide, was perhaps the most publicized but Carnegie Mellon's Online Initiative and Rice University's Connexions among others were also created in that period. They built the platforms and developed the connections that provided the springboard for MOOCs. The private sector and non-profits were also developing learning management systems (LMS), such as Blackboard and Moodle, which provided increasingly seamless course support for online and traditional teaching. Growing out of this ferment, two professors who were very committed to the OER movement, George Siemens and Stephen Dawson, offered what is generally credited as the first MOOC in 2008 at the University of Manitoba.[11]

A snapshot of OCW and EdX, as the MOOC provider created in a partnership of MIT and Harvard, may help to reveal some of the key challenges and promises both approaches pose for higher education. In an interview in December 2013, Shigeru Miyagawa, Chair of the MIT Open Course Ware Faculty Advisory Committee, summarized how they wrestled with the business model that resulted in the two separate enterprises. Initially, with 2000 being the a high point of dot.com and start-up fever, they had imagined "MIT.com" selling courses to the world but quickly realized that the business model was very tough, not feasible, nor did it conform to their faculty's mission. However, they reaffirmed their commitment to opening up the course

resources as part of the university's larger service mission. While it was a paradigm shift that required substantial persuasion of faculty by the core leadership group, over 70% of MIT faculty had posted their materials on OCW and 80% had viewed and used the OCW resources. They expected this to promote greater dynamism and pay-off in the curriculum over time. He also contrasted OCW with the EdX MOOCs, which were not open in the sense of OER but only open as in free enrollment without admissions standards. When commenting on the business model, he said the major issue was still financial. He expected it to be in flux for at least 3-5 years. OCW, being core to the MIT mission, has been shifting from the original support from foundation funds to a greater mix of university resources. The MOOC organizations, at MIT and elsewhere, have been seeking alternatives to the "free" model since the production costs are not trivial. He indicated that they were exploring subscription models of licensing courses to big state institutions as well as fees to individuals for certificates for completion, which is complicated by online authentication issues.[12]

In concluding the interview, Mr. Miyagawa raised the notion of the MOOC platform serving as a basis for larger curricular changes, saying:

> "Whether MOOCs are going to have an impact that people are hoping for and whether they can be sustained financially is unclear at the moment. My suspicion is that many institutions currently experimenting with MOOCs are going to start looking inward to see how this new infrastructure could be used for their own education, how it can benefit their own education and transform the traditional classroom."[13]

Kris Olds, a professor of Geography at the University of Wisconsin, echoed this sentiment. In a phone conversation, he indicated that the MOOC platform, especially with truly OER materials, could serve as a spine of resources for his own teaching and possibly others with similar interests. Something of an in-house open courseware resource with a variety of plug and play options that he and others could update. If the platform is available and user-friendly as such platforms promise, then he would use them. But he also indicated that he would normally use the simplest, DIY resources if they suited his particular need, e.g. Skype professional for advising students in an online, asynchronous course, rather than attempting to schedule video-conference facilities, i.e. why use a computer if a pencil will be faster? In the MOOC that he is running in spring 2014 with Prof. Susan L. Robertson, University of Bristol, UK, named "*Globalizing Higher Education and Research for the 'Knowledge Economy*,*'*" Prof. Olds actively encourages participants to use it as a MOOR, a massively open online resource, supporting learning in many other ways.[14]

Prof. Cathy N. Davidson, with her MOOC on "*The History and Future of 'mostly' Higher Education,"* took this approach to a high level, moving it beyond campus use to a wider OER/OA community. Beyond using completely OER materials, she also encouraged MOOC participants to spin-off communities of interest, building and deepening the knowledge base using the Humanities, Arts, Science and Technology Alliance and Collaboratory (HASTAC). HASTAC is a fully open resource, largely funded by foundations at this point. In a more closed-access example, Yale's business school is using the same platform as the Coursera MOOC's to share courses across a global network of 25 business schools enabling students to tap and capitalize on each other's strengths and offerings, e.g. mobile phone financial networks in

Kenya. Shall we call it a Shared Network Online Course platform? It is an online course for fairly large groups but not open in either OER or cost-free terms.

Well beyond the media hype around MOOCs, there are many, many institutions that have used the online course, within the traditional rights model for content, as a core part of their business model, taking advantage of the flexibility, reach and cost-efficient scalability provided by the medium of instruction. For example, a recent Chronicle of Higher Education article described how Brenau University leadership dramatically restructured its business model using online courses as the pivot point. The approach, evidently, resolved the college's financial problems and expanded the both quality and number of offerings through strategic use of popular online for-credit courses to subsidize the highly valued core program in the Women's College. The online courses had substantially lower per student costs, evidence of the marginal cost advantage. The income-cost equation across three course platforms (Women's College, Evening/Weekend, and Online) was re-calibrated to balance the overall budget and strengthen the college overall.[15] North Carolina State University, as early as 1999, committed to a major strategic initiative to incorporate online learning as a fundamental tool in its curriculum and to endeavor to keep costs in check. Faculty adoption has been particularly strong in Humanities and Social Sciences and the School of Education.[16]

MOOCs and other online course options not only revolutionize the way that courses are taught but they also revolutionize the business model under which the university operates. Technological innovations and business model effects do not stop at MOOCs, however, and, as we shall see below, they also extend to research, publications, and textbooks.

Effects of the new business model: Research, publications and textbooks

Open Access (OA) is the research, publication and textbooks twin of the Open Education Resource (OER) movement. In shifting the higher education business model in the digital university, OA has the potential to bend the student cost curve most directly through new models of textbook publishing and access. It also holds promise for shaking up if not actually shifting the journal subscription costs for institutions and faculty.

First, journals. Wiley's "access compromise" seems an increasingly bad bargain for journals as the cost of bundling and distribution drops precipitously, at least in theory. Still the current machinery of academic journals plays an important role and is elaborate and difficult to replace. University libraries are in the lead on these issues on campus both as the canary in the coalmine and trusted partner. They are acutely aware of the costs when negotiating licensing deals for databases and journal subscriptions and they also usually have the confidence of publishers, faculty, students and the home institution.[17] One of the issues they see is that major academic publications from China, India, Russia and others seem most likely to adopt the full and expensive subscriptions model rather than the OA model. Only the most resourced universities will have access if this trend proceeds.

As summarized in the Figure, there are alternatives and cost-saving efforts. There is an OA project, the Directory of Open Access Journals (DOAJ), maintained by Lund University that

	Directory of Open Access Journals	JSTOR
Journals	9,709	2,000
Books	Na	20,000
Articles	1,595,608	2,000,000
Countries	133	160

Figure: Comparison of OA project (DOAJ) and "access compromise" project (JSTOR)

provides free access and is funded by a range of government, foundation and private sector sources. Another, based in the US is JSTOR which provides a subscription model, more in line with the traditional "access compromise." Created in 1999, JSTOR is a digitized repository library with works available by institutional subscription to other libraries, research institutions and the like. [18] In a talk at Harvard Law School in February 2013, it was reported that it would cost roughly $250m to convert JSTOR to a fully OA service, though it was not clear what the mechanics might be.[19] A smaller, targeted open access initiative is the Legal Information Institute, also called "the law not com", a non-profit that publishes law online for free along with explanatory materials on how to use the law. In part this was a response to the very expensive subscription model of online Law materials with LexisNexis and Westlaw.[20]

Moving from journals and research focused publication networks, let's consider textbooks and course materials in the digital age. Students not only face rising and often impossible textbook costs, but they also have high expectations for up to date information given their quotidian experience with search engines, 24/7/365 e-news and social media sites. A research report from Open University, UK found that using student-generated and student-reviewed content in courses can enhance engagement and reduce the out-of-date problems faculty and students face in course content.[21] Digital solutions promise lowering costs of reproduction and distribution but the promise has largely rung hollow. As the costs of textbooks even in e-formats rises, some are pursuing rental schemes to lower per course costs. Unfortunately, this ignores the scaffolding of content from one course to the next and the student's need for the content again in another course and then another rental fee for the same content. Open course initiatives, collaborative MOOC's (c-MOOCs) where content remains available after courses close, and OA textbook and materials services provide useful ways to enable faculty to meet the needs for timely materials and to dramatically reduce student costs.

