Opening the Textbook:

Educational Resources in U.S. Higher Education, 2017

Julia E. Seaman and Jeff Seaman

BABSON Survey Research Group

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This report presents results derived from a nationally representative sample of higher education faculty. In addition to providing responses to a wide range of questions, these faculty also provided thousands of comments and observations on the state of teaching and learning. Each section of this report includes a selection of faculty quotes relevant to that topic. These quotes are presented as close to the original as possible, with the only changes being the correction of typos and the removal of any personally identifying information.

We wish to thank the thousands of faculty members who took the time to provide us with these detailed and thoughtful responses. We understand that you are very busy people, and appreciate your effort. This report would not be possible without you, and we hope that you find it useful.

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Executive Summary

Responses from over 2,700 U.S. faculty paint both a "Good news" and a "Bad news" picture for the role of open educational resources (OER) in U.S. higher education. Both sides of the equation are clearly evident in the responses from higher education teaching faculty who had recently selected required curricula materials (primarily textbooks) their course.

To begin with the bad news: the levels of awareness of OER, the licensing tied to it, and overall adoption of OER materials, remains low. Only 10% of faculty reported that they were "Very aware" of open educational resources, with 20% saying that they were "Aware." Awareness of Creative Commons licensing also remains low, with only 19% of faculty reporting that they are "Very aware." Measures that combine both dimensions are even lower, with 8% classified as "Very aware" and 17% as "Aware" on a joint measure of OER and of Creative Commons licensing awareness.

Faculty continue to report significant barriers to OER adoption. The most serious issues continue to be the effort needed to find and evaluate suitable material. Nearly one-half of all faculty report that "there are not enough resources for my subject" (47%), and it is "too hard to find what I need" (50%). In light of this, the reported level of adoption of open-licensed textbooks (defined as either public domain or Creative Commons) of only 9% is not a surprise. Many faculty members also voice concerns about the long-term viability of open educational resources, and worry about who will keep the materials current.

That said, there is also considerable cause for optimism among those who support OER. The awareness and adoption levels may be low, but they also show steady year-to-year improvements. For example, the open-licensed textbook adoption rate of 9% for 2016-17 represents a substantial increase over the rate of 5% for 2015-16. Likewise, awareness of both Creative Commons licensing and OER itself has increased each year.

OER also addresses a key concern of many faculty: the cost of materials. A majority of faculty classify cost as "Very important" for their selection of required course materials. Faculty report that their required textbooks have an average price of $97, and only 22% say that they are "Very satisfied" with that cost. It is therefore not surprising that most faculty report that not all of their students buy all the required texts for their class, with only a third saying that 90% or more of their students have purchased the required textbook.

A particular area of OER success is among large enrollment introductory-level courses. These courses touch the largest numbers of students, are often taught in multiple sections (66%), and are typically required for some subset of students (79%). Faculty teaching these courses were presented with a list of the most commonly used commercial textbooks (up to twelve) for their specific course, along with an open text alternative from OpenStax, a non-profit OER publisher based out of Rice University.

The rate of adoption of OpenStax textbooks among faculty teaching large enrollment courses is now at 16.5%, a rate which rivals that of most commercial textbooks. This is a substantial increase over the rate observed last year (10.8%). Users of OpenStax textbooks also had levels of satisfaction equal to their peers teaching introductory level courses who had selected commercial textbooks. These adoptions address concerns about cost as well: faculty who did not select an OpenStax textbook reported an average cost of $125 for the required textbook, while those who did select an OpenStax text reported an average cost of $31.

The OpenStax results among large enrollment introductory-level courses shows that OER can be successful. OpenStax has been able to reach penetration levels equal to most of their commercial competitors, with equal levels of faculty satisfaction, in a very short time. This comes amid continuing concerns on the part of faculty about the limited nature of OER materials, particularly the lack of associated materials like tests, quizzes, and homework assignments, that are typically provided by commercial alternatives.

The OpenStax model has also successfully addressed another faculty concern: the desire for print over digital. Faculty continue to report that their students prefer printed materials, and OpenStax provides this alternative in addition to a freely distributed digital version.

The results show that when you deal directly with the top faculty concerns of finding and evaluating potential OER options, OER can be as successful as commercial alternatives. OpenStax has done this by using an adoption and distribution model that is very similar to that of commercial publishers, with nicely formatted printed copies available for students in their normal bookstore.

One lesson from the OpenStax results is that you need to reach individual faculty members in order to be successful. Two-thirds (67%) of all faculty reported that they were the sole decision maker for the new or revised course material, while an additional 22% of faculty engaged in a group decision. Faculty have a well-proven model for selecting their teaching materials, and any new player will have to be successful within that model.

OpenStax's success is not complete, however. Initial adoption has primarily been among faculty who are willing to embrace new teaching styles, have greater willingness to move away from the traditional lecture style for teaching, and have a higher appreciation for digital materials. It is unclear if faculty with more traditional approaches, or greater reliance on associated materials, will follow in the same numbers.

It is also not clear if the OpenStax model will work outside of large enrollment classes. A mature OER distribution channel stocked with well-developed, high-quality options can address two of the most common factors cited by faculty when selecting educational resources: the need for comprehensive content and resources that are easy to find. OER has a district advantage for the remaining top concern: the cost to the student. Questions remain, however. Will there be sufficient adoption in smaller classes to support the production and updating of OER textbook alternatives? Is there enough volume in this market to support other OER publishers?

