Business Models for Online Education and Open Educational Resources

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Revision history

- May 2016:
  - Added reference to AMCIS article to the Executive Summary and the Introduction
  - Added all the other business models to the Executive Summary
  - Added clarification in the Executive Summary that "top ten" means noteworthy or interesting, not necessarily "best" or "recommended" (p. 4). All references to "top ten" throughout the report have been revised to say "10 most noteworthy", or something to that effect.
  - Added details for how to attribute the CC-BY-SA license
- April 2015: Original version

Table of contents

Table of contents 2

Executive summary 4

Part A: Introduction 6

- Purpose and motivation of study 6
- Definitions of online education and OER 7
- Outline of the report 8
- Research methodology 8
  - Phase 1: Selecting experts for the study 9
  - Phase 2: Three Delphi rounds of the study 9
- Participants in the study 10

Part B: Demographic details and expertise of respondents 11

- Specific online education and OER expertise 11
- Prior understanding of OER 13
- General demographics 14

Part C: Experts' assessments on stakeholders and their goals 16

- Stakeholders involved in content creation, learning and distribution/provision of online education and OER 16
- Possible goals and priorities of various stakeholders 17

Part D: Business models in detail 18

- Narrowing down of business models: Ten most noteworthy models 18
- Feasibility of OER 20
- Notes for interpreting stakeholder-goals tables in business model descriptions 21
- Ten most noteworthy existing and potential business models 22
  - Donations and grants 22
  - Online program of traditional institution 25
  - Community-based production 28
  - Advertising 30
  - Cooperative production consortium 32
  - Governmental or foundation sponsorship 34
  - Institutional subscriptions 36
  - Selling course experience 37
  - Content creation by classroom students 39
  - Content creation by MOOC students 40
- Existing business models 42
  - Individual expert contributions 42
  - Selling courseware 43
  - Ancillary product 45

Syndication 46
Employee recruiting 47
Corporate training 48
Virtual charter school 49
Potential business models 51
OER curation 51

Executive summary

This project aims to determine the key stakeholders, goals and existing business models for online education and open educational resources (OER) by focusing on three major research questions:

- **Who are the key stakeholders involved in the creation, use and distribution of online education and OER?**
- **What are the goals of these online education and OER stakeholders?**
- **What business models exist that try to achieve the goals of various online education and OER stakeholders?**

To answer these research questions, we consulted 19 leading experts in online education and OER using the Delphi survey method. At the end of three rounds, in addition to the business models that we originally identified and suggested, the experts identified a total of 18 business models for online education, 15 of which currently exist and 3 of which are proposed as potential models. In particular, the experts highlighted ten models (eight existing and two potential) as particularly important and noteworthy; they analyzed these ten in greater detail than the other 8 models:

This report presents ALL the data collected from the expert, including their detailed comments on each model. The report authors' detailed analysis on the models is still being prepared; preliminary results are presented in Okoli, Chitu and Ning Wang (2015). Business Models for Online Education and Open Educational Resources: Insights from a Delphi Study. *Proceedings of the 21st Americas Conference on Information Systems*. Puerto Rico. August 13-15, 2015. http://ssrn.com/abstract=2778299.

Please note that these are not necessarily the best or most recommended models; rather, in the context of this report, it means the most noteworthy models that the experts considered important and relevant today.

Eight most noteworthy existing business models

1. **Donations and grants:** A non-profit organization manages the online education offering and receives donations and grants for continuous funding. If sufficient funds are obtained, an endowment might be created. Funds are used to provide revenue to content creators and the content and course administration (if included) is provided at no charge to students. In some cases, content creators volunteer their contributions for no compensation. These donations might be more in the form of corporate or foundation sponsorship, where the sponsor might be acknowledged in course materials or receive other benefits. Unlike the "Governmental or foundation sponsorship" model, here the education provider retains control of the endeavour; however, significant donors might exert influence on the future direction of the offering.
2. **Online program of traditional institution:** This model is the online courses division of a traditional university, where a traditional face-to-face educational institution establishes and administers an online education program that provides an online outlet for its educational materials and programs. Funding is obtained through various means including general institutional resources (free to students), student tuition, or dedicated donations.
3. **Community-based production:** Members of a community of practice or interest group create materials for each other's use. This can also be called a "prosumer" model.
4. **Advertising:** Paid advertising is placed on OER content. The students do not have to pay. The model can include anything from extended training for purchasers of a complicated product to the provision of learning materials to stimulate interest in a hobby, vocation or product line. Advertisements will be included throughout the education program and fund the whole program.
5. **Cooperative production consortium:** Free and open peer-reviewed collection of online teaching and learning materials and faculty-developed services contributed and used by an international education community. The collaboration is a partnership among different institutions and organizations for the creation and distribution of educational materials. People may purchase memberships, or member institutions may pledge to commit a certain amount of capacity (there are different sub-models here), but essentially each contributes a little, and everybody uses the totality of the results.
6. **Governmental or foundation sponsorship:** A government, non-governmental organization, or non-profit foundation establishes and administers an online education program or resource centre with educational materials and programs. This is different from the Donations and grants model in that the program is directly administered and primarily funded

by a governmental agency or a similar entity that has a much larger scope of concern (and resource allocation) than just the specific online education program.

7. **Institutional subscriptions:** A provider gives educational materials away for free to individuals, but charges subscription fees to institutions to use them across larger populations.
8. **Selling course experience:** The online materials are free, but students pay for the online education experience, including having a teacher guide them and respond to questions throughout the course. The "experience" might include a schedule, corrected assessments, proctored exams, a completion certificate, or other value-added educational experiences. They normally pay for each course they enroll in. Course creators and teachers are paid for providing the courses.

Two most noteworthy potential business models

9. **Content creation by classroom students:** Each term or year of a class or course creates learning materials for the next term or year. The purpose is to stimulate learning by teaching. It's a bit like Digital Storytelling at the University of Mary Washington (ds106, http://ds106.us), except the resources are explicitly teaching resources.
10. **Content creation by MOOC students:** Participants of MOOCs from diverse backgrounds, countries and academic preparation can develop resources for each other. MOOCs become venues to create communities of learning and communities of practice. Those networks connect and share information and resources. They can share information and multiple sources to enhance their knowledge and this becomes OER.

Part D of this report presents all expert comments on the 18 business models. Of particular note is the subsection in Part D, "**Ten most noteworthy existing and potential business models**", starting from page 22. We also summarize here the other 7 existing business models and the 1 other potential model:

Other seven existing business models

11. **Individual expert contributions:** An expert provides resources for the good of the community with the goal of making some body of knowledge widely known.
12. **Selling courseware:** Learners pay for access to the online materials. They might pay for each course or for multi-course access with a subscription model. Course creators are paid for providing the courses. In a "freemium" option, part of the content or course is free, but learners pay if they want full access (similar to what many software business do).
13. **Ancillary product:** Access to the online course is a value-added feature for the purchase of something else, e.g. online course included with purchase of textbook. This has been a common model for textbook publishers.
14. **Syndication:** Course creators license course materials to distributors who modify it or manage courses. Value added for learners is typically in having course materials localized, facilitated or credentialed.
15. **Employee recruiting:** Learning analytics data is obtained from an online learning platform and this data is used to match students to companies. The content is free to the end-user, but the provider earns money with selling the data.
16. **Corporate training:** A company creates learning materials for in-house training or (less commonly) to train recruits before employment. The company may develop materials itself, or, rather than relying on indirect payment methods like vouchers and reimbursements, it may contract with online learning providers to create customized, just-in-time professional development courses.
17. **Virtual charter school:** A virtual charter school meets government regulations to provide a complete government-certified education for K-12 students. When registered as a charter school, it receives government subsidies for the education of registered students. It might also function as a private school, funded by tuition payments from students. It might also contract with traditional schools to supplement their offerings with online courses and online educational services. This is a legal option within some charter school systems in the United States.

One more potential business models

18. **OER curation:** A computer system, a person or an organization will curate open resources on specific topics and provide access to others via search by topic, ages, level of knowledge and so on. This would be a repository of resources developed by all the business models suggested and curated by an organization or a self-curating system.

Part A: Introduction

Purpose and motivation of study

This study determines the key stakeholders, goals and existing business models for online education and open educational resources (OER). Also known as open courseware, OER aims to make educational materials available for liberal sharing and cumulative development. With new online education providers like Khan Academy and Coursera providing alternatives to traditional education, and with world-renowned universities like Harvard and MIT providing free online courses, OER and online education is rapidly changing the traditional way people learn. Most threatened by the new educational landscape are the less-renowned traditional institutions who often are scrambling to find ways to remain relevant by providing their own online offerings, and yet remain financially viable in the mass of reducing government funding for public education. Although some business models are arising for OER and online education, it is still uncertain which models are truly sustainable for different kinds of institutions. This study aims to answer three major research questions:

1. **Who are the key stakeholders involved in the creation, use and distribution of online education and OER?** These would include teachers, students, administrators and staff of educational institutions, online education providers, and other stakeholders. However, because there are so many different models of online education, we want to discover in detail which stakeholders are relevant for which models.

2. **What are the goals of these online education and OER stakeholders?** Goals would generally include the desires to create high-quality educational materials; to see this materials widely used and successfully learned; to earn revenue (whether through student tuition or public grants), or variously to obtain the educational materials at least possible cost; and to be recognized for educational contributions. Each stakeholder has different goals, sometimes even conflicting (for example, students want materials at no cost, but providers need revenue in order to produce and deliver the materials). This research question seeks to understand in detail the goals of various groups of stakeholders.

3. **What business models exist that try to achieve the goals of various online education and OER stakeholders?** Some online education business models involve free access for all materials, with funding obtained through grants; others involve student payments for higher quality materials or for educational delivery beyond just the content itself; others involve free materials but certified credit from a recognized institution for a fee. Here, we want to discover the diversity of existing models.

To answer these research questions, we consulted experts in online education and OER using the Delphi survey method, a rigorous methodology with mixed qualitative and quantitative elements for research questions whose answers are not easily scientifically discernible, but are rather best answered by expert opinion. Specifically, we asked experts: to identify existing business models; describe potentially feasible models that are not currently implemented; identify specific categories of stakeholders involved; and identify the various goals and priorities of these stakeholders. We surveyed experts drawn from the ranks of teachers, students, educational administrators, online education providers, government education officials, and other relevant experts.

Definitions of online education and OER

In this study, we defined **online education** loosely and broadly as **the use of the Internet to provide education**. On one hand, we include any initiative that explicitly presents itself as an educational offering. On the other hand, since "everything is educational", we exclude many resources and references which, though they might be used for educational purposes, do not explicitly and primarily present themselves as such. Thus, we exclude, for example:

- Films and literature (e.g. the Internet Archive or Project Gutenberg)
- Encyclopedias (e.g. Britannica and Wikipedia)
- Atlases and maps (e.g. Google Earth and Bing Maps)
- How-to sites (e.g. eHow and WikiHow)

Of course, an online educational program might use any of these as part of its program, but such endeavours themselves are outside the scope of this study.

Concerning OER, adapting Okoli and Carillo's (2013)[1] definition of open content, we define open educational resources as **digital educational resources for which the rights holder authorizes royalty-free redistribution, while perhaps imposing some conditions** (e.g. requiring similar relicensing of modifications) and retaining some restrictions (e.g. non-commercial use only). Note: this is different from other definitions (e.g. Downes 2007[2]), which only recognizes OER when modifications are permitted.