Open course sites act as networks for connecting faculty and teaching resources, encouraging and supporting course re-design or updating course materials and adding more digital content if not interactive modules. The OCW has well over 4000 courses from the 100 plus participating institutions. Carnegie Mellon's Online Initiative that began in the early 2000's, provides not only syllabi but formative assessments and interactive features that help faculty to adapt for robust course packs or even textbook replacements. It is a very welcoming format and has a wide range of fields, even languages which my cursory reviews did not find elsewhere. Since it is completely OA, the user costs are the time dedicated by the consulting faculty who is adapting the content for their own course. Once the materials are on the adapted, they are distributed for free through normal course management systems to the students with the applicable Creative Commons rights regimes. Connexions at Rice University, also began in the early 2000s, calling itself a "dynamic digital educational ecosystem." It is a digital repository of educational content and provides a content management delivery system optimized for education. Its content is

organized into learning objects and modules that can be re-mixed in collections such as textbooks or journal articles. When a textbook or course module is completed, Connexions will distribute it, making it available to students 24/7/365 over the internet for free as downloadable PDFs or as low-cost hard copy sets. They provide quality control through "lenses", groups of qualified persons who review and rate materials on a series of metrics. One example of a Connexions Lenses is the Open Stax College, which provides free textbooks particularly for community colleges, testing them for accuracy and relevance.[22]

There are growing numbers of OER repositories and textbook materials development sites across the country. They are university based and/or non-profit, often with foundation and government funding. Several are state government repositories, e.g., Washington state Open Course Library set up for community colleges primarily. There are also, of course, the for profit, traditional business model publishers. Then there is a private, for profit textbook publisher that is based on the OA/OER model, Flat World Knowledge, Inc. Flat World Knowledge (FWK), established with venture capital and other private financing, publishes textbooks on an OA platform with the explicit aim of bending the cost curve for students *and* increasing the content quality by enabling professors to adapt material to their individual class as well as providing for easy updating for authors. In the OA spirit, it uses Creative Commons licenses and promotes collaboration of different authors. While it may still be too early to tell, it also seems to have found a sustainable business model. In 2007 when it began, it provided e-versions for free and hard-copy for a fee. In 2012, it shifted "from free to fair," not without some commotion in the user community, so that all students would pay for access, approximately $30 per "study pass" as the minimum and up to $160 for a color print version textbook plus e-access. They also have created campus partnerships where the institution buys a license, roughly $50,000 over two years for 2,000 "seats" per textbook or roughly $25/per seat. [23] The "pay wall" may stretch the CC rules and rule out collaborative adaptation of the materials but FWK is definitely an innovator. They also use somewhat traditional authorship rules rather than the community contribution model of pure OER. [24]   Ultimately, it seems to be truly moving the needle toward achieving the both the cost and quality promise of the "near zero marginal cost" knowledge economy for higher education.

These examples, from DOAJ to FWK, show potential ways forward for OA content, whether they are in research, publications or textbooks. These models also touch upon a point previously discussed, namely the "Learning Object" innovation, giving faculty and students the freedom to mix and match their content to fit their particular situations and being available on a variety of technologic platforms. Having reviewed some of the broader strokes of web 2.0 and higher education, we now turn specifically to the subject at hand, innovations and collaborations in IFLE.

Challenge #3: Re-thinking International and Foreign Language Education (IFLE), ensuring scaffolding from global competence to expertise

Since this conference focuses on federal policy for international and foreign language education, let's step back to review the longstanding goals of this policy arena.[25] The two enduring goals have been to, first, meet the national need for international and foreign language expertise and for global citizenship in business, government, education and other sectors and, second,

instrumentally, to enable the higher education sector to provide such expertise and training. These goals were robustly re-stated in contemporary parlance in "The Heart of the Matter: The Humanities and Social Sciences for a Vibrant, Competitive and Secure Nation."[26]

At least at the rhetorical level, virtually every college aspires to some variant of "preparing students for 21st Century leadership in a globalized world." In terms of the entry level capability for "global citizenship", it seems fairly safe to say the U.S. higher education system has embraced it as part of its mission. Virtually all have foreign language options, cross-cultural or diversity programming with their immigrant and overseas students on campus and international student recruitment with noble as well as the more pragmatic goals. Many also have study abroad options or overseas service learning. If this, the first rung of the IFLE ladder, is solid, at least in the minds of students and faculty and institutional leadership, have we built the higher rungs, helping students who want to move up from foundational citizenship skills toward expertise? If the base of global citizenship education is growing, have we built the scaffolding to help identify and bring students into higher levels of IFL capabilities? How can technology help? How is it helping now?

Scaffolding for IFLE outcomes: know, do, lead

If outcomes and metrics are important for IFLE 2.0, how would we define the range of learning needed from global competence to IFL expertise. We need outcomes to be clear in order to build the educational scaffolding successfully to achieve them. From the outcomes perspective, global competence would include knowledge, skills and mindset to apply them appropriately in different settings per Madeline Greene of the American Council for Education (ACE). Gabriel Hawawini, former dean of INSEAD, defined it as "know, do, lead" building from awareness to the ability to work in a cross-cultural, cross-national multi-lingual setting to the ability to lead in such a setting.[27]

In IFLE 2.0, one challenge is not only to develop these capabilities at the time of graduation but to establish them at a level where the core IFL skill is likely to be durable over time. What is the half-life of the skill that a person could resuscitate it, as needed, at different periods for life-long use? Is it the same for foreign language as the ability to read the cultural map? A second major challenge is that IFL capabilities can cross a wide spectrum depending on the focus of the work or the intensity of the intercultural interaction. Highest density/intensity would require an IFL specialist, e.g. teaching a comparative literature class or organizing a refugee camp with multilingual staff. Generalist IFL capability would be sufficient for relatively low IFL density/intensity work, e.g., working for an English language newspaper in a dual-language city like Hong Kong or integrating refugees into a US small city. A third substantial challenge is the sheer numbers of different languages that anchor IFL expertise for the wide range of possible professional sectors working with their counterparts around the world.[28]

To succeed, our challenge is to deploy web 2.0 technologies to help ensure that our IFLE resources contribute to producing such outcomes. These tools need to help us to develop educational pathways to build a strong, wide base of global engagement capabilities and attract sufficient numbers to pursue deeper study and develop expertise applicable to the many fields of endeavor required? We must design lifelong learning and even re-certification to motivate and

support people's efforts to sustain and deploy their IFL capabilities. On the business model and cost side of the equation, we must use these technologies to help us bend important cost curves for students such as study abroad access or overcome problems at the fault lines between national needs, faculty interest and institutional funding models, such as the "specialist-enrollment" problem found in key areas like less commonly taught language training.

