What Makes an Open Education Program Sustainable?
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Introduction

Over the last three years or so, Open Education Programs (OEPs) have exploded in popularity. At the present time, OEPs take many different forms. Some universities are implementing OEPs that provide open access to educational content such as courses generated by their faculty, scholars, and students. *MIT's OpenCourseWare* is perhaps the prototypical example of this type of OEP. Others such as the Sakai project, are concerned with providing an open software platform to facilitate collaborative and learning environments for higher education. Still others such as the *SEP* (*Stanford Encyclopedia of Philosophy*) provide open access to content that is contributed by faculty from many universities but within a single discipline. Finally some like the *Connexions project* at *Rice University* (*cnx.rice.edu*), provide broad-based content commons of free, interconnected educational materials in a modular format along with an open software platform, that can be made available by anyone globally, and reused and re-contextualized by others.

Despite this diversity, one common and critical issue that all OEPs face at present is the challenge of ensuring **sustainability**, which is defined here as <u>the long-term stability and viability of the open education program</u>. The sustainability challenge arises due to at least two reasons. First, traditional revenue models that are employed in other educational settings to earn revenue from knowledge dissemination (e.g., fees, book sales, subscriptions, etc.) don't apply here. In most cases, the OEP's intellectual properties such as the content and/or the software platform are "open" in the sense that they are available to users without a charge. Users can download, consume (and in some cases, modify) the content freely. Second and perhaps less explicitly acknowledged is the fact that in this early "explosive growth" phase of the OEP life cycle, there are simply too many OEPs being seeded that will compete for the scarce resources available from philanthropic institutions, universities, governmental and non-governmental agencies, in the long run. In this context, it is noteworthy that many OEPs tend to focus on their technical and educational goals and accomplishments, without paying adequate attention to the sustainability question.

The objective of this short paper is to address this overlooked yet crucial question, and consider issues of OEP sustainability. In particular, using principles derived from marketing theory and sociology, and relying upon accumulating evidence and successful business case studies, I present a model of OEP sustainability that seeks to address the two challenges described above. Given length restrictions for this short paper, the main components of the sustainability model are introduced briefly in this version. These concepts will be developed in greater detail in a future expanded version of the paper.

A Model of sustainability for Open Education Programs

When the question of long-term stability and viability of OEPs is considered, at the first blush, the crucial issue appears to be: how to acquire an ongoing adequate stream of financial resources in the future to keep the project running. Indeed, most

discussions of OEP sustainability frame the discussion in this way. From a business-model perspective too, the revenue model (how the project will earn revenue to maintain its ongoing activities) is certainly important (Magretta, 2002). However, my thesis in the present paper is that prior to considering different revenue models for a particular OEP and choosing one or a combination of them, *it behooves the OEP's organizers to consider and focus on the issue of increasing the aggregate value of the site to its constituents to the greatest extent possible*. In other words, unless the OEP site is able to gain and maintain a critical mass of active, engaged users, and provide substantial and differentiated value to them in its start-up and growth phases, none of the available revenue models are likely to work for the OEP in the long run. As a result, an important first step is to gain a deep understanding of who the site's users are (and should be), and what constitutes value for them.

I use the example of the Connexions project at Rice University (cnx.rice.edu) to discuss the drivers of value to its users. Figure 1 provides a graphical overview.