Open educational resources (OER) are digital educational resources for which the rights holder authorizes royalty-free redistribution, while perhaps imposing some conditions (e.g. requiring similar relicensing of modifications) and retaining some restrictions (e.g. non-commercial use only). OER almost always uses Creative Commons licenses, which are standard legal licenses that specify these open permissions and restrictions.

Related to OER, we define an "educational resource" as *any material that is primarily targeted for educational use* (see Murphy 2013[3] p. 202, and their reference to Downes 2007). This definition is deliberately ambiguous: on one hand, anything can be "educational" if it is used to educate. Thus, we want to be inclusive and not exclude any genre of material or resource. On the other hand, if we were to say that any material is by default educational since it can be used educationally, then there would be no bounds for anything to be excluded. Thus, our criteria of inclusion and exclusion is based on the *primary target* by the creator and distributor of the resource.

It is important to note that while online education often uses OER, it often does not. For example, even though "MOOC" means "massive open online course", **many MOOCs are not "open" in the sense of "open educational resources"**. For example,

- **Online education that is not OER:** Coursera, Udemy, Lynda.com, etc. Even when these services might be free, they do not normally permit users to download their content, modify it or redistribute it.
- **Online education that is OER:** MIT OpenCourseWare, WikiBooks, Khan Academy, Udacity, etc. These services explicitly authorize anyone to download their content, modify it or redistribute it (though usually only for non-commercial purposes).

Because our definitions are particular, we presented our definitions to the experts at the beginning of the first questionnaire, before they responded to any other queries. Although all the participants were experts in online education, not all of them were experts in OER; thus, our definitions laid a common understanding for the entire study.

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[1] Okoli, Chitu and Kevin Carillo (2013). Beyond Open Source Software: A Framework, Implications, and Directions for Researching Open Content (September 19, 2013). Available at SSRN: http://ssrn.com/abstract=1954869

[2] Downes, Stephen. 2007. Models for sustainable open educational resources. *Interdisciplinary Journal of Knowledge and Learning Objects* 3, 29–44.

[3] Murphy, Angela. "Open educational practices in higher education: institutional adoption and challenges." *Distance Education* 34.2 (2013): 201-217.

This report presents ALL the data collected from the expert, including their detailed comments on each model. The report authors' detailed analysis on the models is still being prepared; preliminary results are presented in Okoli, Chitu and Ning Wang (2015). Business Models for Online Education and Open Educational Resources: Insights from a Delphi Study. *Proceedings of the 21st Americas Conference on Information Systems*. Puerto Rico. August 13-15, 2015. http://ssrn.com/abstract=2778299.

Outline of the report

- Part A is the introduction of the paper, which familiarizes readers with the purpose and motivation of the study and its research methodology. It also acknowledges the contribution of the experts who have participated to the study (only those who agreed to publish their names).
- Part B presents the demographic details and expertise of the participating experts. The first section summarizes their specific expertise in online education and OER. The second section verifies their understanding of OER prior to this study. The last section summarizes the general demographics of the experts and their final comments after each round of the study.
- Part C presents the experts' assessments on stakeholders and their goals in online education business models in general. The first section lists all possible stakeholders involved in the creation, use and distribution of online education and OER mentioned in any business models. The second section lists the possible goals and priorities of these various stakeholders.
- Part D presents the overview of the 18 business models of online education in comparison with one another. Then each distinct business model is discussed in detail. The first section shows the level of experts' interest for evaluation of individual business models. The second section shows the experts' assessment of the feasibility of OER in each business model. The third section explains the tables we use to analyze the stakeholders and their goals and priorities for each business model. The fourth section presents in detail the 10 most noteworthy existing and potential business models for online education ranked by the experts. Each one has its description, examples, table of stakeholders and goals, and experts' comments from Round 1 to Round 3. The last two sections present details of the remaining 8 existing and potential business models.

Research methodology

To answer the three main questions above, we chose to apply the Delphi method, a qualitative research methodology for soliciting group decisions from panels of experts by providing a multi-round anonymous communication environment for their evaluation and discussion. Basically, we followed the rigorous guideline described by Okoli and Pawlowski (2004)[4], with adaptions for our specific situation and research questions.

There are two main stages of our Delphi study: selecting and inviting the most qualified experts in online education and OER; and organizing three rounds of anonymous discussion on the questions. We asked experts to: list existing business models of online education and OER other than those initially presented by the research team, and to propose new potential business models; evaluate and rank the significance of each of the models suggested and identify the relevant stakeholders for each respective model; and map the most noteworthy business models selected by experts with the appropriate stakeholders, goals and priorities for each model. Throughout the process, we encouraged the experts to offer any comments they might have had during each round, and we provided these anonymous comments to other experts in each subsequent round.

In addition, there are two notable points concerning our methodology. First, according to the guideline, experts should normally be grouped into panels of 10-18 experts each, based on similar disciplines or skills, to make it easier to reach consensus. However, with a total of 21 total positive responses to our invitation (only 19 eventually participated), we decided to employ only one panel that included all experts in order to have one satisfactorily-sized panel. Second, whereas Okoli and Pawlowski recommend a distinct step for requesting selected experts to nominate other qualified

[4] Okoli, Chitu and Suzanne D. Pawlowski (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information & Management* (42:1), December, pp. 15-29.

experts, we rather made the nomination requests immediately at the same time that we initially invited experts. Fortunately, we did obtain additional qualified participants this way.

Phase 1: Selecting experts for the study

Step 1: Prepare Knowledge Resource Nomination Worksheet (KRNW)	✓ Identify relevant disciplines or skills: content creators, students, distributors/providers and other stakeholders ✓ Identify relevant organizations: OER repositories, MOOCs, NGOs, K-12 schools, colleges and universities that use and produce OER, universities that offer open courseware, galleries/museums/archives/libraries that use and produce OER, governmental ministries of educations ✓ Identify relevant academic and practitioner literature, as well as relevant websites

⬇

Step 2: Populate KRNW with names	✓ Collect names of experts in corresponding disciplines or skills ✓ Collect names of experts in corresponding organizations ✓ Collect names of experts from academic and practitioner literature

⬇

Step 3: Rank experts	✓ Organize detailed sub-list of each discipline ✓ Identify and classify experts and match them with relevant category ✓ Rank experts in each list based on qualifications and expertise

⬇

Step 4: Invite experts	✓ We invited a total of 81 experts from all four skill categories ✓ We asked experts to nominate other experts at the same time we invited them ✓ A total of 21 experts agreed to participate

Phase 2: Three Delphi rounds of the study

Round 1: Brainstorming of business models, stakeholders and goals	✓ Provide the experts with an initial list of existing business models for online education and OER identified by the research team, with the relevant goals and stakeholders for each model ✓ Request additional existing business models from the experts other than those initially listed by the research team ✓ Request new potential business models from the experts that do not currently exist, but that might potentially be feasible and sustainable ✓ Request other important stakeholders and goals and priorities from the experts which might not necessarily correspond to any of the listed or proposed business models ✓ Consolidate the results from the experts and merge it with initial lists presented by the research team, and reconcile duplicates and conflicting or similar terminology.

⬇

Round 2: Narrowing down to ten most noteworthy business models	✓ Present the consolidated list of business models at the beginning of the second round for experts to validate ✓ Ask the experts to rank the business models according to the level of their significance ✓ Ask the experts to match various stakeholders and their goals and priorities with relevant business models ✓ Ask the experts to evaluate if it is feasible to use OER with each business model ✓ Retain 10 most noteworthy business models with the highest ratings of the experts

⬇

Step 3: Matching stakeholders to goals and priorities	✓ Refine 10 selected business models with detailed association of various stakeholders with their goals and priorities ✓ Ask the experts to validate the association of various stakeholders with their goals and priorities in the 10 selected models

Participants in the study

We have a total of **19** experts from all four categories of disciplines and skills who participated in the study. **12** responded to Round 1, **8** to Round 2 and **8** to Round 3, for a total of **19** experts in all three rounds. We are deeply grateful for their kind participation; the study is a result of their valuable contributions.

The following experts have kindly agreed to permit us to publish their names (**please note that these experts speak only for themselves**; their participation or responses do not necessarily reflect the opinions of any of their affiliated organizations):

- Dr. Jessica N. Aguti, Education Specialist of Teacher Education at Commonwealth of Learning
- Dr. Mark Bullen, Adjunct Professor, Master of Educational Technology, University of British Columbia
- Scott Deeann Chen, PhD candidate who participated in 29 MOOC courses in 2013
- Stephen Downes, creator of the first MOOC course, Learning and Performance Support Systems Lead at the National Research Council of Canada
- David Harris, Editor in Chief of OpenStax College/Connexions, producer of free high-quality textbooks
- Vis Naidoo, Vice President of Commonwealth of Learning
- Peter Pinch, Production Manager of MIT OpenCourseWare
- Dr. Norma I. Scagnoli, editor of the featured WikiBook *Blended Learning in K-12*
- Dr. Patrick O' Shea, coauthor of the featured WikiBook *Social and Cultural Foundations of American Education/Development Process*
- Willem Van Valkenburg, Production and Delivery Manager of open and online education at Delft University of Technology Extension School
- Lindsey Weeramuni, Manager of Intellectual Property at MIT OpenCourseWare

Part B: Demographic details and expertise of respondents

General Note: The totals for each question only count the number of experts who responded to that question, and so they are different for each question.

Specific online education and OER expertise

Please specify which of the following experiences you have had related to online education and OER, presently or in the past *(select all that apply):*

- None: Very little experience or none at all
- Some: Some experience, but not sufficient to be considered an expert
- Expert: Other people consider me an expert in this regard
- N/A: Not applicable

Table 1: Specific online education and OER expertise

	None	Some	Expert	N/A	Total
Content creator					
I have created online materials for students in elementary or secondary school	13	4	1	1	19
I have created online materials for post-secondary students (e.g. college, university, graduate school, etc.)	3	8	7	1	19
I have created online materials for students in non-academic institutions	8	5	5	1	19
I have created online educational materials for visitors to a library, gallery, archives or museum	12	1	3	3	19
I have created materials as part of an online user-generated educational content project (e.g. WikiBooks)	7	8	3	1	19
User[5]					
I have taken an online course as part of my formal elementary or secondary education	18	0	0	2	20
I have taken an online course as part of my formal post-secondary education (e.g. college, university, graduate school, etc.)	11	8	0	1	20
I have taken an online course as a registered student in an informal institution (including MOOCs)	3	11	3	2	19
I have taken an online course as an unregistered student, with no formal or informal credit received	7	9	2	2	20

[5] In subsequent questionnaires, we changed “User” to “Learner”, indicating formally registered and informal students

- None: Very little experience or none at all
- Some: Some experience, but not sufficient to be considered an expert
- Expert: Other people consider me an expert in this regard
- N/A: Not applicable

Table 1 continued: Specific online education and OER expertise

	None	Some	Expert	N/A	Total
Distributor/Provider					
I have assigned online materials to my students as an elementary or secondary school teacher	14	1	0	4	19
I have taught an entire online course at the elementary or secondary school level	15	1	1	3	20
I have assigned online materials to my students as a post-secondary school teacher (e.g. college, university, graduate school, etc.)	7	4	6	3	20
I have taught an entire online course at the post-secondary school level (e.g. college, university, graduate school, etc.)	9	2	6	3	20
I have assigned online materials to my students as a non-academic teacher	8	5	2	4	19
I have taught an entire online course in a non-academic institution	10	3	2	4	19
I have assigned online materials to my visitors or students as an educator in a library, gallery, archives or museum	11	4	0	4	19
I have taught an entire online course in a library, gallery, archives or museum	14	1	0	4	19
I work or have worked (full- or part-time, paid or voluntary) for an online education website (whether a MOOC or a repository of online educational materials)	6	3	8	2	19
I work or have worked (full- or part-time, paid or voluntary) for a university or college's unit that provides online education	7	1	9	2	19
Others					
I work or have worked (full- or part-time, paid or voluntary) for a government entity that supports online education	13	2	2	2	19
I work or have worked (full- or part-time, paid or voluntary) for a non-profit organization that supports online education	6	3	10	0	19
I work or have worked (full- or part-time, paid or voluntary) for a non-profit organization that provides grants to online education providers	14	2	1	2	19
I have invested financially in commercial institutions that provide online education	16	0	0	3	19
I work or have worked (full- or part-time, paid or voluntary) as an academic who has studied, researched or taught topics related to online education	7	5	6	1	19

Please specify expertise in online education and OER through some other professional experience not mentioned above:

- Standards development, network / API development for post-secondary/secondary/informal learning
- Publishing

Prior understanding of OER

The invited participants were all experts in online education, but not necessarily in OER. Thus, at the very beginning of the first questionnaire, we defined online education and we defined OER. Then we asked the experts about their prior understanding of OER to make sure that throughout the study there would be a common understanding. Here we post our exact definition of OER presented to the experts in the questionnaire (slightly different from our more detailed definition presented earlier in this report) and the questions we asked the experts related to it.