Starting with a brief review of the panelists' focal areas, we will review some examples from current cases of IFLE collaborations across the higher education system as well as from the K-12 education system. These are illustrative, certainly in no way attempting to be comprehensive. They represent examples of how IFLE is working in web 2.0, both technologically and organizationally, showing us the way to help other colleagues and campuses across the entire higher education system move into IFLE 2.0.

IFLE collaborations in web 2.0: The panelists on languages and institutional innovations

The three panelists will provide insight into several collaborative models with different technologies and goals. Allow me to suggest how they fit within the challenges of moving into IFLE 2.0 and possibly suggesting approaches for policy 2.0, too. Two come from language studies centers and one comes from the academic support, IT function.

From Yale's Center for Language Study, we will learn of the Shared Course Initiative with Yale, Columbia and Cornell uses high quality, real classroom video conferencing to share less commonly taught language (LCTL) classes for credit. One aim of SCI is to preserve and deepen language programs and area studies communities, while addressing the issue of very low enrollments, especially at the advanced levels of LCTL's such as Romanian or Bengali. It directly confronts the basic business model problem of preserving important but precious language faculty as solo instructor LCTL programs with low enrollment that make it difficult to justify salaries in the normal university calculus. SCI's larger effects on faculty development and community building across these learning communities have been notable, as well. Its course and technology mix contrasts starkly to a MOOC. Yale has two other collaborations between the Center for Language Study and the MacMillan Center for International and Area Studies, called Directed Independent Language Study (DILS) and FIELDS. They aim to enable students to develop skills in second and even third LCTLs (DILS) or high proficiency FL skills directly related to their field of study (FIELDS), e.g. Russian and Economics. They are low tech, low cost and remarkably good at helping student produce strong proficiency gains.

From Oregon's Center for Applied Second Language Studies (CASLS), we will explore examples of two approaches to reach advanced FL levels, gaming as an intense immersion learning environment and the Flagship program approach. Both are aimed at deepening well rounded IFL learning to create higher than typical abilities. Gaming particularly aims at disrupting the normal classroom dynamic that separates language learning from the authentic culture and community. The Flagship program provides careful scaffolding of experience and courses so students can reach professional levels of language proficiency in languages deemed critical to the US government, unlike most campus language programs that typically reach much

lower proficiency levels. We also will learn more about the K-12 IFL immersion efforts and their potential impact on re-shaping the post-secondary IFL landscape.

From Wisconsin's Provost for Learning Technologies and also Academic Technologies, we will hear the institutional lessons as they provide the core technologic and staff collaborating with faculty and students' global engagement and IFL curricular efforts. Since Wisconsin is part of the Committee on Institutional Cooperation, perhaps we will hear of their wider IFL collaborations. They have hosted workshops with international colleagues on MOOCs and their direction and have a very active online agenda. They work closely with faculty to support the overall campus goals for global engagement. Based at Wisconsin, two IFLE courses both taught by Kris Olds, Professor of Geography, have been cited as exemplars. One is a collaborative MOOC (c-MOOC), mentioned above, on Globalizing Higher Education. He is explicitly using this to advance the conversation on the topic that will affect all of us in and working with higher education, engaging students and a larger public on a major international issue. He also hopes to use it as a MOOR for future curriculum or other research topics. The second is his asynchronous online course "World Regions in Global Context."[29] How might an institution use such courses to feed a larger system's needs or be part of an advanced training ladder?

IFLE collaborations in web 2.0: languages and textbooks notes

Having two of three panelist who focus on languages reflects their high profile activities with web 2.0 and supporting faculty who want to use it for teaching innovations. Language teaching and language study has an advantage with the new media and learning culture since they have been accustomed to learning modules and careful strategies for building out from foundation pieces to more complicated and robust skills and abilities. The learning object, modular approach is more familiar to them than to other disciplines in the IFLE constellations. Clearly framed learning goals and metrics are not new to them either. They also have been accustomed to, if not actually trained and active in using, objective and standardized testing and certification methods with ACTFL and the governments Inter-Agency Language Roundtable (ILR, previously known as FSI) standards. It should come as little surprise that the FL side of the IFL community seems to be pushing us into IFL v1.5 along with the professional fields while the core humanities and social sciences fields appear less often. In the current HEOA Title VI family of programs, the Language Resource Centers and the Centers for International Business Education are replete with technology and IFL examples. I commend you to their websites.

Beyond the panelist home institutions, North Carolina State University provides another example using system-wide collaborations in FL courses to provide solid introductory FL courses and also to scaffold up to literature, music, business and related cultural, social science or area studies realms. There are two collaborations of interest. First, for their nine languages, they participate in the North Carolina exchange using video conference facilities with live, usually synchronous classes. Depending on the language and the participating institutions in the NC system, NCSU students may have access to advanced FL courses plus other related humanities, social sciences or professional school course in the target language or in English on area-relevant topics. In others, they may be able to take elementary FL courses that are not provided on their home campus. Second, at NCSU's Language Teaching Center, funded with federal support, they

provide fast-paced, proficiency based FL instruction in critical languages, free for active military personnel. Their aim is clearly professional level proficiency in fairly short timeframes, not necessarily tied to semesters. In addition to their own texts and materials, the faculty curate materials and assessment instruments for their student using many sources, e.g. Arabic with the Brigham Young National Middle East Language Resource Center, and, for Russian with the Foreign Service Institute and the Defense Language Institute

In the textbook arena, it seems worth noting two examples where faculty from two Higher Education and Opportunity Act, Title VI, Center for International Business Education (CIBE) campuses have been quite active with OER publishing textbooks. Their topics would be of interest to the international studies courses and possibly also some area content courses. Professor Mason Carpenter, U. Wisconsin, has a textbook International Business: Opportunities and Challenges in a Flattening World, co-authored with Sanjyot P. Dunung, President of Atma Global. This textbook has been adapted by another university instructor for use in his/her own classes.[30] Flat World Knowledge publisher makes this adaptation process quite easy with its "Make it Your Own" platform.[31] In another textbook on Principles of Management with FWK, Mason collaborated with three other co-authors, two from Portland State University and one from Texas Tech. A UT/Austin Regents Professor Russell Cooper, while based in Florence, has co-authored a two-volume textbook Economics: Theory through Applications with an Australian colleague.[32] The final example is a Lehigh University professor, Todd Watkins, who is about to publish a textbook with FWK Micro Finance v.1.0 that has applications from many different countries and is of great interest on campus. He developed the material and the exercises for the textbook working collaboratively with his students over three years. He also founded the faculty advisory council for ACCION International, one of the largest MicroFinance organizations operating in Latin America and other regions.[33] Much like the open source code movement, he engaged his students and they helped him build and test the materials in the textbook.