DEFINITIONS

This study is designed to explore the process by which faculty members select the educational materials that they employ in their courses. The most common of these is the required textbook - faculty members typically select one or more books that all students are required to use through the duration of the course. Faculty also employ a wide range of other materials: some optional, others required for all students. This study only deals with required materials, using the following definition:

> *Items listed in the course syllabus as required for all students, either acquired on their own or provided to all students through a materials fee; examples include printed or digital textbooks, other course-complete printed (course pack) or digital materials, or materials such as laboratory supplies*

In addition to examining the overall resource selection process, this study also explores the particular class of materials classified as open educational resources (OER). The Hewlett Foundation defines OER as:

> *OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge.*[1]

An important aspect of the examination of the use of educational resources is the licensing status of such materials: who owns the rights to use and distribute, and does the faculty member have the right to modify, reuse, or redistribute the content? The legal mechanism that faculty are most familiar with is that of copyright. As noted by the U.S. Copyright office, copyright is:

> *A form of protection provided by the laws of the United States for "original works of authorship", including literary, dramatic, musical, architectural, cartographic, choreographic, pantomimic, pictorial, graphic, sculptural, and audiovisual creations. "Copyright" literally means the right to copy but has come to mean that body of exclusive rights granted by law to copyright owners for protection of their work. … Copyright covers both published and unpublished works.*[2]

Of particular interest for this study is the copyright status of the primarily textual material (including textbooks) that faculty select as required materials for their courses.

> *Copyright owners have the right to control the reproduction of their work, including the right to receive payment for that reproduction. An author may grant or sell those rights to others, including publishers or recording companies.*[3]

[1] http://www.hewlett.org/programs/education-program/open-educational-resources.
[2] http://www.copyright.gov/help/faq/definitions.html
[3] http://legal-dictionary.thefreedictionary.com/copyright

Not all material is copyrighted. Some content may be ineligible for copyright, copyrights may have expired, or authors may have dedicated their content to the public domain (e.g., using Creative Commons public domain dedication[4]).

> *Public domain is a designation for content that is not protected by any copyright law or other restriction and may be freely copied, shared, altered and republished by anyone. The designation means, essentially, that the content belongs to the community at large.*[5]

An intermediate stage between traditional copyright, with all rights reserved, and public domain, where no rights are reserved, is provided by Creative Commons licenses. A Creative Commons license is not an alternative to copyright, but rather a modification of the traditional copyright license that grants some rights to the public.

> *The Creative Commons (CC) open licenses give everyone from individual authors to governments and institutions a simple, standardized way to grant copyright permissions to their creative work. CC licenses allow creators to retain copyright while allowing others to copy, distribute, and make some uses of their work per the terms of the license. CC licenses ensure authors get credit (attribution) for their work, work globally, and last as long as applicable copyright lasts. CC licenses do not affect freedoms (e.g., fair use rights) that the law grants to users of creative works otherwise protected by copyright.*[6]

The most common way to openly license copyrighted education materials – making them OER – is to add a Creative Commons license to the educational resource. CC licenses are standardized, free-to-use, open copyright licenses.[7]

[4] https://creativecommons.org/publicdomain/zero/1.0/
[5] http://whatis.techtarget.com/definition/public-domain
[6] Personal communication from Cable Green, PhD, Director of Open Education, Creative Commons
[7] State of the Commons report: https://stateof.creativecommons.org

STUDY RESULTS:

Selecting Educational Resources

"I have deliberately developed the policy for my courses that students will have no textbooks or any other materials that must be purchased. All reading materials are digital and accessed online." (Full-time Social Sciences Faculty)

"As a literature professor, I require my students to bring their literary texts to every class. I also require that they have actual physical books (unless a student has an ADA accommodation). One reason is that recent cognitive research has shown that student understanding and retention is better when reading words on paper than on screens. I have also found that even the most tech-savvy students can navigate a book more quickly than they can an electronic text." (Full-time English Language and Literature Faculty)

"I teach a sophomore level linear algebra course for which I require/recommend a textbook. But I don't care which edition they use, so the cost can vary from $0, for an online pdf of an earlier version they might find to $142 for a new copy of the latest edition." (Full-time Computer and Information Science Faculty)

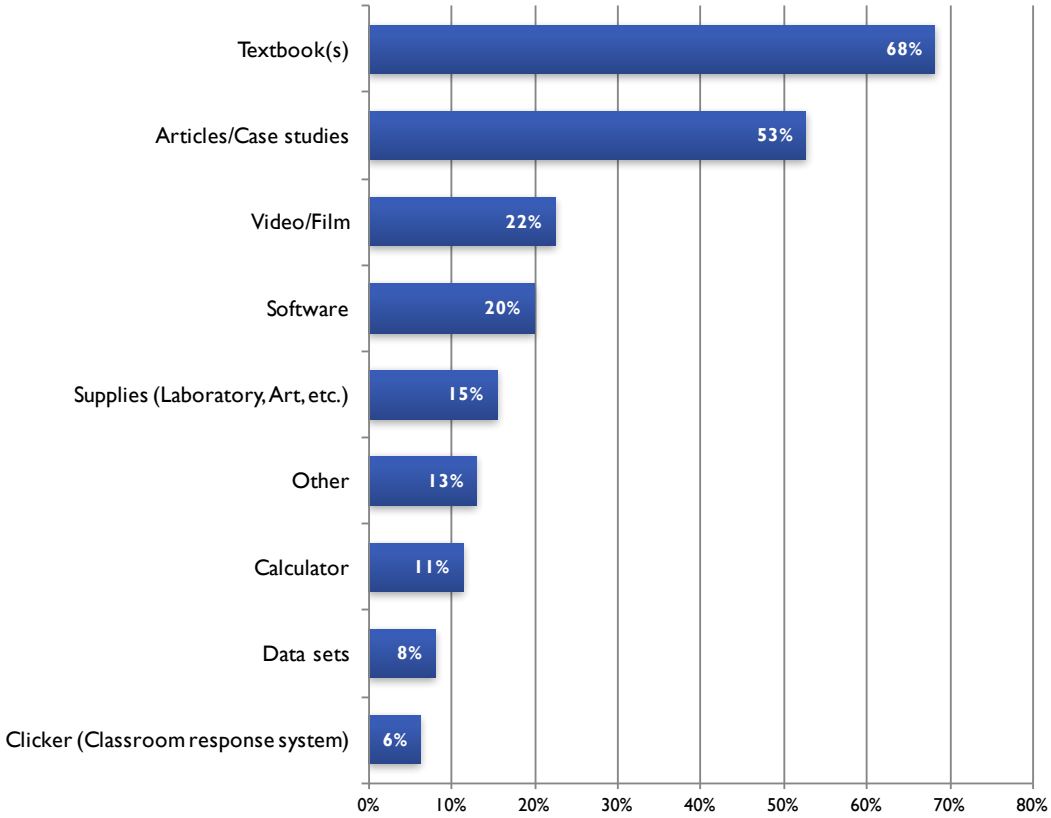
"My main concern with resources for my classroom is with student use. I find that students 1) do not absorb information when they read and 2) resist doing assigned reading and 3) a small minority of students actually purchases required texts, even if there are assignments that require the text." (Full-time Professional Faculty)