Definition of open educational resources (OER)

Since OER is an important aspect of this study, we want to establish some common terminology. Please read the following information carefully and answer the questions that follow.

Open educational resources (OER) are digital educational resources for which the rights holder authorizes royalty-free redistribution, while perhaps imposing some conditions (e.g. requiring similar relicensing of modifications) and retaining some restrictions (e.g. non-commercial use only). OER almost always uses Creative Commons licenses, which are standard legal licenses that specify these open permissions and restrictions.

It is important to note that while online education often uses OER, it often does not. For example, even though "MOOC" means "massive open online course", **many MOOCs are not "open" in the sense of "open educational resources"**. For example,

- **Online education that is not OER:** Coursera, Udemy, Lynda.com, etc. Even when these services might be free, they do not normally permit users to download their content, modify it or redistribute it.
- **Online education that is OER:** MIT OpenCourseWare, WikiBooks, Khan Academy, Udacity, etc. These services explicitly authorize anyone to download their content, modify it or redistribute it (though usually only for non-commercial purposes).

Table 2: Prior to reading this information, what was your familiarity with the following concepts related to OER? *(Please note that this question is for information purposes only. Your answers will not be used in any way to determine your eligibility for this study, since all of the participants are experts in online education but not in OER specifically.)*

	Not at all familiar	Only a little familiar	Somewhat familiar	Very familiar	Total
I was already familiar with Creative Commons licenses and how they function	2	0	2	16	**20**
I was already familiar with the concept of open educational resources (OER) as defined above	2	1	1	16	**20**
I was already familiar with the difference between MOOCs that provide OER (that permit download, modification and redistribution) and those that only permit users to use their materials for free, but without OER redistribution permissions.	0	1	2	17	**20**

General demographics

Table 2: Approximately how many years in total have you been actively creating, using, distributing or otherwise working with online education?

	Years
Mean	12.69
Median	10
Standard Deviation	8.04
Total responses	13

Please tell us your* current *place of employment or schooling? If you have more than one* current *employment, please list up to three.

To protect respondents' confidentiality, we do not report the responses to this question.

Table 3: What is your degree of* managerial responsibility *in your* primary *occupation?

	Responses
Self-employed with no employees	0
Senior Manager or Director (total responsibility)	6
Junior Manager (wide responsibility)	5
Supervisor (limited responsibility)	1
No responsibility for other people	2
N/A	1
Total responses	15

Table 4: In which country (whether where you live presently or where you have lived in the past) have you gained the most experience related to business models for online education?

	Responses
Canada	2
Netherlands	1
South Africa	1
Uganda	1
United States of America	9
Total responses	14

Please give some details about your specific experience and expertise in business models for online education and OER (if applicable).

To protect respondents' confidentiality, we do not report the responses to this question.

Table 5: What is the highest degree or level of school you have completed? (If currently enrolled, what is the highest degree you have already received?)

	Responses
Secondary school graduate, diploma or the equivalent (for example: GED)	0
Diploma from college (not university) or trade/technical/vocational training, including Associate degree	0
Bachelor's degree (e.g. B.A., B.Sc., etc.)	2
Master's degree (e.g. M.A., M.Sc., MBA, etc.)	6
Professional degree (e.g. JD, MD, etc.)	0
Doctorate degree (e.g. Ph.D., DBA, D.Ed., etc.)	7
Total responses	15

Table 6: What is your gender?

	Responses
Male	10
Female	5
Total responses	15

Table 7: How old are you?

	Responses
18-24 years old	0
25-34 years old	2
35-44 years old	4
45-54 years old	6
55-64 years old	3
65-74 years old	0
75 years or older	0
I prefer not to answer	0
Total responses	15

Finally, please give us any comments that you might have in general about this study, about online education or OER, about business models, about the questionnaire design or administration, or about anything at all:

(We do not include any comment that do not have direct bearing on the content of the study. However, we do include some comments that are reflective of the limitations in our study design.)

Round 1

- The second page was a little confusing. I wasn't sure if I had to fill out all 10 "existing business models".
- I have been involved in OER initiatives but I am not sure I would call myself an expert in this area. So my comments and contributions should be read with this in mind. / I think a lot is being said and done on OER from the perspective of the providers but very little from the consumers or users. In the developing world consumers still grapple with a lot of challenges accessing, using and contributing OER.
- I'm not sure that my concept of "business model" match yours. Your business models appear to focus on the key stakeholder rather than the costs and revenues. My examples are at a much finer level of detail.

Round 2

- I'm finding the interface of this design very hard to use. The instructions refer to information "above," but was in fact several screens back. I can't remember what that information was.
- I probably should have planned to spend more time on this. It requires a lot of deep attention. / / One small UI improvement, would be to make it easier to see the prior stakeholders, and the additional stakeholder options on the same screen. In the interests of time, I didn't bother scrolling back and forth to make sure that I didn't choose any stakeholders that were already on the list.
- I wish the choices, options could be presented in such a way that I can see them in a single screen - scrolling up and down to determine whether something should be checked is way too cumbersome

Round 3

- OER have a huge potential but perhaps a lot more study is required focusing on how OER are utilized especially in the developing world. What user models would work best?

Part C: Experts' assessments on stakeholders and their goals

Stakeholders involved in content creation, learning and distribution/provision of online education and OER

Content creators	Learners
Copyright holders ○ *Comment by an expert: they license their content to the course creators or institutions for the purposes of enhancing the teaching materials. They include authors, film-makers, and artists.* • Course authors • GLAM educators (Galleries, Libraries, Archives, Museums) • Experts • Instructional designers • MOOC students • Paid contributors • Participants or other sources • Students • Teachers • Textbook authors • Users (User-generated content) • Working professionals	• Certification seekers • Degree-seeking students • Homeschoolers • Learners and educators • Online students • Professional job seeker ○ *Comment by an expert: seeking continuing education units or similar credit* • Registered traditional student • Registered online-only student • Unregistered online student • K-12 students • Working professional
Distributors/Providers	**Other relevant stakeholders**
• Advertisers • Aggregators • Companies • Company (provide in-house training) • Curators (of online education resources) • Face-to-face teachers • For-profit institutions • Government • Higher education institution • Homeschooling organizations • K-12 schools • Librarians • OER list compilers and reviewers • Online education providers • Online teachers • Public broadcaster • Publishers • Summer camps/programs • Textbook publishers • Virtual charter schools	• Advertiser • Corporations • General public • Government ministry of education • Internet Service Providers ○ *Comment by an expert: providers may need to negotiate discounts or donated time to enable [learners] access content. Especially vital in developing countries* • K-12 institutions • Non-profit entity, foundation • Parents • Potential employers • Public school administrators • Researchers • Taxpayers

Possible goals and priorities of various stakeholders

- Advertising
- Building community
- Data about student learning
    - *Comment by an expert: Gaining a wealth of readily available data for how students learn and/or what they understand.*
- Distributing as many copies of the educational materials as possible
- Gaining credit, renown or reputation for content created or distributed
- Gaining revenue (e.g. creators and distributors)
- Paying no money, or as little as possible (e.g. students)
- Producing high-quality content
- Propaganda
- Recruitment and job training
- Supporting customers
- Safety and health
- Workforce training

Part D: Business models in detail

In Round 1, we initially presented experts with 6 existing business models for evaluation, and asked them to present additional existing ones as well as potential models that do not currently exist. The experts presented 11 other existing models and 4 potential models, for a total of 21 models that we presented for their evaluation in Round 2. After reviewing and making revisions in accordance with their comments, we ended up with 18 final models:

- In accordance with some expert comments, we have merged "Employer funding" into the "Corporate training" business model; and "Freemium" into the "Selling courseware" model.
- After careful reconsideration, we have merged "Cooperative or shared production model" and "Partnership among different institutions and organizations for the creation and distribution" into one model, which we now call "Cooperative production consortium".

Unfortunately, "Cooperative or shared production model" and "Partnership among different institutions and organizations for the creation and distribution" were both selected for detailed evaluation in Round 3, and it was only after the analysis after Round 3 that we decided that they were too similar to be kept separate. Thus, we only had nine final models that were evaluated by experts in three rounds. In order to retain 10 most noteworthy models, we have incorporated the "Selling course experience" model as one of the ten, as we describe in the next subsection; however, this model has only two rounds of comments, instead of three.

Although the merged business models do not appear in the detailed descriptions presented later, in the following two subsections we do report the results of the responses to questions posed about them in Round 2.

Narrowing down of business models: Ten most noteworthy models

In Round 2, we asked experts which models were sufficiently important that they would be worthwhile being evaluated in detail for Round 3. In the tables below, we display in bold the business models that were eventually chosen. Our selection was partially objective (based on experts' votes) and partially subjective (based on our interpretation of the significance of the experts' votes):

- We expected correctly that existing models would rate more highly than potential (non-existing) models, so we reserved two slots for potential models.
- We mainly counted votes that a model should probably or definitely be evaluated ("Probably Yes" or "Definitely Yes"); we only considered the other votes to break ties.
- For existing business models (whether our original suggestions or those suggested by the experts), we selected the eight most noteworthy models. All but one of these had at least 10 votes out of 14 where experts recommended them for further evaluation. Although borderline, we also initially selected "Consortium" because, although it had only 8 supportive votes, it had only weak 2 votes against it.
- After we merged "Consortium" into "Cooperative production consortium", we selected "Selling course experience" to replace it in the selected ten as it had the most expert comments of all the remaining business models.
- For potential business models (all of which were suggested by the experts), we selected the two most noteworthy models. "Content creation by classroom students" had the most votes (9 out of 15). Of the other 4 models, which each had 7 votes for them, we selected "Content creation by MOOC students" because it had more strong positive votes ("Definitely Yes") and fewer negative votes than the others ("Probably Not" or "Definitely Not").

Thus, we finally selected eight existing business models and two potential models for more detailed evaluation in Round 3. The exact question we asked, and the results in tables, follow:

In order to reduce the number of models for detailed evaluation, please specify for each of the models here whether or not the model is sufficiently important, significant, feasible or noteworthy for experts to take the time to evaluate in detail. Only the significant business models chosen by most of the experts will be evaluated in the next round of this study.