IFLE collaborations in web 2.0: Study abroad alternative with dual country courses

Study abroad, exchange programming and immersion experience are a key IFLE toolset, both in educating and motivating students. Yet study abroad and exchange programs suffer from severe access limits due to individual student costs, both in cash costs and inability to leave home due to other responsibilities. Recent figures indicate that slightly more than 1% of all college students in the U.S. actually go abroad each year.[34] COIL (Collaborative Online International Learning) Center has designed and developed a robust two country online course system that provides a promising solution. Building on a joint planning effort of two SUNY system offices, Office of International Programs and the Office of Learning Environments, the idea was "to work with faculty across SUNY to develop courses that would be team taught with a partner abroad and would enroll students both for SUNY campuses and the partner institution overseas." COIL launched its first two-country course in 2006 based at the SUNY/Westchester campus. Early on, COIL developed the faculty interest and buy-in by holding workshops on campus and system-wide conferences while also raising external funds. By 2010 they had engaged staff and faculty at over 20 SUNY campuses working with over 10 countries, to provide courses that were team taught with an international partner. COIL has become SUNY's primary internationalization vector. Its growth and depth has been secured by the institution of a cohort-based grant program where new faculty apply for grants to join the Nodal Network Academy to receive training and

develop their COIL courses. They have annual COIL conferences to share lessons and strategize for future partners and programs. With an NEH grant in 2010, they created the COIL Institute to create a pilot program in the Humanities to extend the lessons and test the viability of the model with 21 US institutions and 25 overseas. Each Institute course produced a thorough case study of its successes and challenges as a basis for planning future courses and adapting the next running of the courses.[35]

On the business model dimension, over time COIL has created a fee-based revenue stream as well as continuing to attract foundation grants and internal university funds. This bodes well for long-term sustainability. On the teaching-learning dimension, the teaching is close to a traditional team-taught course and the technology helps develop more interactive and collaborative formats for the students and the faculty. Unlike MOOC's, it focuses on deepening the curriculum with IFL in a cooperative mode at the curricular base of the higher education system, course by course, with faculty leadership and buy-in. By using a "race for the top" annual competition to participate, rather than a top down recruitment approach, they tap into academic desire to be on the cutting edge and be recognized for it. For students, the case studies from the Institute's 20 dual-country courses show a deep cross cultural learning as well as strong results in the substantive material of each course. In terms of scaffolding to produce deeper IFL engagement and expertise, some students have decided to find ways to go for a term to study at the course partner campus overseas. Most courses were conducted in English so the attrition rate was higher in the partner campuses but overall their faculty were pleased with the outcomes.[36]

Hans de Wit, a respected observer and student of internationalization, found that COIL came close to meeting the goal of "internationalization at home", enabling students who cannot leave their locale to add a deep IFL dimension to their learning. He indicated that COIL succeeded in achieving what the Europeans call "virtual mobility" in four dimensions in that: "…it is a collaborative exercise of teachers and students; it makes use of online technology and interaction; it has potential international dimensions; and it is integrated into the learning process."[37] Importantly for sustainability and the business model, it also is embedded in the institutional fabric of curriculum, credit, faculty incentives and learning technologies.

IFLE collaborations in web 2.0: Professional schools and STEM fields

As the professional fields of study such as medicine, public health, environmental studies among others take advantage of web 2.0 access to the world, their faculty and students conduct field projects, research and classes anywhere their target populations reside. With English being so widely used, the value of IFLE resources may be missed or considered an extra, nice but not necessary or worth budgeting. Yet if IFL expertise lies in "doing" and "leading" these could be crucial arenas. The business examples will be discussed elsewhere at the conference. Other examples are likely from project-based IFLE "add-ons" such as an online language tutorial for medical residents working abroad or other more comprehensive project supports. Allow one other sectoral example here from Yale's Environmental Leadership Training Institute (ELTI). It is still early to know if and how this program might be scalable to larger groups to take advantage of the marginal cost advantage of online work. Still, their initial online results suggest that practitioners in the field actually achieve somewhat better results because they are able to

engage the material around their own interests and at their own pace, repeat and reviewing as needed. It also suggests options for graduate training and lifelong learning possibilities for IFLE 2.0. It may be of interest that the web-training coordinator, responsible for leading the online program, was a dual major Spanish-Environmental Studies. She provide a sample case of someone who has moved through all three IFLE levels – knowing, doing and now leading a bilingual, international online training program[38].

ELTI was created in 2006 as a partnership between Yale and the Smithsonian Institution with support from a foundation and partner resources. Their aim is to help shrink the leadership gap enhancing environmental leadership and management capacity, mostly in SE Asia and Latin America through training workshops and conferences for mid-level decision makers in NGO's, governments and businesses with responsibility or authority for natural resources. ELTI's second activity is leadership training for practical, field-based support of environmental efforts. ELTI works with peer networks and alumni, among others in the target areas. In developing the programs, they engage faculty and graduate students and feed real-world issues into the grad training as well as faculty research efforts. In 2011, they began planning an online version of the leadership program, initially proposed to run in English but actually launched in Spanish in 2013. Yale's academic support platforms made the technology possible. Their first program ran in spring 2013 and they are about to run the second in spring 2014 and they hope to expand to provide a Portuguese version for Brazil. In Spanish and Portuguese versions, ELTI uses all open content resources. In English, there are more copyrighted materials so a bit less flexibility for the participants' continuing uses. Under faculty leaderships, the staffing includes: the web-based training coordinator; one native speaker graduate student teaching assistant (TA) for day-to-day running of the program, exercises, discussion groups; a PhD student for expert review of submissions; and expert guests for specific presentations. They can serve 25-40 participants, potentially creating a second course with a second TA, PhD team. They plan to create a certificate program online with a total of six courses available.[39]

IFLE collaborations in web 2.0: K-12 and university outreach

The K-12 pipeline of IFL capabilities coming into higher education has the potential to re-shape IFLE on university campuses. One school district in Glastonbury, Connecticut has built such a strong FL program that the University of Connecticut shifted its curriculum in those languages to accommodate students with high entry skills. Others are taking advantage of the federal StarTalk FL program, HEOA Title VI outreach programming and private sources to strengthen their teacher training and professional development in IFL subjects, especially FL, for pre- and in-service teacher. On good example is The National Consortium for the Teaching of Asia (NCTA). Founded in 1998 with support from the Freeman Foundation, it is a collaboration of the Area Studies programs of seven universities[40] that serve as the coordinating sites for in-service teacher training in all fifty states. With this nodal network organization, it was well situated to consider online tools. Since 2004, they have shifted gradually to online-only and blended format programming. The varied length and topical focus allowed by the online format suited the varied needs of very busy teachers. Success has come to depend much more on the individual client than when the format was entirely in person with close feedback from presenter and workshop coordinators.

Comparing IFL to STEM outreach, three observations from the NCTA conversations provided useful lessons for future IFL outreach: first, STEM aims to motivate future scientists, working with both teachers and directly with students; second, they use strong pedagogy both online and in person; and third, the higher education and school models are closely aligned. This made shared learning goals easier to define between college and K-12 than in the IFL outreach arena. Neither the area studies nor the FL model of college level was seen to align well with K-12 IFL where the needs tend to be around broader themes and more pedagogy. When compared to private and textbook providers of IFL materials, there was a strong sense that NCTA was much more serious and appropriate partly because there was not a long lag between world events. Some of the NCTA trainers and staff have tapped into MOOCs and other major OER providers with good results. There was also a sense that the NCTA and other sources of early exposure to Asia led to students to consider and go to teach English in China or Japan, a group that seems to be a large feeder into Masters in East Asian Studies programs.[41] Perhaps the pipeline to expertise is very long and narrow, more of a hose than a pipeline?