Faculty may recommend or require particular materials for the students in their courses, ranging from specific editions to free resources to multiple types of materials. This study focuses on those that are required, defined as all items "listed in the course syllabus as required for all students, either acquired on their own or provided to all students through a materials fee."

The most common item by far that faculty list on their syllabus as "required" is one or more textbooks, with 68% of all faculty reporting that they have a required textbook. Other print materials (e.g., articles and case studies) are required by a majority of faculty. All other types of materials are required by less than one-quarter of faculty. Software (22%) and video and film (20%) are required by more faculty than supplies (15%), calculators (11%), data sets (8%), clicker systems (6%), or other materials (13%).

Some faculty also list items which they recommend, but do not require students to purchase. The most common of these are articles and case studies, which are recommended by 20% of faculty. There are also recommended textbooks (17%) and videos/films (17%), as well as recommended software (11%). Only a single digit percentage of faculty recommend other types of materials, like supplies, data sets, and clickers.

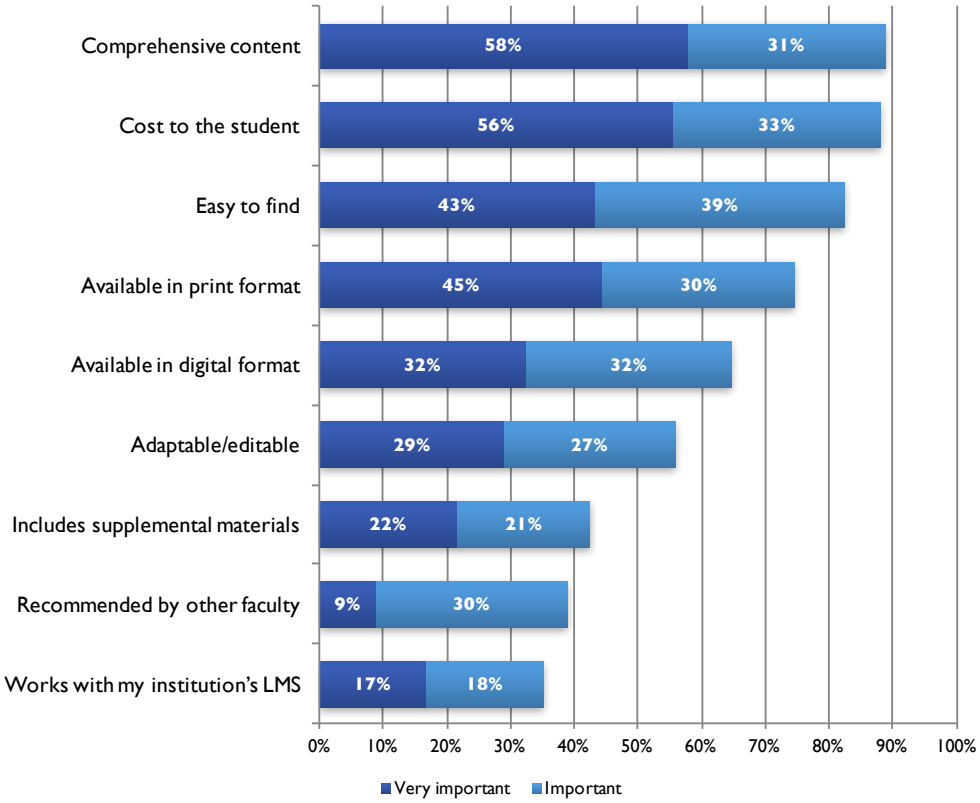
PROPORTION OF FACULTY REQUIRING PARTICULAR MATERIALS FOR THEIR COURSE



Faculty were asked which factors were most important when they selected these required materials. Two factors were mentioned as being "Very important" by a majority of faculty members: comprehensive content and cost to the student. The most-cited factor was the comprehensiveness of the resource (58% reporting it as "Very important" and 31% as "Important"). This was followed by cost to the student: over one-half (56%) of faculty said cost was "Very important," and an additional 33% reported that cost was "Important." These two factors were followed by how easy it was to find the resource (43% reported that it was "Very important" and 39% as "Important"). The only other factor with a similar "Very important" rating was that the material be available in print format (45% "Very important" and 30% as "Important").