Table 8: Experts' interest for evaluation of original existing business models (proposed by research team)

	Definitely Not	Probably Not	Neutral	Probably Yes	Definitely Yes	Total
Donations and grants	**0**	**2**	**1**	**5**	**8**	**16**
Online program of traditional institution	**0**	**3**	**1**	**4**	**7**	**15**
Selling course experience	**1**	**3**	**3**	**4**	**4**	**15**
Selling courseware	0	3	3	6	1	13
Virtual charter school	1	5	6	2	1	15
Government or foundation sponsorship	**1**	**2**	**3**	**7**	**3**	**16**

Table 9: Experts' interest for evaluation of additional existing business models (proposed by experts)

	Definitely Not	Probably Not	Neutral	Probably Yes	Definitely Yes	Total
Advertising	**1**	**3**	**1**	**6**	**4**	**15**
Community-based production	**0**	**2**	**1**	**6**	**5**	**14**
Cooperative production[6]	**0**	**2**	**2**	**7**	**3**	**14**
Corporate training	1	2	6	4	1	14
Employee recruiting	0	5	3	6	0	14
Freemium[7]	0	3	3	6	2	14
Individual expert contributions	0	3	2	7	2	14
Institutional subscriptions	**0**	**1**	**3**	**8**	**2**	**14**
Consortium[6]	**0**	**2**	**3**	**5**	**3**	**13**
Syndication	0	0	8	5	1	14
Ancillary product	0	3	5	5	1	14

Table 10: Experts' interest for evaluation of potential business models (proposed by experts)

	Definitely Not	Probably Not	Neutral	Probably Yes	Definitely Yes	Total
OER curation	2	3	3	4	3	15
Content creation by MOOC students	**2**	**2**	**3**	**4**	**3**	**14**
Content creation by classroom students	**1**	**2**	**3**	**7**	**2**	**15**
Employer funding[8]	1	2	4	5	2	14

[6] The "Cooperative production" and "Consortium" models were eventually merged into one model: "Cooperative production consortium". However, we report the experts' ratings before the models were merged.
[7] "Freemium" was merged into the "Selling courseware" model
[8] "Employer funding" was merged into the "Corporate training" model

Feasibility of OER

To what extent do you agree that it is feasible to use open educational resources (OER) with this business model?

Table 11: It is feasible to use OER with this business model. (Original existing business models proposed by research team)

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree	N/A	Total	Total Agree	Total Disagree
Donations and grants	0	0	0	0	1	1	6	0	8	**8**	**0**
Online program of traditional institution	0	0	0	0	1	4	3	0	8	**8**	**0**
Selling course experience	**0**	**0**	**0**	**1**	**1**	**3**	**1**	**0**	**6**	**5**	**0**
Selling courseware	1	1	0	1	1	2	1	0	7	**4**	**2**
Virtual charter school	0	0	0	1	0	1	0	0	2	**1**	**0**
Government or foundation sponsorship	0	0	0	0	1	2	6	0	9	**9**	**0**

Table 12: It is feasible to use OER with this business model. (Additional existing business models' proposed by experts)

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree	N/A	Total	Total Agree	Total Disagree
Advertising	0	0	0	1	1	3	0	0	5	**4**	**0**
Community-based production	0	0	0	2	1	0	2	0	5	**3**	**0**
Cooperative production[6]	0	0	0	0	0	5	1	0	6	**6**	**0**
Corporate training	0	0	0	0	1	2	0	0	3	**3**	**0**
Employee recruiting	0	1	0	0	1	1	0	0	3	**2**	**1**
Freemium[7]	0	0	0	0	1	1	0	0	2	**2**	**0**
Individual expert contributions	0	0	1	0	2	0	0	0	3	**2**	**1**
Institutional subscriptions	0	0	1	1	1	3	0	0	6	**4**	**1**
Consortium[6]	0	0	0	0	1	2	2	0	5	**5**	**0**
Syndication	0	0	0	0	1	1	0	0	2	**2**	**0**
Ancillary product	1	0	0	0	1	0	1	0	3	**2**	**1**

Table 13: It is feasible to use OER with this business model. (Potential business models proposed by experts)

	Strongly disagree	Disagree	Some-what disagree	Neutral	Some-what agree	Agree	Strongly agree	N/A	Total	Total Agree	Total Disagree
OER curation	0	1	0	0	1	0	2	0	4	**3**	**1**
Content creation by MOOC students	0	0	0	0	0	2	1	0	3	**3**	**0**
Content creation by classroom students	0	0	0	1	0	1	2	0	4	**3**	**0**
Employer funding[8]	0	1	0	0	1	1	1	0	4	**3**	**1**

Notes for interpreting stakeholder-goals tables in business model descriptions

The rest of this report describes in detail the business models evaluated by the experts. Most of these business models feature a stakeholder-goals table that maps the various stakeholders who are involved in the respective model against each of these stakeholders' goals. Here we explain in detail how to interpret these tables.

- **The stakeholders are listed along rows.** All stakeholders are grouped into four categories: Content creators, Learners, Distributors/Providers, and Other relevant stakeholders.
    - The stakeholders were initially suggested either originally by the research team or by experts in Round 1. In Round 2, other experts were asked to suggest appropriate stakeholders for each model. The research team compiled the final list of stakeholders based on those originally suggested and based on additional ones suggested by other experts in Round 2. For simplicity, we do not report here the exact counts of how many experts voted for each stakeholder.

- **Goals/benefits/priorities for various stakeholders are listed along columns.** The first five goals are listed for all the business models, and some models have additional goals or benefits:
    - Low or no price: This applies only to learners. This means that learners can obtain online education at zero price, or at prices considerably lower than comparable education.
    - Revenue: Selected stakeholders gain some financial revenue through this model.
    - Widespread distribution: Selected stakeholders care about and benefit from widespread distribution of the educational knowledge or materials as a result of this model.
    - Quality: Selected stakeholders care about and benefit from high-quality education as a result of this model.
    - Renown/fame/reputation: Selected stakeholders benefit from increased renown, fame or good reputation as a result of this model.
    - Other goals: Various models might have other goals for various stakeholders. These other goals were initially suggested either originally by the research team or by experts in Round 1. In Round 2, other experts were asked to suggest appropriate goals or benefits for each model. The research team compiled the final list of goals based on those originally suggested and based on additional ones suggested by other experts in Round 2. For simplicity, we do not report here the exact counts of how many experts voted for each goal.

- **The cells specify experts' agreement that specified stakeholders have specified goals.** Rounds 1 and 2 only specified goals more generally within stakeholder categories, without distinguishing different kinds of stakeholders within a category. In Round 3, for the ten most noteworthy business models, we suggested in each cell which stakeholders matched each goal based on our analysis of each model and based on experts' comments. We then asked experts to agree or disagree with each of our suggested stakeholder goals. The cells reported here indicate how many experts agreed or disagreed with our suggestions.
    - Thus, for example, a cell that reports "7Y:2N" means that seven experts agreed that that stakeholder benefited from that goal in that model, and two disagreed.
    - We counted experts who agreed based on if they answered "Mostly Agree" or "Partially Agree" to our question, "To what extent do you agree that the table above accurately reflects stakeholders and their goals and benefits for this business model?", and then left the option unchanged from our initial suggestion.
    - We counted experts who disagreed based on if they explicitly deselected (unchecked) a stakeholder goal that we had checked (selected) in our initial suggestion, regardless of their response to whether they agreed with our selections.
    - A blank cell in the table means that we suggested that the stakeholder did not benefit from that goal in that model, and no experts disagreed.

Ten most noteworthy existing and potential business models

Among these ten most noteworthy business models, the eight existing models are listed first in order of the experts' level of interest, and then the two potential models are listed next, also in order of the experts' level of interest (see Table 8, Table 9 and Table 10).

Donations and grants

(Existing business model proposed by research team)

How does this business model work?

- A non-profit organization manages the online education offering and receives donations and grants for continuous funding. If sufficient funds are obtained, an endowment might be created. Funds are used to provide revenue to content creators and the content and course administration (if included) is provided at no charge to students. In some cases, content creators volunteer their contributions for no compensation. These donations might be more in the form of corporate or foundation sponsorship, where the sponsor might be acknowledged in course materials or receive other benefits. Unlike the "Governmental or foundation sponsorship" model, here the education provider retains control of the endeavour; however, significant donors might exert influence on the future direction of the offering.

Is it feasible to use open educational resources (OER) with this business model?

- 8 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- Khan Academy; Wikibooks; OpenStax; WGBH sponsorship by Biogen Foundation; MIT OpenCourseWare

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame /reputation
Content creators					
Volunteer contributors	1Y:6N		7Y	6Y:1N	7Y
Paid Contributors		7Y	7Y	6Y:1N	7Y
Learners					
Online students	7Y		7Y	7Y	
Distributors/Providers					
Online education providers		7Y	7Y	7Y	7Y
Face-to-face teachers		2Y:5N	7Y	7Y	
Other relevant stakeholders					
Parents	1Y:6N		7Y	7Y	
Donors			7Y	7Y	7Y

Notes about stakeholders and goals:

- Learners: When contributors are volunteers, the quality might vary widely.
- Distributors/Providers: Revenue comes from donations and grants

Sources:

- Downes (2007)[2]

Experts' comments from Round 1:

1. * parents' interests are never the same as students' * this model is subject to fluctuation, arbitrary termination * 'free' is distinct from 'low price' and should be stated separately
    - [Research team comment] We have removed the claim that "Parents' interests are the same as students..." from all business models.
    - [Research team comment] We have renamed the "Low price" option to "Low or no price". Although they are not the same thing, they are sufficiently similar for them to be classified together. For example, free OER textbooks with paid registration would not be "no price", but is "low price".
2. This business model is not really a business since the business ceases to exist once there is no more philanthropic donations or grants. At OpenStax we have a sustainability model built around an OER ecosystem in which for-profit partners provide services around the open content. When they sell the good or service, OpenStax receives a mission support fee. At scale, this is sustainable to maintain our platform and revise titles.
3. Perhaps this is a factor of what you are trying to learn, but I'm struck by the fact that this question doesn't include any potential weaknesses or non-financial costs to each of the participants. For example, there could be an academic cost to students using Wikibooks in some settings due to teachers (either individually or collectively) disparaging Wikipedia as a source of information. This question seems focused more on the benefits of using these sources, but doesn't really provide much context about the potential downsides.
4. I think [learners] also benefit from widespread distribution. For all of these, another benefit to content creators is professional development.
5. You significantly underplay the importance of donors in this model, especially big grantors like the Hewlett Foundation and the Gates Foundation. In the past ten years, they've gone from funding projects that came up with good ideas (the original grants for MIT OpenCourseWare, CMU's Open Learning Initiative, Rice U's Connexions) to making grants based on relatively prescriptive theories of change which in many cases have programs changing their vision to pursue funding.
6. Sponsored (Production is funded by sponsor; sponsor is acknowledged in materials): A corporation or foundation wants to have an impact on a particular area of knowledge and sponsors a course. The sponsor is acknowledged in course materials. Example: Biogen Foundation (a corporate foundation) funded the development of an online course in bio-engineering produced by WGBH. This model can work either with OER or with proprietary content.
    - [Research team comment] This comment was actually presented as a distinct existing business model; however, we place it as a comment here because it is probably an important variation of this model.
7. Corporate sponsorship: MIT provides a package of benefits, including membership in an advisory board, on-site brand advertising, custom course lists for employees or customers. In return, OCW gets middle to high six figure gift, spread over multiple years. This model is a big part of MIT OCW's income. This model relies exclusively on OER. [The corporations gain] insight into MIT's digital learning plans, connection to the Institute.
    - [Research team comment] This comment was actually presented as a distinct existing business model; however, we place it as a comment here because it is probably an important variation of this model.