IFLE collaborations in web 2.0: Certification and Badges

Assessment and certification are core responsibilities and tools of educators. Web 2.0 provides metrics in new ways to learners and teachers. Online courses provide teachers with metrics of students usage of materials and much more detailed insight into their learning needs than traditional quiz or testing materials can. The textbook companies are creating certificate mechanisms for benchmarking accomplishments during a course or over a set of courses. MOOC providers are initiating certificates of completion or accomplishment. Open Badges and the Open Badge Backpack are the web 2.0 parallel of certificates and portfolios on an open source platform. They merit consideration as a toolset for IFLE 2.0, possibly providing strong links for Policy 2.0. Begun by Mozilla, the provider of the open content FireFox browser, in collaboration with the MacArthur Foundation and HASTAC, it has a broad community of 700 plus contributors including NASA, the Smithsonian and Intel.[42]

With the profusion of learning spaces, lifelong learning and the need to credential this disintermediated learning, the open badge platform is an attempt to meet the challenge of providing reliable, standards-based credentials that can be shared across various online spaces. Badges can provide a way to describe your pathway to proficiency and they can provide more detail than a resume entry. The badge issuer, be it a museum or a business or a school, makes clear what the criteria for accomplishment are and what the badge represents and certifies its authenticity. An interested party can review the details and contact the issuer for more details of what the badge represents.[43]

Purdue University, the Asia Society and University of Texas Center for Open Education Resources and Language Learning (COERLL), an HEOA T6 LRC, are examples of open badge users. The COERLL has announced a 3-part series for language teachers to learn how to use (and avoid mis-uses) of open badging. It builds on earlier programs using ACTFL badges initiatives. COERLL describes the uses of Badges comprehensively:

"Badges are often seen as a way to recognize learning, represent skills, and demonstrate accomplishments. Furthermore, digital badges can also be a mechanism for motivating participation and collaboration by increasing the potential for recognition and enhancing one's identity and reputation. One of the most interesting applications of badges, however, is the potential to utilize them as a system of alternative credentialing and as competency-based signals of achievement."[44]

An example from the K-12 community of IFLE, the Asia Society offers "Pathways to Global Competence: A Badge System for Students." The goal is to motivate and help students understand their progress in four areas such as investigating the world and communicating ideas tying their school programs and pedagogy to the four areas of student capability. They began in 2012 and were piloting the system with a few schools in 2013, training teachers and adjusting the requirements and assessment methods. They expected to roll it out to 35 schools in spring 2014. They received one of four awards in the Digital Media + Learning Competition 4, run by HASTAC, the MacArthur Foundation, Mozilla and the Gates Foundation.[45]

Purdue University has created a new classroom app that "allows instructors and advisers to give students digital badges to indicate mastery of skills." In 2012, there were seven badges fully operational and the platform consisted of two parts. "Passport" provides faculty with the templates to design the challenges and steps for students to achieve the badge and produce the graphics for it. One of the badge's main uses is within classes as an adjunct that allows students to judge their actual competence gain and progress to goal in addition to the traditional quizzes, papers and tests that compare across students. "Passport Profile" is the student portfolio to display the badges they have earned. Both use the Mozilla backpack. One of the badges in 2012 was focused on IFLE, called PUPIL for Purdue University Passport to Intercultural Learning. The detailed criteria drew on Purdue's core curriculum, national standards and research resources. The final badge is awarded when a student completes 6 challenges (Intercultural Openness, Intercultural Curiosity, Cultural Self-Awareness, Cultural Worldview, Intercultural Empathy, and Intercultural Communication) and a seventh activity as a capstone review and reflection exercise. Since this program was in beta phase, they were seeking 200 instructors and 10,000 students to create and test the various effects and uses of the badges. One of the lessons for web 2.0 education is to specify goals and outcomes clearly and structure learning content in linked modules that support the goals. The Purdue and other IFLE badge platforms have provided a way to begin breaking down regular classes into goal and competence focused modules. This may also smooth the path into online learning methods over time.[46]

National policy possibilities: Moving to IFLE 2.0 with Policy 2.0

IFLE in higher education is an aquifer and irrigation system, feeding and refreshing IFL content to nurture many different fields of study to produce global citizens, experts and expertise. Web 2.0 provides the opportunity for a radically new and efficient upgrade to IFLE 2.0. To succeed in strengthening IFLE to v2.0 will require national architecture, both institutional and technologic. To maintain and refresh the core of IFLE, the national channels would need to work in both directions, channeling fresh melt water back into the higher education IFLE aquifer, not just

drawing it down. A strong sub-system of booster stations would help to gather and strengthen the IFL core and innovative content, ensuring delivery in tailored strengths and packets for specific students and educational needs.

Government and private sector can partner with higher education to structure the upgrade and provide the incentives along with key venture capital to support IFLE v2.0 innovation and nurture it into sustainability. Policy can focus on three areas: first, national architecture to support the entire higher education system and align it with national interests; second, help to build system capacity through nodal networks with start-up and challenge grants as well as providing creative solutions to the "specialist-enrollment" problem. Additional support might flow from these two major steps in terms of building particularly important foundation modules for IFLE curriculum or graduate training needs across the IFLE 2.0 networks.

Linking IFLE to national needs: National architecture

It is time to apply big data capability and goal-focused, strategic metrics to federal policy related to IFLE. One of the longstanding federal policy goals has been to have a ready pool of IFL expertise to meet national employment needs but the signaling mechanisms have not worked. Policy 2.0 could support two national platforms that would apply the power of web 2.0 and provide robust two-way signals. The first would be a National IFL Skills Portfolio service so any citizen could have a publicly accessible IFL skills portfolio to maintain over their life -- Linked-In for the IFL set! Employers could use this to identify both individual candidates and also track trends and gaps or even provide incentives for targeted skills. The second would be a national IFLE benchmark system to track trends in IFL educational outcomes and resources. The third is not a platform or a particularly technologic option but a funding stream direct to students who pursue IFLE. It would be a "distance travelled" fellowship fund with awards made through national, possibly state level, competitions for students who have serious IFLE plans that will advance their capabilities, either starting or moving to higher levels of IFL expertise. Let me describe the first two in a bit more detail.

National architecture: A national IFL skills portfolio.

An e-portfolio as illustrated in Figure 3 would enable an individual to track their progress on a range of IFLE goals and their skills and capacities from global competence through expertise. It would combine two portfolios. A FL portfolio would include rigorous proficiency ratings from their lifetime learning, perhaps using an existing platform like LinguaFolio. A global competence portfolio, perhaps called *GlobaFolio*, would include information on degrees, work/volunteer experience and other prizes, honors or informal certifications. The National IFL Portfolio would provide guidance, criteria and standards as well as an easily updated self-reporting process with appropriate vetting and validation. The standards might be set at the three levels of global competence discussed by Hawawini earlier, i.e., know, do, lead. With clear core definitions and scaffolding structure, it could also provide and shift incentives to meet changing policy or

Figure 3. National IFL Portfolio
1. **Linguafolio (K-16+)**   FL new, lifelong re-certification,   ACTFL and ILR testing   2. **"GlobaFolio" (8-16+)**   degrees, experience for IFL levels   (know, do, lead)

employer needs, e.g. free ACTFL or ILR testing for languages deemed critical to the national interest. An employer could provide incentives or hiring preferences for particular IFL priorities. There would need to be an overseeing board of IFL experts, citizens, academics and key sectoral leaders to set and oversee the standards and direction of the service. There would need to be a managing entity, perhaps an agency-contractor like IIE, AED, ACE, AIEA, etc. and a university such as Purdue with its badge initiative or a private sector entity like Linked-In/IFL. The platform might be an Open Content site like Mozilla's badge backpack.