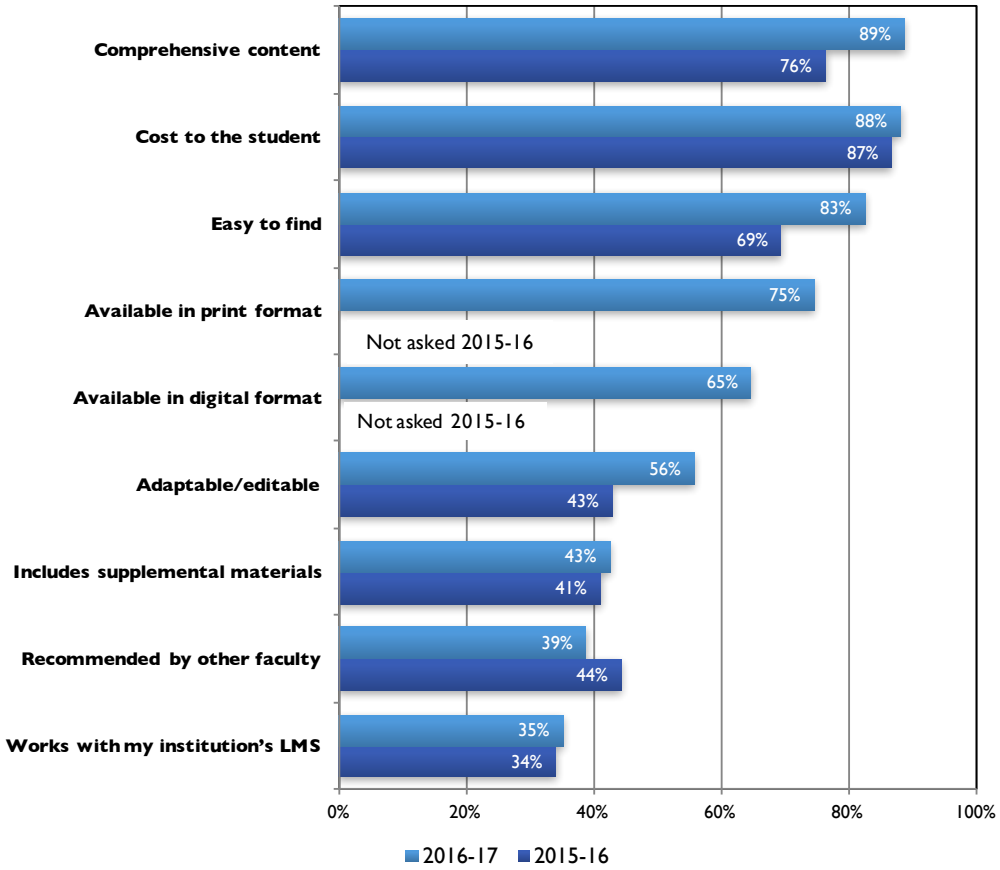
The availability of resources in digital format was seen as less important than print, but still had nearly two-thirds of faculty saying it was "Very important" or "Important". A somewhat smaller number of faculty listed material that was adaptable or editable, with the remaining factors mentioned by less than one half of responding faculty members. Recommendation by other faculty members had the lowest proportion of faculty rating as "Very important" (9%), a rate far lower than for any other factor.

Importance of Factors in Selecting Required Course Materials



The relative ranking of the importance of the different factors in the selection of required course materials has changed only slightly from the results of last year's survey. The same top three factors are seen as much more important than other aspects of the material for both time periods. The proportion of faculty rating cost as important has remained steady, while there has been an increase among those who rate comprehensiveness of the content as important for their choice, moving it to the number one spot.

IMPORTANCE OF FACTORS IN SELECTING REQUIRED COURSE MATERIALS 2015-16 AND 2016-17



There has also been an increase in the proportion of faculty reporting that materials being easy to find is important. It remains the third-most mentioned factor, ahead of two newly included factors. Additional growth was seen for a preference that materials be adaptable or editable, though it remains the sixth-most mentioned factor. Faculty comments in last year's survey displayed a considerable concern about the way in which their materials were distributed, in particular if they were available in print or digital form. Some faculty were enthusiastic about digital distribution, while many others reported that their students had a preference for printed materials. While the faculty responses do show a greater preference for print than for digital, this is not an either/or choice. Many faculty say that they want their materials to be available in both formats.

Cost to the Student

"About two years ago, I attended a workshop on open access textbooks that really opened my eyes to the cost of course materials for students. I am now reworking all of my courses to limit the cost to students. I had no idea how many students didn't buy textbooks because of the cost." (Full-time Social Sciences Faculty)

"I think the use of OER are the most responsible thing we can do as educators in the face of the rising costs of higher education. Exploration of the OER and their potential use to enhance student engagement and learning are the future of higher education, it's time to get on board." (Full-time Natural Sciences Faculty)

"The high cost of educational resources and textbooks are a barrier to many of our students. It is unclear why the costs are so high, and what is driving the costs." (Full-time Computer and Information Science Faculty)

"It is most urgent that educators be made aware of the day to day impact that the cost of textbooks has on our students, in terms of everyday life as well as in terms of success and retention." (Full-time Social Sciences Faculty)

"Over the past few years my community college encouraged adopting OER materials. We now have many no- and low-cost courses. Our students report how helpful this cost savings is for them." (Full-time Liberal Arts and Sciences Faculty)

"Textbooks are becoming cost prohibitive. That being said, I think students learn better when they have a printed resource at the ready when they are learning. Anything that educators can do to bring the costs of education toward a more reasonable amount should be a priority." (Full-time Computer and Information Science Faculty)