Figure 1. *Connexions Sustainability Model*
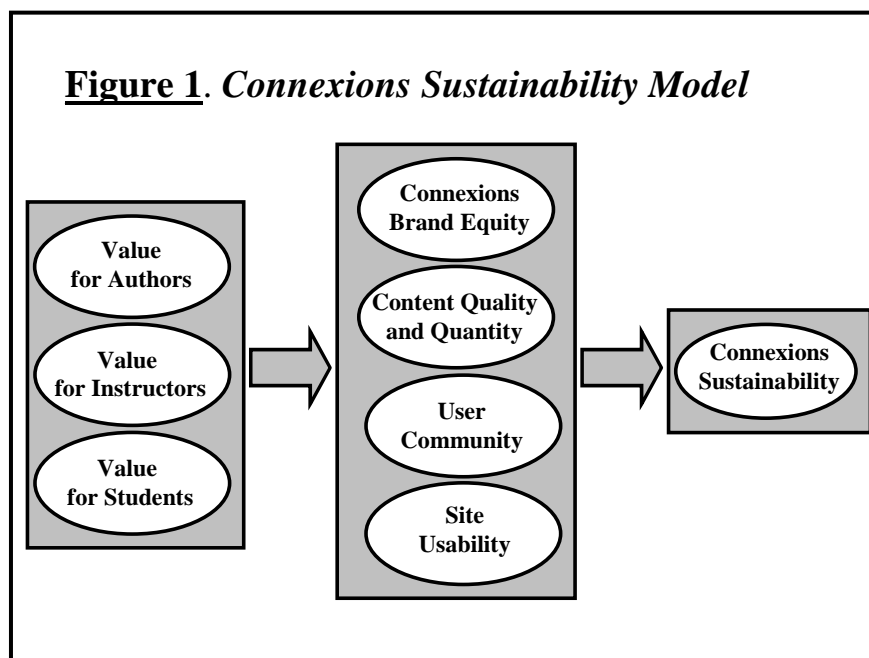
The Connexions site has three distinct user groups: (1) *authors*, who create original educational content and make it available in the open commons, (2) *instructors*, who cull available content from different authors and compile or otherwise manipulate it, to create instructional materials for use in their classes and teaching activities, and (3) *students*, who consume the educational materials, and learn. We view the starting point for making Connexions sustainable is to better understand and grow its value to these three user groups. We explicitly recognize that Connexions can only be sustainable in the long run if enough authors, instructors, and students find it useful enough, and employ it on a regular basis to achieve their educational goals.

How can we grow the value of Connexions for these three user groups? We have identified four key components that provide significant value to our users.

Connexions brand equity. While conventionally a brand refers to a name, term, sign, or symbol, intended to identify a seller," brand equity is the added value

endowed to products or services by the brand. In the current crowded (and ever-expanding) domain of OEPs, brand equity gains added importance because it determines whether a particular OEP will be recognized, stand out and be viewed as unique and worth using by its current and potential users.

To increase the brand's equity, there are two challenges: (1) *to increase awareness* among the OEP's potential user base, and (2) to create a differentiated, consistent, and meaningful brand image, where users associate the site with key attributes that are important to them (e.g., Keller, 1993). I will elaborate on these challenges and how to accomplish them in a future expanded version of this paper. However, briefly, for the Connexions project, we have identified three attributes that are important to our users, and which have the potential to serve as strong brand associations: (a) the quality and quantity of the content in our commons, (b) an active and engaged user community, and (c) the site's user-friendliness.

Content quality and quantity. Internal data (and supported by evidence from other OEPs as well) show that most users, in particular students, first find an OEP through a search engine like Google. They are looking for specific information on a particular topic. Other research on virtual communities also suggests that the initial motivations of most participants for joining a community are narrow and purposive, i.e., they join to solve a particular problem (Dholakia, Bagozzi, & Klein Pearo, 2004). As a result, it is important to provide high-quality content across a wide spectrum of disciplines (or if the OEP is focused, exhaustive content in the OEP's discipline of interest) to attract new users. Once a student has discovered the site, it is still important to be able to provide all the high-quality content that s/he is looking for on an ongoing basis. This is the route to getting repeated use and loyalty to the site from users.

User Community. One of the main objectives of the Connexions project is to foster collaboration between users. This follows from a vast literature in education research showing that collaboration and social interaction enhances the student's learning experience, as well as the quality and the degree of learning (e.g., Bowen, 1996; Tinto, 1998). OEP organizers also recognize the importance of communities (e.g., Hanley, 2005; Stephenson, 2005). Research on virtual communities shows that with repeated participation, users form relationships with others and this increases their engagement with the site (Dholakia et al., 2004). So it is important to have a vibrant and active OEP user community.

Site usability. A key determinant of site adoption by authors and instructors is how easy it is to use the site (e.g., Spool, et al., 1998; Wei et al., 2005). Authors and instructors will only be interested in using the OEP site if they can upload their content and modify it effortlessly, in the format and layout of their choice. Consequently, user-friendliness is a critical driver of value for OEP users.