National architecture: IFLE benchmarking system

If we measure what matters, national IFL course offerings/enrollment or IFL degree and graduation trends do *not* matter. Both IFLE 2.0 and Policy 2.0 require better data and metrics to understand the underlying trends in IFLE strength and outcomes as well as their policy implications.[47] In the era of big data and emphasis on metrics and outcomes, this is a very serious gap in the national tool kit for IFLE policy makers and educators alike. It would be a substantial project, but well within current technological capabilities, to establish a national reporting platform where course and degree providers would upload their data. National recognition of accomplishment in major categories could convert this from a chore into a valued activity, incentivizing participation. Transparent data could enable campuses or programs to benchmark themselves or a group against others, identifying gaps and strengths. Some of the key IFL indicators to consider tracking might include:
- FL courses by level (intro/interm and advanced+)
- Other IFL focused courses by content density by major groups, e.g. Humanities, Social Sciences, Professional fields, Interdisciplinary
- STEM courses with IFL content and field projects
- IFL federal hall of fame: federal prize/fellowship holders, e.g. HEOA T6 Foreign Language and Area Studies, Fulbright-Hayes Doctoral Dissertation Abroad, Fulbright Fellowships, NSEP, and others from State, Commerce, etc.
- IFL PhD registry, modeled on the NSF doctoral registry for STEM fields with regular surveys over their careers to track their progress and availability

Building IFLE 2.0 institutional capacity for innovation and sustainability

Policy 2.0 needs to set clear strategic challenges and tailor funding to optimize the higher education system response to IFLE 2.0 and other national challenges. It needs to enable campuses and systems and consortia and associations to develop nodal networks that take full advantage of web 2.0 technology and organizational capacity to compete and collaborate in building IFLE 2.0, with its potential to provide both quality and access to much greater numbers of students. From the cases above, IFLE 2.0 is most likely to take hold and thrive in nodal, network structures where external and internal funds support innovations that faculty and institutional leaders value. With the possible exception of COIL, most of these innovators are heavily dependent on foundation and other external sources. They rely on external funds to help circumvent the test of the internal university market until they are ready to compete for fiercely contested budget resources. Web 2.0, with its wizardry in identifying and aggregating sources of interest in very specialized topics, also may provide new ways to address the longstanding "specialist-enrollment" problem. Sketched below is a Policy 2.0 avenue for applying this to the

less commonly taught language perennial problem of insufficient enrollments to support an instructor who provides courses in a language deemed critical by the federal government and very important to a community of scholars and students on campus.

Building IFLE 2.0 capacity: Nodal networks start-up and challenge grants
If the promise of IFLE 2.0 is to be realized, Policy 2.0 must support those colleges and faculty who are willing to be the risk takers and early adopters and help them develop sustainable IFLE 2.0 models. Two funding windows could be used : first, a start-up window to nurture new entrants that wish to develop IFEL2.0 network capacity; and, second, a challenge grant window for the more established IFLE2.0 networks. For the new entrants, start-up grants would help them build the nodal networks of partners as they build trust and institutional capacity for IFLE 2.0 programming. These start-up grants would emphasize turnkey operation, shifting from grant to in-house funding. Successful start-up along with more established nodal networks with IFLE2.0 capacity, would compete for national challenge grants. These major competitions would challenge the different nodal networks to develop programs that would address issues of strategic or national importance. Ideally, these nodal networks with Policy 2.0 funding would be developing IFLE 2.0 modules that would help meet the foundation course needs robustly across the entire higher education, if not also the K-12, IFLE system.

These IFLE 2.0 nodal networks, with support of Policy 2.0, could harness faculty talent and support learners from various institutions in the network or beyond rather than building an effort within a single institution that struggles to keep enough faculty expertise and enough students enrolled in their courses to sustain it within normal institutional business models. For example, they might develop MOOC's or MOOR's, to use Kris Olds' idea, to support high quality interdisciplinary introductory courses or course sequences on African Studies, Middle East Studies or topically focused courses such as Global Economic Development or National Security. A recent actual example comes from the Committee on International Cooperation, a consortium of mostly Midwestern universities, recently announced a major Islamic Studies initiative anchored at the University of Michigan. Over three years, they plan to create an Islamic Studies Virtual Curriculum (ISVC) drawing on the infrastructure, courses and faculty across the 15 member institutions. This takes advantage of the powerful online teaching technology as well as the institutional cooperation built up over the years. The consortium will be able to provide a steadier stream of robust courses in more fields more consistently than would be possible at any single institution.[48] It also should provide a better scaffolding of offerings for undergrad through graduate, possibly also professional fields, again something that would not be possible on a single campus where upper level enrollments would likely be too low to justify the courses.

Building IFLE 2.0 capacity: Addressing the "specialist-enrollment" problem

The advanced course problem is common across academia, i.e., a person or professor with a rare, precious specialist knowledge is available to teach but there is insufficient enrollment to justify the course much less a full position. To create enrollments for a fundable class or an entire curriculum, Web 2.0 technology, social media and the like, can help identify and aggregate interest across the world and the higher education system, particularly tapping the upper level and graduate students available through the closest IFLE nodal networks. For IFLE and the

federal programs, the critical languages are the site of this problem. The federal government annually lists some 100-130 less commonly taught languages (LCTL's) as critical to some part of the US government. While many faculty in the humanities and social sciences value having LCTL language faculty, often as the sole instructor, as part of their curriculum and community, the enrollments tend to be so low as to present a constant struggle to justify at budget time. Making clear how the government's "critical list" translates into employment or value for students pursuing these languages would be a major boost for attracting students. The vagaries of enrollments, especially undergraduates, often dictate survival of the LCTL program unless federal funds support the post.

 Campuses have sought various solutions. Yale's SCI provides one model. Policy 2.0 might create a "loan guarantee" program for IFLE 2.0 nodal network members that want to include LCTL's and critical languages in their programming. The federal government would guarantee some proportion or level of salary support for the key LCTL faculty on medium to long term basis. The host institution(s) would provide core support and technologic online course capacity to maximize learner access. If enrollments in person and online dipped for understandable but uncontrollable reasons, the federal guarantee would cover the costs of the post for a given time period, after which it would be reinstated on the host university budget or moved to another IFLE 2.0 network home. This has obvious benefits for the instructor, the host site, the students who want regular course offerings of high quality. The number of positions and languages might be determined through a collaborative process within the major area studies and language associations, in consultation with estimates of national need from government and other potential employers. The LCTL teachers across campuses might have special access, as the NCSU military program does, to ILR or DLI assessment tools and develop joint materials development and repository building efforts. Being based on all types of campuses, these LCTL faculty could help tap diverse communities of heritage speakers to link diversity and IFLE efforts on campus.