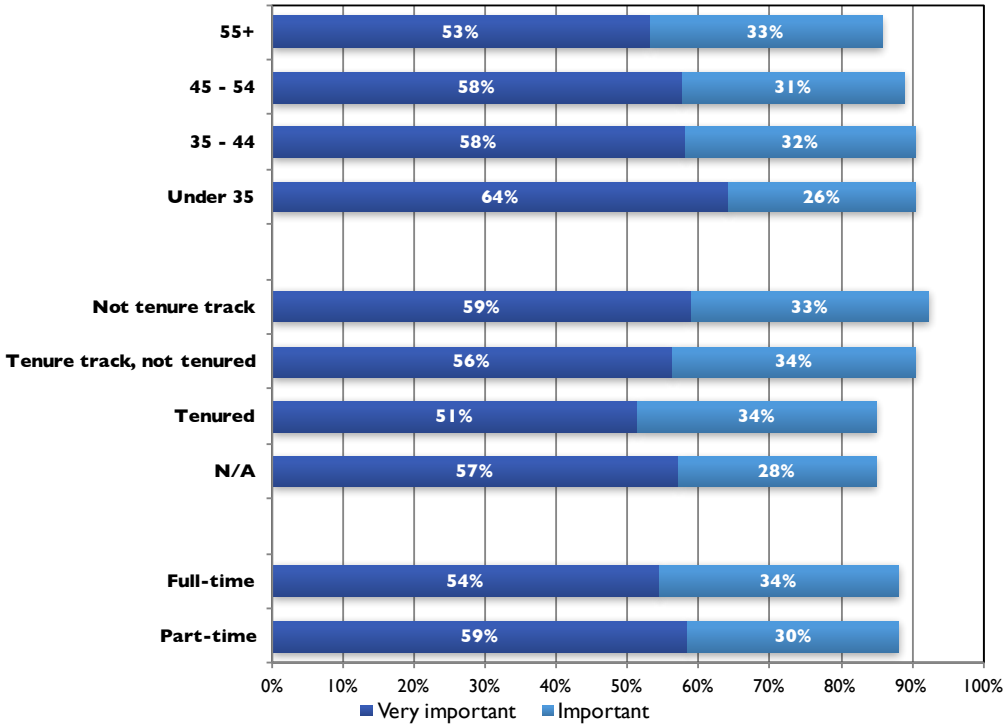
"Textbooks have become excessive in cost, especially the popular ones. The students complain about the cost as well as extras like clickers." (Full-time Natural Sciences Faculty)

"The cost of text, preprinted materials is of utmost concern to me." (Part-time Liberal Arts and Sciences Faculty)

"While a well-written and illustrated text can be an invaluable resource for students, the current high costs of texts prohibits many students from purchasing them. OER are wonderful, but not always reliable as it may be that no one is responsible for correcting errors or updating the content." (Part-time Natural Sciences Faculty)

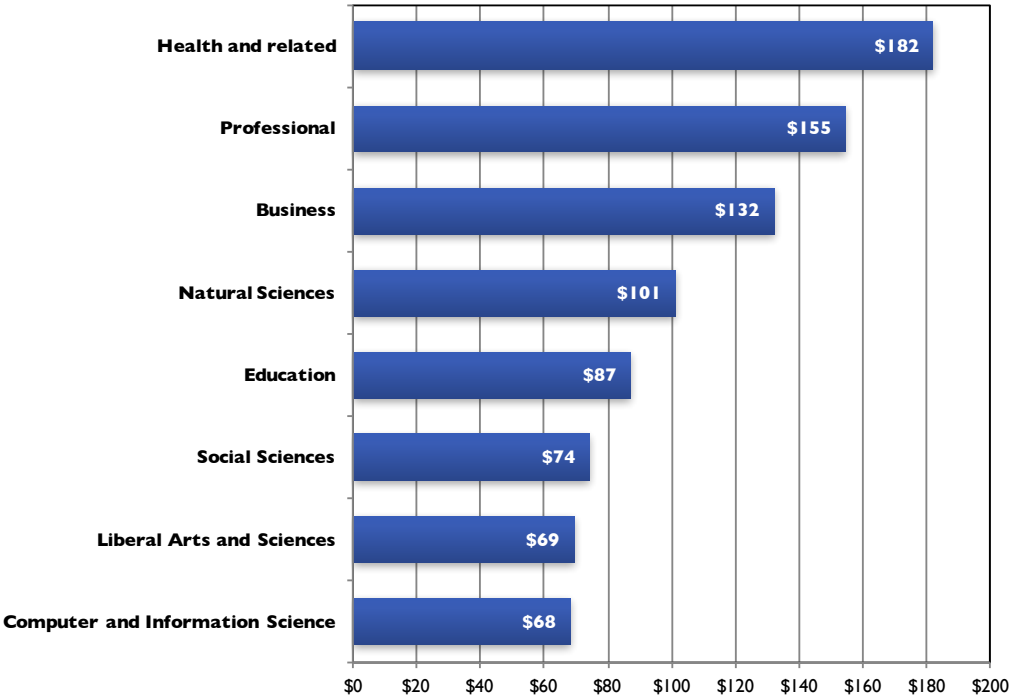
Nearly 90% of all faculty say that cost to the student is either "Important" or "Very important" in their selection of required course materials. A majority of faculty classify cost as "Very important," a finding that holds up across faculty at all levels, all ages, and all types of institutions. However, there is a slight trend for younger and non-tenure-track faculty to consider it more important than older and tenured faculty.