Revenue models for OEP sustainability

Once the key drivers of value for the OEP site's users have been identified, and initiatives have been put in place to manage and grow them, attention can be turned to determining one or a combination of revenue models to generate revenue for the OEP site. This sequence is summarized in Figure 2.

Figure 2. *Revenue Models for OEP Sustainability*
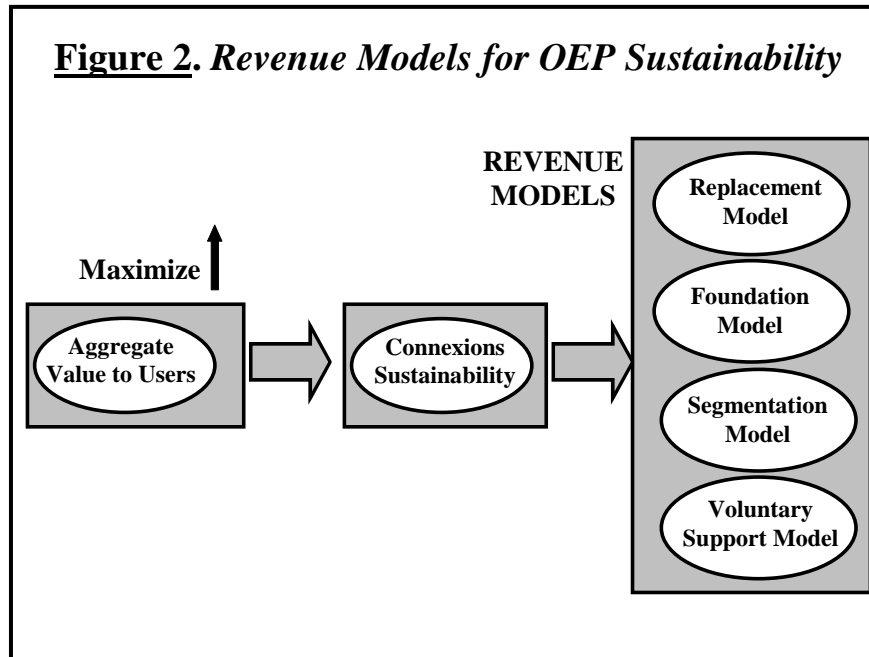
Several potential revenue models for OEPs are now briefly introduced.

Replacement model. The educational content stored, disseminated, and re-used through the OEP often replaces the use of other technology software and infrastructure such as course management systems, virtual learning environments (e.g., Blackboard), and proprietary data repositories and web-sites (Wright, Yoshimi, & Gavilan, 2005). Since educational institutions spend significant amounts for these replaced knowledge management systems, the cost savings resulting from their discontinued use can be employed to fund the OEP.

Foundation model. If the OEP grows to a significant size in a particular subject area, in total number of users, in serving users of a particular country or geographic region, etc. it could seek on-going funding from foundations, philanthropic institutions, professional societies, trade or industry groups, individual firms, governmental and/or non-governmental agencies that are focused on this particular niche. The key to implementing this model is to identify an underserved user segment, and then focus the program's efforts and initiatives in on serving this segment, thereby creating a differentiated brand image. A variation of the foundation model is a consortium model, where the OEP charges a fee from affiliated universities and institutions for joint development and ownership of the project.

Segmentation model. This model relies on the idea that while providing open access to all the educational content on the site to users, the OEP can simultaneously provide 'value-added' services to specific user segments and charge them for the services. Examples of such specific services that could be offered are: sales of paper copies of culled content organized around a particular topic, training and user support to institutional users for annual fees, housing and dissemination of copyrighted content within the same site on a subscription basis, "ask-an-expert" services for a fee, and consulting services to provide custom education to corporate clients.

Voluntary support model. A revenue model based on voluntary support emulates fund-raising methods used by National Public Radio, National Public Television, and other media outlets in the US. From time to time, these media organizations run fund-raising campaigns to raise money from conscientious users to financially support their operation. Recent revenue models, employed successfully by blogs such as tip-jars, the solicitation of "micro-patrons" (e.g., www.kottke.org) who contribute micropayments (e.g., Micali & Rivest, 2002; Yang & Garcia-Molina, 2003) could be used in conjunction.

In conclusion, it is worth reiterating that all of the revenue models outlined here require a critical mass of regular, active, and engaged users of the OEP site.

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