Conclusion

This is a time of great challenge and opportunity for the U.S. higher education system, both academically and economically. Web 2.0 is producing massive changes in the knowledge infrastructure, the learning culture and the new meanings of global and local. The IFLE community is responding as seen in the illustrative cases of shared courses and platforms, OA journals and textbooks, and online outreach though nested hubs of schools clustered around major universities.   IFLE needs to pursue global competence and expertise, providing the scaffolding to ensure pathways to expertise as it builds an ever deeper and stronger foundation in global citizenship. The new business model, with technology creating near zero marginal costs in key areas, is most productive at bending the cost curves at the foundation levels where large numbers of students are clustered. As the target groups shrink with advanced skills and expertise becomes more specialized, as in the case of rare languages, the web 2.0 capacity to discover and aggregate demand at near zero cost also holds promise for solving an increasingly vexing problem on campus.

Federal policy can help higher education transition to this new business model by adopting web 2.0 tools, both technologic and organizational, especially focused on structuring incentives

around strategic priorities and universities' strengths of creativity, community and flexibility. Policy 2.0 needs to support the development of national platforms in three key areas: first, linking IFLE graduates and lifelong IFL skills with the job market; second, providing benchmarks of success in IFLE resources and outcomes; and third, ensuring regulatory frameworks support OER/OA, especially in government funded research and through international organizations. Policy 2.0 needs to identify clear strategic challenges and tailor funding to enable universities to compete and collaborate to provide the best approaches. In web 2.0, that means supporting nodal networks and multiple hubs of expertise on key issues, world areas, languages or different IFLE combinations. Policy 2.0 must support innovation and related research on outcomes with a set of tiered funding windows, perhaps taking lessons from development banks or venture capitalists. One window would support program development, encouraging new partnerships of institutions to develop cooperative mechanisms, both technologic and organizational, in order to pursue a longer term IFLE 2.0 program. Another would provide challenge grants, likely with matching requirements, with an emphasis on turnkey operation from grant to in-house support.   Policy 2.0 would also provide various IFLE targeted fellowships or loans on a "distance travelled" model that would encourage students at all levels of IFLE capability (know, do, lead) and retain their IFL skills with recertification or language assessment support. And the policy 2.0 recommendations comes full circle as students with IFLE fellowships use the national portfolio system to link their education and experience with internships, employers and fellow travelers.

END NOTES

[1] Pantò E., Comas-Quinn, A. (2013). The Challenge of Open Education. *Journal of e-Learning and Knowledge Society*, v.9, n.1, pp. 12-22. This is the first place (p. 13) that I saw the term "prosumer" and this section draws heavily on their excellent presentation.

[2] Raymond, Eric S. (2001) *The Cathedral and the Bazaar*, p. 15-16.

[3] Kamusi GOLD: Global Online Living Dictionary, see http://kamusi.org/. Viewed 5 April, 2014. This online dictionary grew out of the Kiswahili Online dictionary project housed and incubated at the African Studies Council of Yale University.

[4] Raymond, Eric S. (2001) *The Cathedral and the Bazaar*, p. xi; Also Wikipedia, http://en.wikipedia.org/wiki/Red_Hat, viewed on 26 March, 2014.

[5] Wiley, David. Iterating toward openness – pragmatism over zeal – aut inveniam wiam aut faciam. Retrieved from http://opencontent.org/blog, viewed March 14, 2014.

[6] Wikipedia, http://en.wikipedia.org/wiki/CreativeCommons. Viewed 25 March, 2014

[7] http://CreativeCommons.org/about/history. Viewed 26 March, 2014.

[8] Connexions Rice University, graphic retrieved from http://cnx.org/aboutus/. Viewed 29 March, 2014.

[9] Watters, Audrey. (2012, December 18). Top Ed-tech Trends 2012: MOOC's, Part 5 of My Top Ed-Tech Series for 2012. Retrieved from http://www.insidehighered.com/blogs/hack-higher-education/top-ed-tech-trends-2012-moocs#sthash.DdSNXXds.dpbs

[10] Pantò and Comas-Quinn, ibid., p.17 citing Chrestensen C.M., Horn M.B, Johnson C.W. (2008) Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns, New York, McGraw-Hill. MIT's Open Course Ware initiative has approximately 4,000 courses available.

[11] Watters, Audrey, ibid.

[12] Miyagawa, Shigeru. (2013). Open Education at Massachusetts Institute of Technology (MIT), the United States. Interview with Shigeru Miyagawa, Chair of the MIT OpenCourseWare Faculty Advisory Committee, Professor of Japanese Language and Culture and the Head of Foreign Language and Literature at Massachusetts Institute of Technology (MIT), the United States. Interview conducted by: Nadia Mireles, General Dean, Office of Internalization, University of Guadalajara, Mexico. Retrieved from http:/www.ocwconsortium.org. Viewed 3 March, 2014. I have heard rough estimates of MOOC set-up being roughly $30,000 each.

[13] Miyagawa interview, ibid.

[14] Olds, Kris and Robertson, Susan L. Globalizing Higher Education and Research for the 'Knowledge Economy'. Retrieved from https://class.coursera.org/globalhighered-001/wiki/week1. Viewed 18 March, 2014.

[15] Carlson, Scott. (2014, February 3) Accounting for Success: Brenau U., a women's college in Georgia is running million dollar surpluses. Here's how. Retrieved from https://chronicle.com/article/Accounting-for-Success/144351/. Viewed 3 February, 2014.

[16] Winske, Chrissy. Building Blended Learning: North Carolina State University relies on its LMS and lecture capture for online and traditional classes. Retrieved from www.higheredtechdecisions.com/article/building_a_blended_learning_environment_at_ncsu. Viewed 3 March, 2014.

[17] Kim, Joshua. (2014, March 12) Why the Academic Library Should Lead Academic Change. Retrieved from http://www.insidehighered.com/blogs/technology-and-learning/why-academic-library-should-lead-higher-ed-change#sthash.hmAqPoK1.dpbs. Viewed 12 March, 2014. Also conversations with Yale Librarians, especially Ellen Hammond, both in preparation for this panel and other times.

[18] The JSTOR website, http://about.jstor.org/10Things. Viewed on 24 March, 2014. Note that JSTOR is now one of three main branches of Ithaka, a non-profit led by William G. Bowen, former President of Princeton, who also was instrumental in creating JSTOR.

[19] Lessig, Lawrence. Aaron's Laws - Law and Justice in a Digital Age. Harvard Law School, published on February 20, 2013. Retrieved from https://www.youtube.com/watch?v=9HAw1i4gOU4#t=44m39.

[20] Legal Information Institute website, http://www.law.cornell.edu/lii/about/who_we_are. Viewed 30 March, 2014. The rapporteur for the panel is in the LII leadership. They have worked overseas, e.g. in African countries to help provide online, open sources for law.

[21] Woodthorpe, John; Shaw, Jill; Hauck, Mirjam and Beaven, Tita (2009). What's in it for me? The stick and the carrot as tools for developing academic communities. In: 7th International Conference on Education and Information Systems, Technologies and Applications: EISTA 2009, 10-13 July 2009, Orlando, Florida, USA. Retrieved from http://www.iiis.org/CDs2008/CD2009SCI/EISTA2009/PapersPdf/E605HV.pdf.

[22] Connexions at Rice University. Retrieved from http://cnx.org/aboutus/. For Open Stax College, see http://cnx.org/lenses/OpenStaxCollege/endorsements. Viewed 27 March, 2014.