IMPORTANCE OF COST IN SELECTION OF CURRICULUM MATERIALS

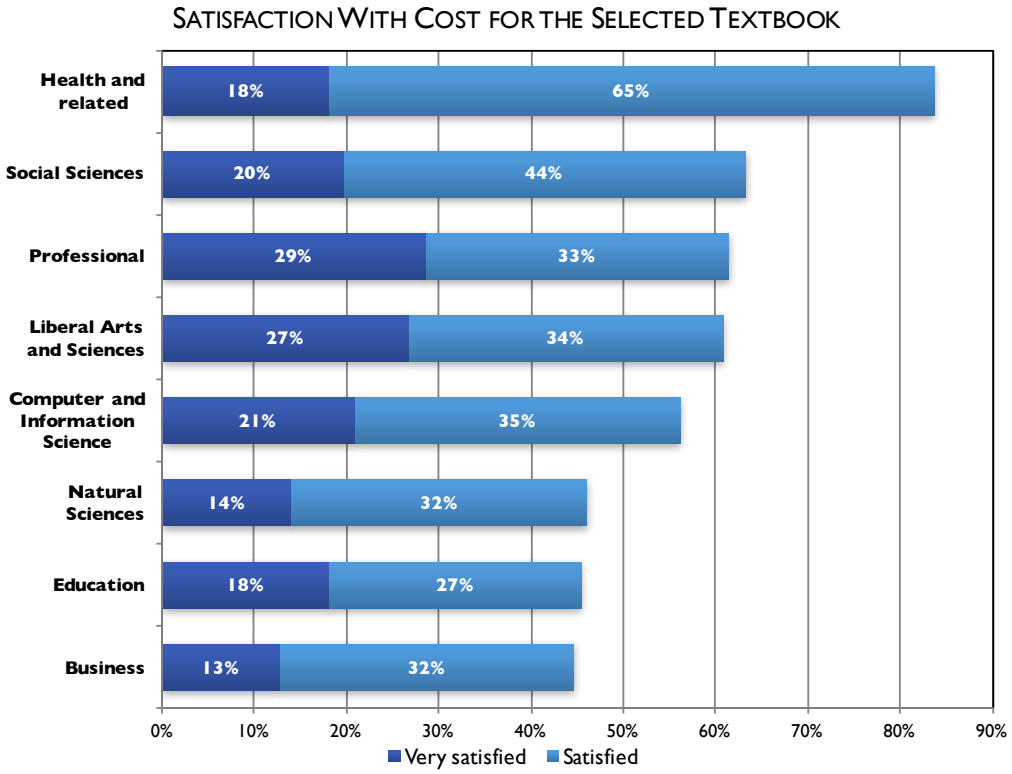


Faculty report that the cost to the student for their required textbook has an average price of $97 (across all levels of courses), with a median price of $75. There is considerable variability by discipline, with faculty in Health and related fields saying that their textbook averages $182, while those in Computer and Information Science say their students are spending only $68, on average.

AVERAGE COST OF REQUIRED TEXTBOOK BY DISCIPLINE



With a majority of faculty saying that cost is very important in their selection, and also reporting that the average cost for their students is near one hundred dollars, it may not surprise to find that faculty are not very satisfied with the cost of textbooks. Only 22% of all faculty say that they are "Very satisfied" with the cost of their selected textbook. An additional 37% report that they are "Satisfied".



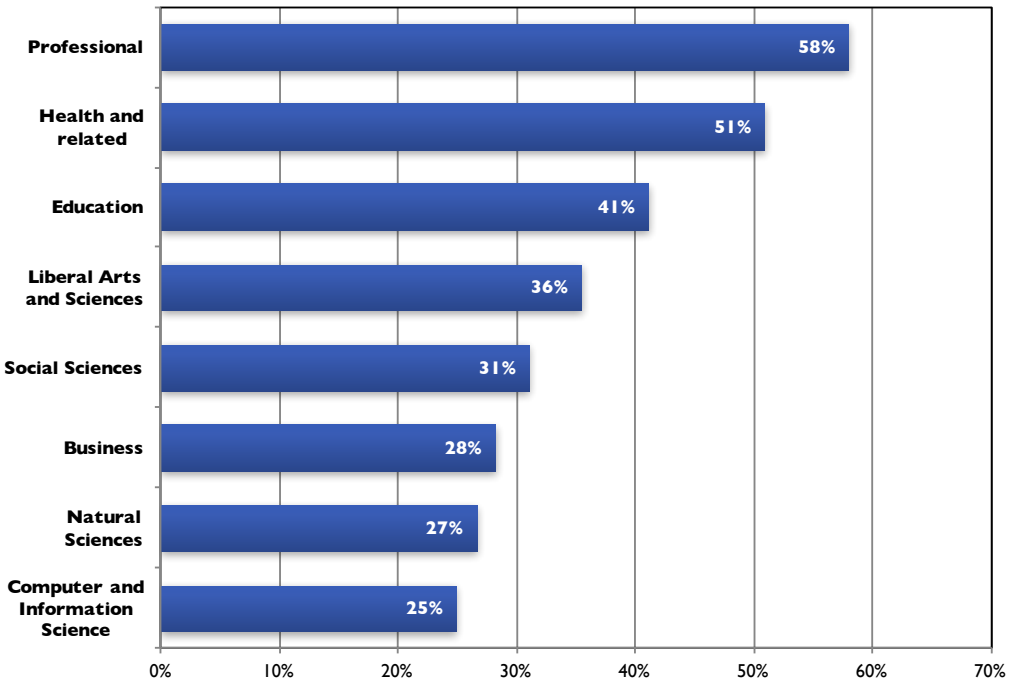
Faculty in Health and related fields may have the highest average textbook cost, but they also report the greatest proportion of faculty who are satisfied with the cost of their selection. Additionally, the Professional faculty with the second highest average textbook cost also show a majority satisfied with cost. They appear to believe that the product is worth the cost. A majority of faculty in Social Sciences, Liberal Arts and Sciences, and Computer and Information Science with the lowest average textbook cost report that they are satisfied with the cost of their selected textbook. Faculty in Business, Education, and Natural Sciences are the only segment where less than a majority report being satisfied with the cost.

Nearly 90% of faculty say that cost is "Important" or "Very important" for their selection, and the majority of that faculty say they're satisfied with the cost. So how is student access to the required materials affected? If costs were keeping students from having access to the required materials, we would expect that faculty would tell us that most or all of their students had purchased the text.