Experts' comments from Round 2:

1. The problem with donations and grants funding is that they can fluctuate year to year. So, it is very risky to manage your business only on this business model. / If you mix it with other models, it certainly is interesting.
2. This seems to overlap with the next one [Governmental or foundation sponsorship]. / I think this is a problem with the models you have identified. They are not distinct and some are really organizational models rather than business models.
    - [Research team reply] The distinction is that here, the donations and grants are haphazard and occasional, usually with no long-term support from any single source. With governmental or foundation sponsorship, the sponsorship is usually the primary source of long-term sustained funding; if that one source dries up, the entire project might sink.
3. I wonder about the sustainability of this business model. It is great if an endowment is created, but what happens when the next "big" educational breakthrough occurs? Will the big donors put their money in those organizations?
4. History has shown that this is a popular and successful model for educational innovation.
5. It's not sustainable but it's popular.

6. As the process of advocacy for OERs continues, it will be important to ensure that donors offer funds that enable good practices to be developed and reviewed. This will allow relevant evidence to be generated on how OERs are developed, used and what value they are adding to the learning process. / Therefore this business model (donors/grants) will still be an important one to be evaluated in detail. Key to this review is to identify how this model can be changed to be financially sustainable, i.e. as this matures within an organization using donor funds, how can the development of OER continue without donor funds?
7. We have run many models and the building of high quality content takes significant resources; therefore, if you give the bulk of the resources away for free some type of grant funding is required to build those resources. The titles can be sustained through revenue sharing, etc.
8. This seems like a very viable means to provide OER. It is definitely worth exploring further.
9. This is how Wikipedia gets funded. It is increasingly possible to survive this way given that the production costs for OER continue to drop.
10. I don't think that you can evaluate the business models independently because I am not sure there is always a clear distinction. Of all the business models listed here, though, I think that this one is probably the best understood and the others have been looked at less.

Experts' comments from Round 3:

1. I'm not quite sure that "quality" can be ensured with these types of services, however, I still agree that these sources of information CAN provide that. The question is, DO they provide that as a feature of the service? I'm not sure that is true.
2. It is not the most sustainable business model. You are depending on the donations and grants that can fluctuate year to year. / It is a good business model to start with, but it has to be mixed with other models.
3. I note the comments and agree; this is not sustainable. It does provide a useful model for advocacy, innovation and building a body of evidence that can be used to argue a more sustainable model, government support for using OERs to drive learner support, involvement of educators/learners and creating communities around this area.
4. You write, "Parents' interests are the same as students..." This statement is manifestly not true. / / There seems to be an overemphasis on the part of the expert surveys regarding quality. How do the *contributors* benefit from higher quality on this model? Yet here (and elsewhere) it is consistently checked, reflecting perhaps a systemic bias on the part of participants.
    - [Research team comment] We have removed the claim that "Parents' interests are the same as students..." from all business models.
    - [Research team comment] "Quality" as a goal or benefit for contributors captures the fact that they gain intrinsic satisfaction from producing a high quality work, as facilitated by the organization and resources from this model.

Online program of traditional institution

(Existing business model proposed by research team)

How does this business model work?

- This model is the online courses division of a traditional university, where a traditional face-to-face educational institution establishes and administers an online education program that provides an online outlet for its educational materials and programs. Funding is obtained through various means including general institutional resources (free to students), student tuition, or dedicated donations.

Is it feasible to use open educational resources (OER) with this business model?

- 8 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- MIT OpenCourseWare, university online offerings, libraries

	Low or no price	Revenue	Widespread distribution	Quality of product /service	Renown/ fame/ reputation	Data about student learning
Content creators						
Institutional teachers		8Y:1N	9Y	8Y:1N	9Y	9Y
Instructional designers		8Y:1N	8Y:1N	7Y:2N		8Y:1N
Learners						
Registered online-only students			2Y:7N	9Y		
Registered traditional students				9Y		
Unregistered online students	9Y		1Y:8N	9Y		
Degree-seeking students				9Y		
Distributors/Providers						
K-12 schools		9Y	9Y	9Y	9Y	9Y
Higher education institutions		9Y	9Y	9Y	9Y	9Y
For-profit institutions		9Y	9Y	9Y	9Y	9Y
Online education list compilers and reviewers		1Y:8N	9Y	9Y	9Y	
Other relevant stakeholders						
Parents	1Y:8N			9Y		
Government ministry of education	1Y:8N		9Y	8Y:1N		
Taxpayers	1Y:8N		9Y	8Y:1N		
Researchers			9Y	8Y:1N		9Y
Course teachers		8Y:1N		9Y	1Y:8N	9Y

Notes about **stakeholders and goals**:

- Content creators: Teachers are paid by the institution

Sources:

- Downes (2007)[2]

Experts' comments from Round 1:

1. It seems that you've aligned parent interests with student interests pretty closely, but I'm not quite sure that this is true in all cases. In my experience, parents value their student's learning experiences in different ways that the students themselves do. There's definitely not perfect alignment.
    - [Research team comment] We have removed the claim that "Parents' interests are the same as students..." from all business models. This also applies to the following comment.
2. There's no evidence of 'low price' being a benefit provided by this model; tuition is a significant barrier - parents' interests are never the same as students
3. I don't think EdX is a good example. Their business model is much more diverse.
    - [Research team comment] We have removed edX as an example. This also applies to the next few comments.
4. edX is not a "traditional, face-to-face institution". It's a platform provider to traditional institutions and thereby isn't bound to this particular model. For institutions, online education has the possibility of offsetting other costs or increasing the "productivity" of the traditional educational program (for example, by offering pre-requisites online so all entering students arrive at a common level).
5. This has significant overlap with the first model in practice. Most of the early money for MIT OpenCourseWare was grant money, though MIT put in a fair amount of cash and provided significant in-kind support. Right now, MIT OpenCourseWare is about 50% MIT resources and 50% other income. edX was much more a big cash infusion from MIT upfront, and smaller grant support after.
6. My university [name masked] does offer online courses, but they treat the courses as regular courses (yet taught through video lectures). The coursewares are not free or redistributable.
7. I don't understand why you have indicated "low price" for consumers. I don't think this model necessarily implies a low price.
    - [Research team comment] In Round 1, we didn't distinguish between different types of consumers as we do in the final version above.
8. I don't think this is a NEW business model, but I am not sure if you have accounted for just making the creation of OER part of the regular operating budget of the institution.
    - [Research team comment] Indeed, this is an existing business model, not a new one.

Experts' comments from Round 2:

1. edX is a platform for online educational materials, not an institution unto itself. The participating institutions (Harvard, TU Delft, McGill) are the examples you should list.
    - [Research team comment] We have removed edX as an example.
2. Overlaps with the [Governmental or foundation sponsorship] model.
    - [Research team comment] The distinction is that here, the program administered by a traditional educational institution whereas for Governmental or foundation sponsorship, it is administered by a separate organization established and funded by a government or non-profit foundation.
3. Again, this is a likely scenario, but likely to be combined to one or another of the preceding models.
4. Traditional institutions will be going this route, either willingly or 'kicking and screaming'. Developments in the technology, needs of the student body, professional development requirements and positioning of institutions will result in such institutions going the online route, with or without OERs.
5. It's rare that a traditional institution leads to truly open OER …. There are always catches.
6. This just seems a little ill-defined to me. More clarity on what is actually meant here would be helpful.
    - [Research team comment] The most common instance of this: Most universities today offer online courses. This business model is the online courses division of a traditional university. The description has been revised for clarity.
7. [I am neutral about evaluating this model in more depth.] The reason is that these institutions are already engaged in research in this area.

Experts' comments from Round 3:

1. I added registered and unregistered online students to those who would benefit from widespread distribution of these kinds of resources. / / Additionally, I think the same thing can be said about "quality" of the services as was said in the first question. If the resources are [high-]quality, then everyone involved benefits (thus, it's kind of silly to even have that as an option, since, by default everyone benefits from quality resources and all of the items in the list would be selected). The problem is, is quality a feature of the system (meaning, does the system ensure quality resources by its design) or a "bug" (meaning, does the system allow quality, but it is dependent upon other factors)?
    - [Research team comment] In this business model, virtually all stakeholders do care about high quality. However, this is not necessarily the case for all business models. For example, corporate investors in some models might care only about revenue, even if low-quality materials are used to obtain it. We do not take the question for granted.
2. In the developing world where many still lack basic ICT skills, traditional students hone their ICT skills, which could be a benefit to them when looking for employment. / / Course developers may also build up their CVs by participating in online courses.

Community-based production

(Existing business model proposed by Stephen Downes)

How does this business model work?

- Members of a community of practice or interest group create materials for each other's use. This can also be called a "prosumer" model.

Is it feasible to use open educational resources (OER) with this business model?

- 3 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- Wikipedia; WikiEducator; Phil Preprints

	Low or no price	Revenue	Widespread distribution	Quality of product/ service	Renown/ fame/ reputation	Community building
Content creators						
Volunteer contributors	1Y:6N		7Y	6Y:1N	7Y	7Y
Learners (user-generated content)	1Y:6N		7Y	7Y		7Y
Course authors			7Y	6Y:1N	7Y	7Y
Textbook authors			7Y	6Y:1N	7Y	7Y
Learners						
Online students	7Y		7Y	7Y		7Y
Distributors/Providers						
Online education providers			7Y	7Y	7Y	7Y
Other relevant stakeholders						
Course teachers			7Y	7Y	7Y	7Y
Researchers			7Y	6Y:1N	7Y	7Y

Notes about **stakeholders and goals**:

- Learners: I hate the term consumers
  - [Research team response] We have changed this term to "Learners" throughout.
- [Comment from Round 1] Distributors/Providers: Note that on this model the four-part division doesn't really work
  - [Research team response] In fact, it does. In your examples, the Distributor/Provider would be WikiEducator. Please note that "creators" are the actual people who create content, who are often different from the platform administrators (the distributors).

Other general notes by the proposer(s):

- Examples: Wikipedia (before it became a corporation); WikiEducator (before it became a corporation);

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. I don't think community-based products would have high enough quality for education.
2. Communities are very easily created online, but for it to be successful you need a couple of core people. / When those guys leave, the community will slowly come to a stop.
3. This is the primary business model for OER today (but is not counted because there's no 'sponsoring' group behind it).
4. With the advent of crowd sourcing and increasing use of 'community' taking ownership, this is a model that needs to be reviewed in detail. In many developing countries, community-based production is starting to gain traction as more communities are empowered, develop their capabilities and become able to take ownership of processes.
5. This is fine for local use of materials; however, these efforts rarely develop high-quality content that can be used outside of the local institution. It takes a team of professionals to develop professional-grade content.
6. I really like community-based OER. The materials themselves can be spotty, in terms of quality, but there are ancillary benefits to the process that make it worth it.
7. Money has to come from somewhere, so while Wikipedia has robust volunteers, it also needs cash. MIT OpenCourseWare also lives off of the volunteer labor of the faculty who create and share content.

Experts' comments from Round 3:

1. I would argue that revenue can be a tricky thing in this kind of setting. Although not directly tied to the production of the resources, it is potentially (at least) possible to leverage any renown/fame/reputation that a participant gains into money through various means.
2. These type of resources may be good for the community but outside that community, acceptance may still be a hurdle. In some universities in the developing world, graduate students are advised NOT to use content from such communities.