[23] Flat World Knowledge.com http://catalog.flatworldknowledge.com/. Viewed various times in March, 2014. The website provided a draft partnership agreement with campuses that license FWK textbooks.

[24] Joyner, April. (2013) Start-up Case Study: Flat World Knowledge. Retrieved from http://www.inc.com/magazine/201302/april-joyner/case-study-iffy-business-models.html. Viewed 23 March, 2014. The commentary on the longer term development of FWK was provided by Victor Vuchic, Program officer in education, William and Flora Hewlett Foundation and also Steve Piersanti, President, Berrett-Koehler Publishers.

[25] Ruther, Nancy. (2002) Barely There, Powerfully Present: Thirty Years of US Policy on International Higher Education. New York: Routledge Press.

[26] Commission on the Humanities and Social Sciences, "The Heart of the Matter", American Academy of Arts and Sciences (Cambridge, Massachusetts: 2013). Retrieved from http://amacad.org.

[27] Olds, Kris and Robertson, Susan L. Globalizing Higher Education and Research for the 'Knowledge Economy'. Retrieved from https://class.coursera.org/globalhighered-001/wiki/week1. Viewed 18 March, 2014. Ms. Green and Dean Hawawini were interviewed by Prof. Olds, asking for his definition of global competence.

[28] The number of critical languages for the US government hovers around 100 in any given year. The Department of Education listed 78 priority languages in its competition for HEOA T6 NRC/FLAS awards for 2010-2014. As an example, see "National Resource Centers and Foreign Language and Area Studies Fellowships Programs, *CFDA 84.015A&B,* Competition Highlights." The call for proposals indicated that:" In accordance with section 601(c) of the HEA, 20 U.S.C. 1121(c), the Secretary has consulted with and received recommendations regarding national need for expertise in foreign languages and world regions from the head officials of a wide range of Federal agencies. www.ed.gov/about/offices/list/ope/policy.html; www.ed.gov/programs/iegpsnrc/legislation.html; www.ed.gov/programs/iegpsflasf/legislation.html. Also included on these Web sites are the specific recommendations the Secretary received from Federal agencies."

[29] Conversation with Kris Olds on 16 February, 2014. For his MOOC, see his website: http://krisolds.wordpress.com/. See also for Geography 340 "World Regions in Global context" at http://worldregions.wordpress.com/about/.

[30]Flat World Knowledge catalog of textbooks. Retreived from http://catalog.flatworldknowledge.com/catalog/editions/carpenteribus-international-business-opportunities-and-challenges-in-a-flattening-world-1-0. Viewed 11 March, 2014. The adapted version's author is not available on the website but it is used as an example of how the material can be re-used and adapted for another course.

[31] Such adaptation of textbooks is not uncommon in STEM courses, per conversations with students in those fields. While they may be assigned specific chapters and able to buy just those in a single binding, they also are paying regular textbook prices, slightly lower due to fewer total components of the full text. The FWK founders came from the private textbook publishers. Their innovation is the open source model and scaled prices, starting very low.

[32] Retrieved from http://catalog.flatworldknowledge.com/catalog/editions/cooperecon-economics-theory-through-applications-1-0. Viewed 11 March, 2014

[33] Retrieved from http://catalog.flatworldknowledge.com/catalog/editions/watkins-microfinance-1-0. Viewed 11 March, 2014.

[34] American Council on Education. Bringing the World into the Classroom: ACE Award to Recognize the Innovative Use of Technology to Promote Internationalization. Retrieved from http://www.acenet.edu/news-room/Documents/BringTheWorldFinal.pdf. Viewed 7 March, 2014.

[35] Guth, Sarah. The COIL Institute Globally Networked Learning in the Humanities: Final Report, September 30, 2013. www.suny.edu/global.coil. Viewed 7 March, 2014

[36] Center for Collaborative Online International Learning, SUNY Global Center. "Brief History". Retrieved from http://coil.suny.edu/page-brief-hstory-suny-coil-center. Viewed 5 February, 2014. See also Guth, Sara (op.cit.)

[37] DeWit, Hans. COIL – Virtual Mobility without commercialization. *University World News*, Issue No:274, 1 June, 2013. Retrieved from http://www.universityworldnews.com/article.php?story=20130528175741647#.UxqhprNWl8I.email. Viewed 19 March, 2014.

[38] Bloomfield, Gillian, Web-based training coordinator. Environmental Leadership Training Institute, School of Forestry and Environmental Studies, Yale University, New Haven, CT. Interview on 3 April, 2014. For details of the programs please see https://environment.yale.edu/elti/en/, viewed February-March 2014.

[39] Bloomfield, Gillian, Web-based training coordinator. Environmental Leadership Training Institute, School of Forestry and Environmental Studies, Yale University, New Haven, CT. Interview on 3 April, 2014. For details of the programs please see https://environment.yale.edu/elti/en/, viewed February-March 2014.

[40] NCTA coordinating sites in 2014 included: Columbia University, Five College Center for East Asian Studies at Smith College, Indiana University, the University of Colorado, the University of Pittsburgh, the University of Southern California, and the University of Washington. Many of these were also HEOA T6 NRC grantees with an outreach mandate.

[41] Various conversations with East Asianists and NCTA staff in Jan-March 2014. For the home website, see http://www.nctasia.org/about/index.html

[42] Brandon, Bill. Open Badges: Portable Credentials for Learning, *Learning Solutions Magazine*, January 28, 2013. Retrieved from http://www.learningsolutionsmag.com/articles/1094/open-badges-portable-credentials-for-learning Viewed 5 February, 2014.

[43] Brandon, Bill. Open Badges: Portable Credentials for Learning, *Learning Solutions Magazine*, January 28, 2013. Retrieved from http://www.learningsolutionsmag.com/articles/1094/open-badges-portable-credentials-for-learning Viewed 5 February, 2014; For more on the Mozilla program, see http://openbadges.org/issue/ viewed February 5, 2014. This page also provides access to a list of all of the organizations issuing badges NOAA, NY City, Seton Hall University.

[44]University of Texas Center for Open Education Resources and Language Learning. June Webinar Series announcement for June 2014. Retrieved from http://www.coerll.utexas.edu/coerll/event/june-webinar-series-designing-badge-systems-foreign-language-education. Viewed March, 2014.

[45] HASTAC, Project Q&A: Pathways to Global Competence. Retrieved from http://asiasociety.org/education/partnership-global-learning/making-case/global-competence-prepare-youth-engage-world. Viewed 19 March, 2014.

[46] "Digital badges show students' skills along with degree". (Purdue University, Purdue News, West Lafayette, IN) September 11, 2012. Viewed 5 February, 2014.

[47] It is the writer's understanding that, roughly, up until 2012, the MLA had a grant to gather the IFL course and enrollment data but that grant was cut and no replacement was found. The Title VI funded campuses provide such data but they represent a small set of the total offerings and there is no feedback or comparison of the overall trend even within this small national group.

[48] Committee on International Cooperation website, "Mellon Awards CIC/UM Islamic Studies Virtual Curriculum $3 Million Grant". Jan 27, 2014. Retrieved from https://www.cic.net/news-and-publications/news/2014/01/27/mellon-awards-cic-um-islamic-studies-virtual-curriculum-$3-million-grant. Viewed 3 April, 2014**.**