Only slightly more than a third of all faculty say that 90% or more of their students have purchased the required textbook. The remaining 64% of faculty report that less than 90% of their students made the purchase, and 44% of faculty say that less than 80% of their students that purchased the required textbook. Faculty at two-year institutions report a higher number of students purchasing the required textbook (42% at two-year institutions, as compared to 34% at four-year institutions saying at least 90% had made the purchase).

The two areas with the highest average cost for required textbooks (Professional studies, and Health and related fields) also report the greatest levels of success in having all of their students purchase the required textbook. These are the only disciplines where a majority of faculty believe that 90% or more of their students have purchased the required text. Only one quarter of faculty in Business, Natural Science, and Computer and Information Science faculty believe that 90% or more of their students have purchased the required text.

PROPORTION OF FACULTY REPORTING THAT AT LEAST 90% OF THEIR STUDENTS HAD PURCHASED THE REQUIRED TEXTBOOK BY DISCIPLINE



Awareness of Open Educational Resources

"I am not fully aware of the content available through OER but I will take a look. I am always interested in getting the right materials into my students' hands." (Part-time Business Faculty)

"Many of the faculty at my institution do not seem to be aware of OER, although faculty are aware of the financial challenges our students face. I have found the quality of materials to be excellent and now use them in all of my physics and math classes." (Full-time Computer and Information Science Faculty)

"My awareness of OER is limited. I am sure that if I knew more about them, then I would use them more." (Full-time Social Sciences Faculty)

"I don't know anything about OER, but I would be interested in knowing more about it." (Full-time Liberal Arts and Sciences Faculty)

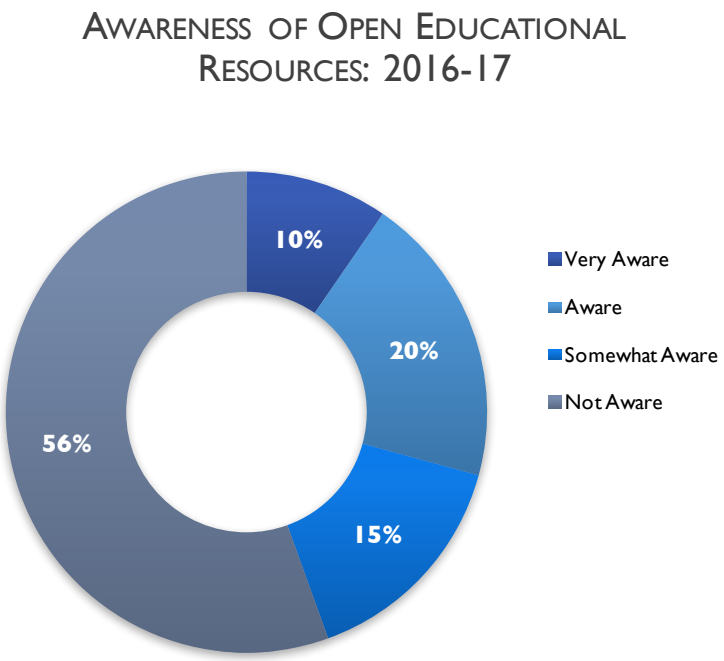
"I may have used OERs, but don't know them by that name. I look forward to learning more - I just searched online and will read up!" (Full-time Natural Sciences Faculty)

Many faculty members have only a vague understanding of the details of what constitutes open educational resources. Some confuse "open" with "free," and assume all free resources are OER. Others confuse "open resources" with "open source," and assume OER refers only to open source software. Because of these differing levels of understanding, the phrasing of the awareness question needs to be specific. The question should provide enough of the dimensions of OER to avoid confusion, without being so detailed that the question itself educates the respondent sufficiently that they could claim to be "aware."

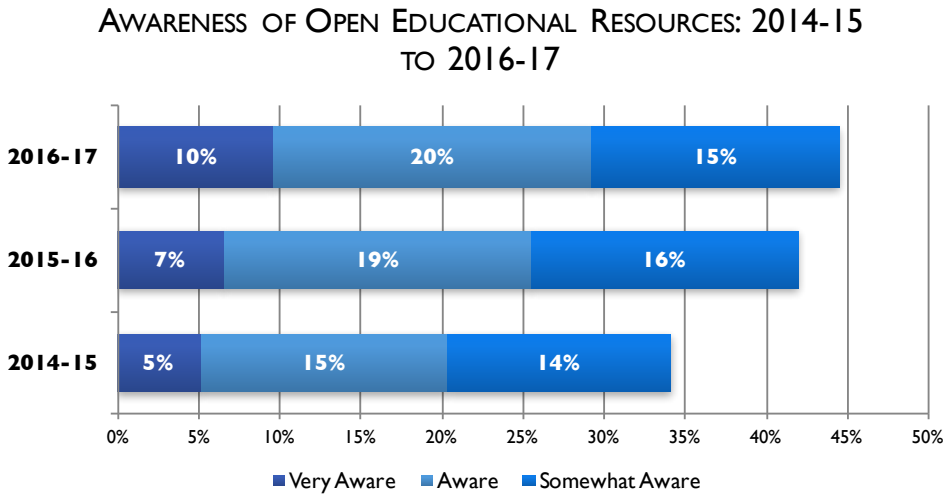
Multiple question wordings were tested for the earlier reports in this series. A question with broad definitions but no examples was found to be more precise than a question just using the term "open educational resources." Adding a series of detailed examples of OER was even more precise, but proved too leading for the respondents and artificially boosted the proportion that could legitimately claim to be "aware." The version used here was found to have the best balance in differentiating among the different levels of awareness, while avoiding leading those with no previous knowledge of the concept[8]. This question wording has been used for the past two years so that year-to-year comparisons can be made.

[8] Additional details are provided in the Methodology section of this report.