Advertising

(Existing business model proposed by Stephen Downes and an anonymous expert; incorporates model previously called "Marketing or adware")

How does this business model work?

- Paid advertising is placed on OER content. The students do not have to pay. The model can include anything from extended training for purchasers of a complicated product to the provision of learning materials to stimulate interest in a hobby, vocation or product line. Advertisements will be included throughout the education program and fund the whole program.

Is it feasible to use open educational resources (OER) with this business model?

- 4 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- Academic Earth, OpenStudy, Cooking shows, photography lessons (eg. Nikon's series on becoming a better photographer), how-to construction guides (eg. http://www.askthebuilder.com)

	Low or no price	Revenue	Widespread distribution	Quality of product/ service	Renown/ fame/ reputation	Advertising message distribution
Content creators						
Paid Contributors		7Y	7Y	6Y:1N	7Y	
Learners						
Online students	7Y	1Y:6N	7Y	6Y:1N		
Distributors/Providers						
Online education providers		7Y	7Y	6Y:1N	7Y	7Y
Other relevant stakeholders						
Parents	1Y:6N		7Y	6Y:1N		
Advertisers		7Y	7Y	6Y:1N	7Y	7Y

Notes about **stakeholders and goals**:

- Distributors/Providers: No distributors/providers on any of these models - I don't know why the assumption is there that they play such a key role
    - [Research team response] In your examples, the distributors/providers would be the cooking show website, Nikon's website, http://www.askthebuilder.com/, and YouTube (that hosts many of these videos).

Other general notes by the proposer(s):

- This business model might have ethical issues.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. This is a business model that is working in many industries, so that is a good reason to see if this could work.
2. I wonder how distracting the advertising would be? It is hard enough for many students to focus on learning; more distractions could negatively impact learning.
3. I can imagine it creating all sorts of resistance, and as well it would not generate the expected level of revenues. But it should probably be explored.
4. The market has consistently rejected infusing educational content with advertising.
5. I'm a little bit squeamish about any use of advertising in relationship to educational materials. It seems a little bit unseemly.
6. Again, a pretty low-margin approach, requiring low production costs.
7. [Referring to all business models proposed by experts] I think these are all worth evaluating because there is so little evidence about whether they work or not. Compared to the existing business models on the previous page, I would rank these as a much higher priority to understand and evaluate.

Experts' comments from Round 3:

1. I'm still slightly uneasy about the use of advertising as a business strategy within educational settings. Having content or activities sponsored by corporations is unseemly and a bit ethically difficult to swallow.
2. I often take messages from advertisers' sponsored messages with a grain of salt. I agree with comment number 5 [from Round 1].
3. There would need to be a set of standards for advertising to ensure inappropriate adverts are not allowed.
4. It may be possible that students earn revenue shared by the provider.
5. Again - the same comment about the responses regarding 'quality'. [There seems to be an overemphasis on the part of the expert surveys regarding quality.] Do participants really believe that advertising leads to higher quality learning resources? [Yet here (and elsewhere) it is consistently checked, reflecting perhaps a systemic bias on the part of participants.]
    - [Research team comment] "Quality" as a goal or benefit does not mean that advertising leads to higher quality. It means that advertisers desire that the materials be of high quality, since that would help their advertising efforts.

Cooperative production consortium

(Existing business model proposed by Stephen Downes and Dr. Norma I. Scagnoli; previously called "Cooperative or shared production model", "Partnership among different institutions and organizations for the creation and distribution" or "Organizational partnership or consortium")

How does this business model work?

- Free and open peer-reviewed collection of online teaching and learning materials and faculty-developed services contributed and used by an international education community. The collaboration is a partnership among different institutions and organizations for the creation and distribution of educational materials. People may purchase memberships, or member institutions may pledge to commit a certain amount of capacity (there are different sub-models here), but essentially each contributes a little, and everybody uses the totality of the results.

Is it feasible to use open educational resources (OER) with this business model?

- 6 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- Merlot.org (http://merlot.org); Western Canadian provinces contribute to and share a common curriculum

	Low or no price	Revenue	Widespread distribution	Quality of product/ service	Renown/ fame/ reputation	Community building
Content creators						
Course authors		8Y	8Y	7Y:1N	8Y	8Y
Textbook authors		8Y	8Y	7Y:1N	8Y	8Y
Instructional designers		8Y	8Y	7Y:1N	8Y	8Y
Learners						
Online students	8Y		8Y	8Y		8Y
Distributors/Providers						
Online education providers		8Y	8Y	8Y	8Y	8Y
Member institutions			8Y	8Y	8Y	8Y
Face-to-face teachers			8Y	8Y		
Online teachers	1Y:7N		8Y	8Y	1Y:7N	1Y:7N
Textbook publishers		8Y	8Y	7Y:1N	8Y	
For-profit institutions			8Y	8Y		
Higher education institution			8Y	8Y		
K-12 schools	1Y:7N		8Y	8Y		
Online education list compilers and reviewers			8Y	8Y	8Y	
Other relevant stakeholders						
Parents	1Y:7N		8Y	8Y		
Government ministry of education	1Y:7N		8Y	8Y		1Y:7N
Public school administrators			8Y	8Y		
Course teachers				8Y		

Other general notes by the proposer(s):

- This is similar to a 'federation' model and can be used to support services as well as resources (e.g. 'federated search').
- [Comment from Round 1] Again the four-part division doesn't work
    - [Research team comment] In fact, it does, as the diverse goals have emerged by Round 3.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. Very interesting idea. Needs more exploration.
2. I've not seen this work well with educational resources. With open source software, most people are working toward the same solution. With OER, you are looking for an individualized solution tailored to your exact need.
3. This is especially interesting for content of standardized courses, such as the many introductory courses, Advanced Placement courses, etc.
4. In this model, it will also be important to conduct further research in the area of quality and benefits -- quality is often diminished as more partners get involved. How one maintains high quality with partners becomes an important factor. The same with benefits -- what is driving the partnerships and how to ensure relevant benefits are accrued.
5. Usually the content is of low quality, difficult to find, and not complete.
6. This has always had its problems around peer review. Plus, not really creating new content.

Experts' comments from Round 3:

1. I added "Face-to-face teachers" to the list of folks who benefit from widespread distribution (and, quite honestly, I should have made sure that they were included in all of the other lists of people who benefit from widespread distribution). After all, every teacher I know looks for resources to use within their classrooms, and online resources of high quality will benefit f2f teachers just as much as distance teachers.
2. I don't think I really understand how this model works.
3. Building community is an objective of government (some would argue that its sole function).
4. We've spent a lot of time with these large tables. But they are eliding fundamental questions about the relation between stakeholders and benefits that should be examined in detail rather than in passing, e.g., the benefit of 'learners paying low or no price'.
    a) [Research team comment] Such examination is expressed in the experts' comments.

Governmental or foundation sponsorship

(Existing business model proposed by research team)

How does this business model work?

- A government, non-governmental organization, or non-profit foundation establishes and administers an online education program or resource centre with educational materials and programs. This is different from the Donations and grants model in that the program is directly administered and primarily funded by a governmental agency or a similar entity that has a much larger scope of concern (and resource allocation) than just the specific online education program.

Is it feasible to use open educational resources (OER) with this business model?

- 9 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- Commonwealth of Learning, Saylor.org, Wikiwijs

	Low or no price	Revenue	Widespread distribution	Quality of product/ service	Renown/ fame/ reputation	Data about student learning
Content creators						
Paid contributors		7Y	7Y	6Y:1N	7Y	7Y
Learners						
Online students	6Y:1N		6Y:1N	7Y		
Distributors/Providers						
Online education providers		7Y	7Y	7Y	7Y	7Y
Face-to-face teachers			7Y	7Y		1Y:6N
Other relevant stakeholders						
Government ministry of education	1Y:6N		7Y	7Y	7Y	7Y
Non-profit entities/ foundations			7Y	6Y:1N	7Y	7Y
Parents	1Y:6N		7Y	7Y		
Taxpayers	1Y:6N		7Y	6Y:1N		
Donors			7Y	6Y:1N	7Y	

Notes about **stakeholders and goals**:

- Distributors/Providers: Reputation is important to assure continued funding

Sources:

- Downes (2007)[2]
- De Langen (2013)[9]

Experts' comments from Round 1:

1. Parents' interests are never the same as students' / This model is subject to fluctuation, arbitrary termination / 'Free' is distinct from 'low price' and should be stated separately
    - [Research team comment] We have removed the claim that "Parents' interests are the same as students..." from all business models.
    - [Research team comment] We have renamed the "Low price" option to "Low or no price". Although they are not the same thing, they are sufficiently similar for them to be classified together. For example, free OER textbooks with paid registration would not be "no price", but is "low price".

[9] De Langen, Frank H.T., 2013. Strategies for sustainable business models for open educational resources. *The International Review of Research in Open and Distributed Learning*, 14(2), pp.53–66.

2. This also would apply to all of the descriptions here, but it would seem that "Quality of Product/Service" is a little bit unclear. I'm not sure how "Quality" is being measured or how it is being ensured as an outcome in any of these models. The way I've seen it in the past is that peer-evaluation or rating is used to judge the quality of materials, but that doesn't ensure quality. In my experience, anytime a variety of individuals are contributing to a project, the quality of any individual piece of material that is included can vary pretty widely.
    - [Research team comment] Measurement of quality is beyond the scope of this study; the focus here is whether there is the reasonable expectation that high quality would be a resulting benefit.
3. A Government or NGO that directly administers an online education program may have other benefits like conscious-raising or capacity building.
4. Other benefit for Instructors/ Teachers: Real time customization ability.
5. Saylor.org might fall into this category—a foundation that decided that rather than pushing external projects to realize the foundation's internal vision, they simply hired staff and did the work directly.

Experts' comments from Round 2:

1. This kind of sponsorship will stop when the sponsor thinks the goal is reached, or if the goal is not reachable or something changes at the sponsor itself (politics). / Most of these sponsorships are shorter than 10 years. / An example of this is the Wikiwijs programme of the Dutch government. After 4 years the sponsorship stopped because of changes in government policy.
2. 'Taxpayer' is not an appropriate stakeholder definition - *every* citizen (even retired people and infants) are in some way taxpayers, through their consumption. If you mean 'people' you should use the category 'people', rather than loaded terminology; otherwise, use 'property owner' or 'wage earner' to represent the actual classification.
    - [Research team comment] "Taxpayer" is a standard term used in the media for people in their particular role of insisting that the government use public funds (their taxes) responsibly and in accordance with their wishes, otherwise they threaten to vote in a more responsive government. This is the meaning here--politically active citizens. Thus, "retired people" qualify as taxpayers since they give input to public policy, but infants do not, nor are many student beneficiaries of online education.
3. Although I think this is a likely model, I'm not sure that it's sufficiently different from the Donations and grants model.
    - [Research team comment] The distinction is that here, the donations and grants are haphazard and occasional, with no long-term support from any single source. With Governmental or foundation sponsorship, sponsorship is a major source of long-term sustained funding; if that one source dries up, the entire project might sink. We have revised the definitions of the respective models to clarify their distinctions. This also applies to the following comment.
4. I'm still not quite sure how this is different from the grants idea above; a bit more detail on how specifically it is different would be good.
5. This business model is important to investigate in depth. As one develops the systems for education (both formal and non-formal), ensuring governments and other foundation/government agencies are able to develop and deliver good quality OER and support its use will become important. As the textbook industry developed and governments adopted different models, so too will the OER developments require governments/agencies/foundations to think about different business models.
6. Government funding seems likely to require the outcomes to be open.
7. There are several problems with this model. First the development of content will get mired down in bureaucracy and approvals... it will never get completed. Second, if the government pays for the creation of content won't the government be compelled to consider mandating its use? / / The Government role is fine for building awareness and/or incentives for adoption/adaptation.
8. Just not sure if there are enough examples of this out there. Though I know the Smithsonian is looking at an open sharing project.

Experts' comments from Round 3:

1. I worry about this as a means to fully support the development and maintenance of online resources (and, quite honestly, any resource). After all, in fickle financial times, it is easy to see arguments being made for removing support for these kinds of ongoing projects, and that leaves users in the lurch and the content itself in a precarious position.

Institutional subscriptions

(Existing business model proposed by an anonymous expert)

How does this business model work?

- A provider gives educational materials away for free to individuals, but charges subscription fees to institutions to use them across larger populations.

Is it feasible to use open educational resources (OER) with this business model?

- 4 experts agree that OER is feasible; 1 expert disagrees.

Examples of this business model:

- Monterrey Institute's HippoCampus (http://www.hippocampus.org)

	Low or no price	Revenue	Widespread distribution	Quality of product/ service	Renown/fame/ reputation
Content creators					
Paid contributors		6Y	6Y	5Y:1N	6Y
Learners					
Registered traditional students	6Y		6Y	5Y:1N	
Unregistered online students	6Y		6Y	5Y:1N	
Homeschoolers	6Y		6Y	4Y:2N	
Distributors/Providers					
Online education providers		6Y	6Y	5Y:1N	6Y
Online teachers			6Y	5Y:1N	
Face-to-face teachers			6Y	5Y:1N	
Other relevant stakeholders					
K-12 institutions			6Y	5Y:1N	
Public school administrators			6Y	5Y:1N	

Other general notes by the proposer(s):

- To learn more about HippoCampus (which gives K-12 materials free to individuals), talk to Gary Lopez.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. I'd like to understand this better. What's the value for institutional investors that justifies the cost, particularly if the content is free and/or OER?
2. Not really OER
3. It's worth exploring, but I'm not seeing a huge amount of openness in these types of materials.
4. Works.

Experts' comments from Round 3:

1. I don't really know much about this model, so it's difficult to say with certainty how well it is reflected in the table.
2. Openness seems to be highly limited here. Is this still OER therefore?

Selling course experience

(Existing business model proposed by research team)

How does this business model work?

- The online materials are free, but students pay for the online education experience, including having a teacher guide them and respond to questions throughout the course. The "experience" might include a schedule, corrected assessments, a completion certificate, proctored exams at a physical testing centre, or other value-added educational experiences. They normally pay for each course they enroll in. Course creators and teachers are paid for providing the courses.

Is it feasible to use open educational resources (OER) with this business model?

- 5 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- Udacity; Coursera

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creators • Course creator		✓	✓	✓	✓
Learners • Any online student	✓			✓	
Distributors/Providers • Online education provider • Course teacher		✓	✓	✓	✓
Others relevant stakeholders • Parent • Investor		✓	✓	✓	

Because this model was added to the ten selected models only after the end of Round 3, the stakeholder goals table does not have detailed votes from experts, as do the other selected models.

Notes about **stakeholders and goals**:

- Distributors/Providers: "Course teachers" are teachers who facilitate the students' experience, as distinct from the actual creators of the content.
- Others: Commercial investors in the company mainly care about return on investment

Experts' comments from Round 1:

1. It's not clear that quality is not the same as for previous cases - content in this model is often OER, e.g. in the case of connectivist MOOC.
2. I'm interested in why Quality of Product/Service isn't selected for the Other group here...this is the first time that it hasn't been identified as a benefit or value, and it seems that it would still be (even with investors, who value ROI).
    - [Research team comment] It has now been selected accordingly; this also applies to the next comment.
3. The quality of product might be checked for "Others" such as "Selling courseware".
4. Again, I don't understand why you have "low price" checked for [learners]. Also, I don't agree that OER is not feasible with this model.
    - [Research team comment] The model originally claimed that OER is not feasible, before experts voted on the question; this also applies to the next comment.
5. I don't understand why "selling course experience" is in conflict with open educational resources. If the value-add is the experience, the materials can still be freely-redistributed. This also isn't a strictly low price model.
6. You can do this and still produce OER. Johns Hopkins Bloomberg School of Public Heath published much of the material used in some of their online courses in an OCW site. They are essentially selling the experience and certification, and giving the content away for free.
7. Pay for verified certification: students pay extra for a service that verifies their identity, and may also verify that the same person performed all assessments. Examples: edX, Coursera. This model can work either with OER or with proprietary content.
    - [Research team comment] This comment was actually presented as a distinct existing business model; however, we place it as a comment here because it is probably an important variation of this model.
8. Pay for examinations: Students can validate their performance by taking a summative assessment at a test center (such as run by Pearson). Part of the examination fee is returned to the course creator/distributor. Example: Udacity experimented with this. This model can work either with OER or with proprietary content.
    - [Research team comment] This comment was actually presented as a distinct existing business model; however, we place it as a comment here because it is probably an important variation of this model.

Experts' comments from Round 2:

1. Maybe I don't understand this model but I don't see how Udacity would fit this.
2. For the online course providers who started with free courses, this is often their model for sustainability.
3. Not really an OER model
4. It is a good model!
5. The only value in this model is to identify how the learner sees this model and whether there is a perception of paying for a course = value and high quality.
6. Why is OER not feasible in this model? OER could be used as the source content which would reduce costs.
7. This type of sale of course experiences doesn't really lead to OER. I would think that if the focus is on evaluating OER, then it wouldn't be worth going down this path.
8. This can work, but the margins are low. Has to have a low cost production model.
9. Any business model that depends on OER exclusively depends on that OER being there. I have found that there is just not as much OER out there as people think. / / I am not sure I understand the stakeholders boxes below. Wouldn't all online learners be stakeholders? Potentially any of the boxes below could be checked in any of the business models. It depends entirely on the course and what is already available as an OER.
    - [Research team comment] This comment refers to the listing of possible stakeholders that might apply to this and other models (presented in Part C of this report)..

Because this model was added to the ten most noteworthy only after the end of Round 3, there are no experts' comments from Round 3.

Content creation by classroom students

(Potential business model proposed by Stephen Downes; previously called "Students developing for or teaching students")

How does this business model work?

- Each term or year of a class or course creates learning materials for the next term or year. The purpose is to stimulate learning by teaching. It's a bit like Digital Storytelling at the University of Mary Washington (ds106, http://ds106.us), except the resources are explicitly teaching resources.

Is it feasible to use open educational resources (OER) with this business model?

- 3 experts agree that OER is feasible; 0 experts disagree.

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame /reputation
Content creators					
Teachers		1Y:6N	7Y	7Y	7Y
Students		1Y:6N	7Y	7Y	7Y
Learners					
K-12 students	7Y		7Y	7Y	1Y:6N
Higher education students	7Y		7Y	7Y	1Y:6N
Distributors/Providers					
Face-to-face teachers			7Y	7Y	
K-12 schools			7Y	7Y	7Y
Other relevant stakeholders					
Researchers			7Y	7Y	7Y

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. Although "student teachers" sometimes work in traditional classroom settings, the model might only be good for students who create content but not for those who study it.
2. Interesting—would this be for secondary/higher education? Would this be highly edited and scaffolded at all grade levels?
3. Could be merged with the previous model [Content creation by MOOC students].
    - [Research team comment] The critical distinction is that this model involves close oversight by the teacher of the class, which is absent in the model on Content creation by MOOC students.
4. I don't want patients teaching doctors.
5. The quality is likely to be spotty with these materials, but I love the concept of student-created materials being used by other students.
6. MIT has a bio textbook that is maintained by the students. I've always thought it was a great model for creating open textbooks.

Experts' comments from Round 3:

1. As the learners are the creators of the content in this model, I added them to the list of stakeholders who gain renown/fame/reputation.
2. Students can generate a lot of high quality materials but the students would need a lot of mentoring and support to achieve that quality. I would be wary of other students accessing other students' work without the teachers' intervention.
3. I think teachers could use this as a sort of assessment; see what the students know/understand by assigning them the "teacher" role, and then edit the content accordingly. I don't see this working across schools/states/etc.; it is too hard to search through quality materials already.... I can't imagine taking the time to find high-quality lessons made by other students than my own. I can only see it working in individual classrooms and within a school, possibly a district.

Content creation by MOOC students

(Potential business model proposed by Dr. Norma I. Scagnoli; previously called "Resources developed by participants of MOOCs from diverse backgrounds, countries and academic preparation")

How does this business model work?

- Participants of MOOCs from diverse backgrounds, countries and academic preparation can develop resources for each other. MOOCs become venues to create communities of learning and communities of practice. Those networks connect and share information and resources. They can share information and multiple sources to enhance their knowledge and this becomes OER.

Is it feasible to use open educational resources (OER) with this business model?

- 3 experts agree that OER is feasible; 0 experts disagree.

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creators					
MOOC students	1Y:6N		7Y	7Y	1Y:6N
Volunteer contributors			7Y	7Y	1Y:6N
Learners					
Online students	7Y		7Y	7Y	
Distributors/Providers					
Online education providers			7Y	6Y:1N	7Y
Other relevant stakeholders					
Parents			7Y	6Y:1N	

Other general notes by the proposer(s):

- Participants of MOOCs are highly motivated people interested in specific topics; thus, they can develop resources for each other.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. MOOC students, while motivated, come from a wide variety of background. The content produced this way might be disorganized.
2. User-generated content has been successful
3. Not a business model and very rare anyway.
4. Seriously! Who curates the content?
5. The quality is likely to be spotty with these materials, but I love the concept of student-created materials being used by other students.
6. Hard to imagine this working systematically.
7. This is worth looking at, but I think the model will end up looking like Wikipedia (for better or worse). That is, you will get a community dominated by a few who hold the 'power' and are not very diverse.

Experts' comments from Round 3:

1. I like this as a model for education, but I'm not sure that it is viable as a business model. Time will tell, but I would imagine it will be difficult to profit from these types of educational instances. Also, I would quibble slightly with the description of how the business model works. It states that "participants of MOOCs are highly motivated people interested in specific topics", however, the research would indicate that the percentage of participants who actually complete MOOCs are very VERY low (in the single digits). As such, I would amend it to read that participants can be motivated by the material, and highly motivated people are more likely to finish.
    - [Research team comment] The comment about "highly motivated people" has been relegated to the section on "Other general notes by the proposer(s)".
2. It is hard for me to envision this as a model / Quality of such content would probably be problematic. Who assures Quality here?
3. MOOC students and volunteer contributors can gain renown and reputation from creating content.
4. Could comment 2 from round 2 elaborate more on how user-generated content has been successful? It has been okay at best from my experience.
    - [Research team comment] Unfortunately, Round 3 was the last formal round in this study.

Existing business models

The business models in this section were proposed by both research team and experts. They are listed in the order of experts' level of interest (see Table 8 and Table 9). Since none of these here were among the ten most noteworthy models, there are no comments from Round 3. Moreover, the stakeholder tables do not distinguish between goals or benefits for each specific kind of stakeholder.

Individual expert contributions

(Existing business model proposed by Stephen Downes and an anonymous expert; previously called "Giftware / expert contributions")

How does this business model work?

- An expert provides resources for the good of the community with the goal of making some body of knowledge widely known.

Is it feasible to use open educational resources (OER) with this business model?

- 2 experts agree that OER is feasible; 1 expert disagrees.

Examples of this business model:

- Stephen's Guide to the Logical Fallacies; early version of Khan Academy; history of philosophy podcasts http://www.historyofphilosophy.net/; The OpenFiction Project (http://tofp.org)

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creators • Individual faculty	✓		✓		✓
Learners • OER users	✓		✓	✓	
Distributors/Providers					

Other general notes by the proposer(s):

- It's what Khan Academy was before it sold out.
- I created materials for a distance learning course at [a college]. Because I retained ownership, it was relatively low cost, low effort for me to publish the materials openly on the web. It costs me $5 a month for the hosting and $19 a year to maintain the domain name.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. Who makes sure that the content provided is accurate? Is there some kind of peer review?
2. This is such an idiosyncratic model, I'm not sure what we can learn from it.
3. Could be merged with community-based
4. The use of experts will continue to be a key part of OER developments. Given OER also wants to encourage experts to make their content available, having a model for this will be important.
5. As production costs go down, we'll see more of this.

Selling courseware

(Existing business model proposed by research team and Willem Van Valkenburg; includes model previously called "Freemium")

How does this business model work?

- Learners pay for access to the online materials. They might pay for each course or for multi-course access with a subscription model. Course creators are paid for providing the courses. In a "freemium" option, part of the content or course is free, but learners pay if they want full access (similar to what many software business do).

Is it feasible to use open educational resources (OER) with this business model?

- 4 experts agree that OER is feasible; 2 experts disagree.

Examples of this business model:

- Lynda; Udemy; CreativeLive; Kaplan; Study.com

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content Creator • Course creator		✓	✓	✓	✓
Learners • Any online student	✓			✓	
Distributors/Providers • Online education provider		✓	✓	✓	✓
Others relevant stakeholders • Parent • Investor		✓		✓	

Notes about **stakeholders and goals**:

- Learners: For the freemium variation, part of the content is free, full access is paid
- Others: Commercial investors in the company mainly care about return on investment

Sources:

- Downes (2007)[2]

Experts' comments from Round 1:

1. Selling OER content is a business model, thus [it is wrong to say that this model does not support OER]
    - [Research team comment] The model originally claimed that OER is not feasible, before experts voted on the question; this also applies to the next comment.
2. [I don't understand why you have indicated "low price" for consumers. I don't think this model necessarily implies a low price.] In theory, OER could be used in this model if it is OER that allows for commercial use.
3. In this case, Quality of Product/Service is selected for the "Other" group, but the justifications are the exact same as the previous question.
4. Pearson is also a good example for this.

Experts' comments from Round 2:

1. Not an OER model
2. the only reason for saying 'probably yes' is based on what value is ascribed to a course when the learner pays for it. In developing countries, learners often associated free (courses, materials) with poor quality.
3. See above
4. Selling content as a business seems fairly dead to me.
5. This model is obviously only feasible with OER that allows for commercial use. If the OER has a CC-BY-NC licence, for example, it cannot / / As with all these, I am not sure I understand the stakeholders boxes below. wouldn't all online learners be stakeholders? Potentially any of the boxes below could be checked in any of the business models. It depends entirely on the course and what is already available as an OER.
6. This is essentially the same as "selling courseware".
    - [Research team comment] This and the following comments were given for when there was a separate business model called "Freemium", which has now been merged into this model.
7. This is likely to be a component of the institutional business model.
8. Not really an OER, more a type of advertising
9. I'm a huge fan of the freemium philosophy.
10. Pretty big umbrella.

Ancillary product

(Existing business model proposed by Peter Pinch; previously called "Ancillary Product (e.g. online course is free with purchase of textbook)")

How does this business model work?

- Access to the online course is a value-added feature for the purchase of something else, e.g. online course included with purchase of textbook. This has been a common model for textbook publishers.

Is it feasible to use open educational resources (OER) with this business model?

- 2 experts agree that OER is feasible; 1 expert disagrees.

Examples of this business model:

- Textbook publishers like Pearson

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content Creator			✓		
Learners	✓			✓	
Distributors/Providers		✓			

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. This only works as long as the primary product makes enough money.
2. I don't know how it can be both OER and ancillary, but maybe...
3. In business, the model of "sell with" and "sell through" is one that has been tested and used extensively. Therefore this model needs to be looked at in detail. It does not have to be a product sold with a free course. It could be having various products available free together with an advertising model.
4. Been used by a number of folks in the OER world, so yes.

Syndication

(Existing business model proposed by Peter Pinch)

How does this business model work?

- Course creators license course materials to distributors who modify it or manage courses. Value added for learners is typically in having course materials localized, facilitated or credentialed.

Is it feasible to use open educational resources (OER) with this business model?

- 2 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- WGBH; edX

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creators • Course authors		✓	✓	✓	✓
Learners			✓	✓	✓
Distributors/Providers		✓		✓	✓

Notes about **stakeholders and goals**:

- Learners: Learners benefit from localized and/or credentialed courses.

Other general notes by the proposer(s):

- WGBH did this with online courses for teacher professional development, licensing courses to schools of education. edX has experimented with this, on behalf of its members, with community colleges and non-English-speaking institutions.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. This seems to overlap with some of the other models.
2. This is a technical model, not a business model
3. I'd need a little more detail to know for sure, but this seems good.
4. I don't know a lot about how this might work. My gut says it's usually easier for faculty in higher education to create new materials from scratch rather than adapt existing ones. K-12 may be different.

Employee recruiting

(Existing business model proposed by Willem Van Valkenburg)

How does this business model work?

- Learning analytics data is obtained from an online learning platform and this data is used to match students to companies. The content is free to the end-user, but the provider earns money with selling the data.

Is it feasible to use open educational resources (OER) with this business model?

- 2 experts agree that OER is feasible; 1 expert disagrees.

Examples of this business model:

- Piazza; Facebook; Google

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creator • Teacher		✓	✓	✓	
Users/Consumers • Online students	✓			✓	
Distributors/Providers • Provider		✓	✓	✓	

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. This is somewhat [sic] to a recruiter who provides training, e.g. The Data Incubator.
2. This is interesting, but there are ethical aspects involved.
3. I don't understand how this is a business model.
4. I don't think there's enough revenue potential here to offset the costs.
5. Could be merged with the previous model [Content creation by MOOC students].
6. What about FERPA, student privacy? All types of problems with sharing student learning data. Dangerous!!
7. I'm not a huge fan of any service that depends on the sale of user data to make a profit.
8. Sounds good in theory. Only ever heard of one case where it actually worked (a programming company in Egypt).

Corporate training

(Existing business model proposed by Stephen Downes and Peter Pinch; previously called "Corporate (in-house or recruitment) training and /or apprenticeship" or "Employer funding")

How does this business model work?

- A company creates learning materials for in-house training or (less commonly) to train recruits before employment. The company may develop materials itself, or, rather than relying on indirect payment methods like vouchers and reimbursements, it may contract with online learning providers to create customized, just-in-time professional development courses.

Is it feasible to use open educational resources (OER) with this business model?

- 3 experts agree that OER is feasible; 1 expert disagrees.

Examples of this business model:

- IBM in-house training; United States Army

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creators • Teacher		✓	✓	✓	✓
Learners • Online student	✓			✓	
Distributors/Providers • Provider		✓		✓	✓
Others relevant stakeholders • Employer				✓	✓

Notes about stakeholders and goals:

- Learners: While the intent is to meet corporate objectives, it works only if the resources are essentially free to learners.

This business model was suggested by experts in Round 1, so there are no comments from Round 1.

Experts' comments from Round 2:

1. I don't consider this a business model...more of an organizational model.
2. I think this will be a much larger segment than people realize
3. I think free training materials and courses for customers is a more compelling model.
4. Why would the employer make these open?
5. Overlaps with the other one dealing with employee training.
    - [Research team comment] This and the following comment referred to when this was presented as a separate model, "Employer funding"; the two models have now been merged.
6. This is similar to the Executive Education or Professional Education concept.

Virtual charter school

(Existing business model proposed by research team)

How does this business model work?

- A virtual charter school meets government regulations to provide a complete government-certified education for K-12 students. When registered as a charter school, it receives government subsidies for the education of registered students. It might also function as a private school, funded by tuition payments from students. It might also contract with traditional schools to supplement their offerings with online courses and online educational services. This is a legal option within some charter school systems in the United States.

Is it feasible to use open educational resources (OER) with this business model?

- 1 experts agree that OER is feasible; 0 experts disagree.

Examples of this business model:

- K12, Inc and K12 International Academy

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation	Other benefits
Content Creator • Course creator		✓		✓		
Learners • K-12 students				✓		
Distributors/Providers • Virtual charter school		✓		✓	✓	
Others relevant stakeholders • Parent • Public school administrator • Government ministry of education • Taxpayer • Investor		✓		✓		Flexible K-12 education provision

Sources:

- Ren (2014)[10]

Notes about **stakeholders and goals**:

- Content creators: Course creators might be anonymous
- Learners: Quality should be certified by the government
- Distributors/Providers: Distribution is limited compared to other online courses because of the high prices.
- Others: Investors gain revenue; These schools hopefully provide flexible education benefits to public schools, ministries of education, and taxpayers

[10] Ren, F., 2014. Recommend a few American online education companies' business models and profit models. *jmdedu.com*. Available at: http://www.jmdedu.com/news/detail/538.

Experts' comments from Round 1:

1. Using OER content is a business model, thus [it is wrong to say that this model does not support OER].
    - [Research team comment] The model originally claimed that OER is not feasible, before experts voted on the question; this also applies to the next comment.
2. Again, I'm not sure why this model doesn't work with OER. I suppose it's less likely for OER but I expect that the value add is less courseware and more curriculum, guidance and adherence to government regulations.
3. This is a very US-focused business model

Experts' comments from Round 2:

1. This an organizational model not a business model.
2. Doesn't even belong in this discussion space.
3. Again, if the focus is on business models that lead to OER, why would you explore this one?
4. I think any school with funding coming from other sources can afford to release content as OER. Especially one funded by the government.

Potential business models

The business models in this section were proposed by the experts. They are listed in the order of experts' level of interest (see Table 10). Since these models were all proposed in Round 1, none of them has comments from Round 1. Since none of these listed here were among the ten most noteworthy models, there are no comments from Round 3.

OER curation

(Potential business model proposed by Dr. Norma I. Scagnoli summarized as "Repository of resources developed by all the business models suggested below and curated by an organization or a self-curating system")

How does this business model work?

- A computer system, a person or an organization will curate open resources on specific topics and provide access to others via search by topic, ages, level of knowledge and so on. This would be a repository of resources developed by all the business models suggested and curated by an organization or a self-curating system.

Is it feasible to use open educational resources (OER) with this business model?

- 3 experts agree that OER is feasible; 1 expert disagrees.

	Low or no price	Revenue	Widespread distribution	Quality of product/service	Renown/fame/ reputation
Content creators • Curators • Librarians • Faculty		✓	✓	✓	✓
Learners • Students • Schools • Degree-seeking students	✓				
Distributors/Providers • Curators • Libraries					
Others relevant stakeholders • Parents					

Experts' comments from Round 2:

1. It seems somebody has to create content before they can be curated.
2. is interesting, because curation gets more important online
3. Not a business model.
4. This sounds a bit like what the Summit Public schools do in California. Teachers create "playlists" for students to work through, sourced from online sources, and the teachers' own curricular materials.
5. It's not really a business model
6. Interesting concept, but I'm not quite sure how much I trust computer curated materials.
7. Academic Earth seems to have made a go of it like this.
8. I don't think this would work with OER as I just don't think there is enough open content out there yet.