When faculty members were asked to self-report their level of awareness of open educational resources, a majority (56%) said that they were generally unaware of OER ("I am not aware of OER" or "I have heard of OER, but don't know much about them"). These results were confirmed by faculty comments, and some showed excitement or desire to learn more. Only 10% reported that they were very aware ("I am very aware of OER and know how they can be used in the classroom"), and twice that many (20%) said that they were aware ("I am aware of OER and some of their use cases"). An additional 15% of faculty reported that they were only somewhat aware ("I am somewhat aware of OER but I am not sure how they can be used").



The 2016-17 results reinforce the trend of increased awareness of OER observed over the past two surveys. Faculty claiming to be very aware doubled from 5% in 2014-15 to 10% in the most recent year. Those saying that they were "aware" grew from 15% to 20%, and those "somewhat aware" from 14% to 15%. The proportion that reported no awareness dropped from nearly two-thirds (66%) in 2014-15 to just over 50% (56%) this year.



Awareness of Licensing of Open Educational Resources

"I have worked in the publishing industry and I am a published author and I'm very concerned about copyright infringement with open source materials." (Full-time Natural Sciences Faculty)

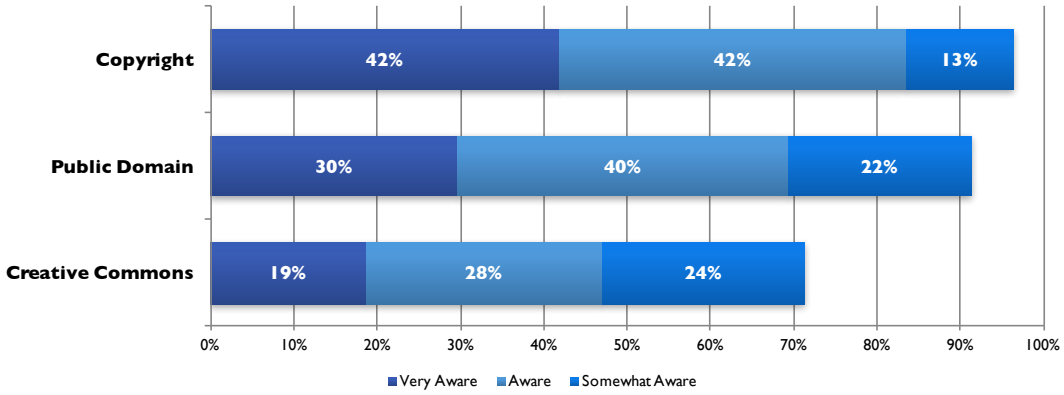
"I'm not sure whether the images that I find as results of Creative Commons searches qualify as OER, or if OER is separately labeled as such, and searchable that way. I plan to look into these resources and use them in the future." (Full-time Natural Sciences Faculty)

"While I appreciate the efforts of others to create open access materials via various kinds of licenses, I question who will pay for this kind of labor in the future as the university employment model changes increasingly towards adjunct and other limited responsibility contracts in lieu of tenure." (Full-time Computer and Information Science Faculty)

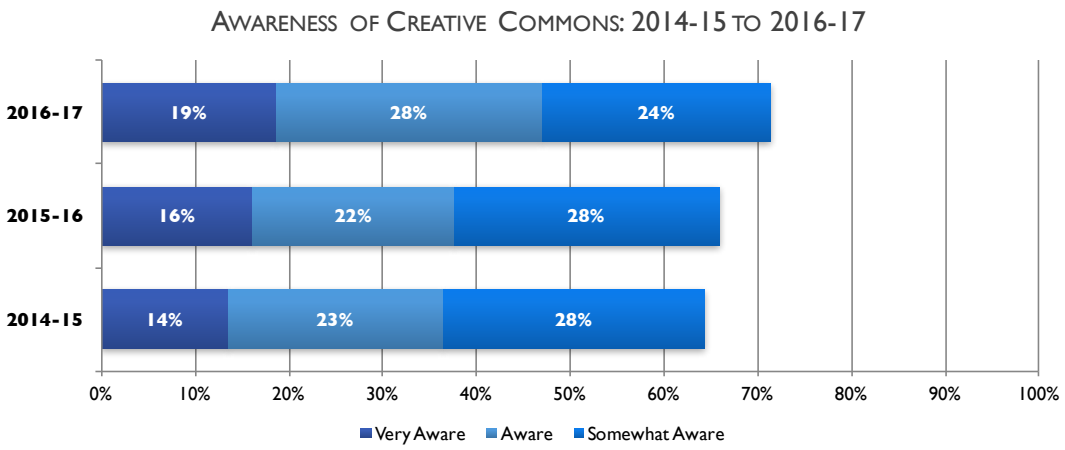
Open licensing and the ability to reuse and remix content is central to the concept of open educational resources[9]. It is therefore critical to understand faculty awareness of these concepts. Most faculty continue to report a high degree of awareness of copyright status of their classroom content (84% "Very aware" or "Aware"), with 96% expressing some degree of awareness. Awareness of public domain is also very high, with over 90% of respondents reporting some degree of awareness. The level of awareness of Creative Common licensing, on the other hand, is somewhat lower. Less than one-half of faculty say that they are either "Very aware" (19%) or "Aware" (28%), and only 71% report any level of awareness.

Awareness levels have been increasing for all three legal permissions. The 84% reporting that they were "Very aware" or "Aware" of copyright is a small increase over the 80% rate reported last year, and the 78% rate the year before. Awareness of public domain increased very slightly, with "Very aware" or "Aware" totals growing from 69% this year compared to 67% last year and 68% the year before. Awareness levels of Creative Commons have increased the most, with the number of faculty reporting that they were "Very aware" or "Aware" now at 47%, up from 38% last year and 36% the year before that.

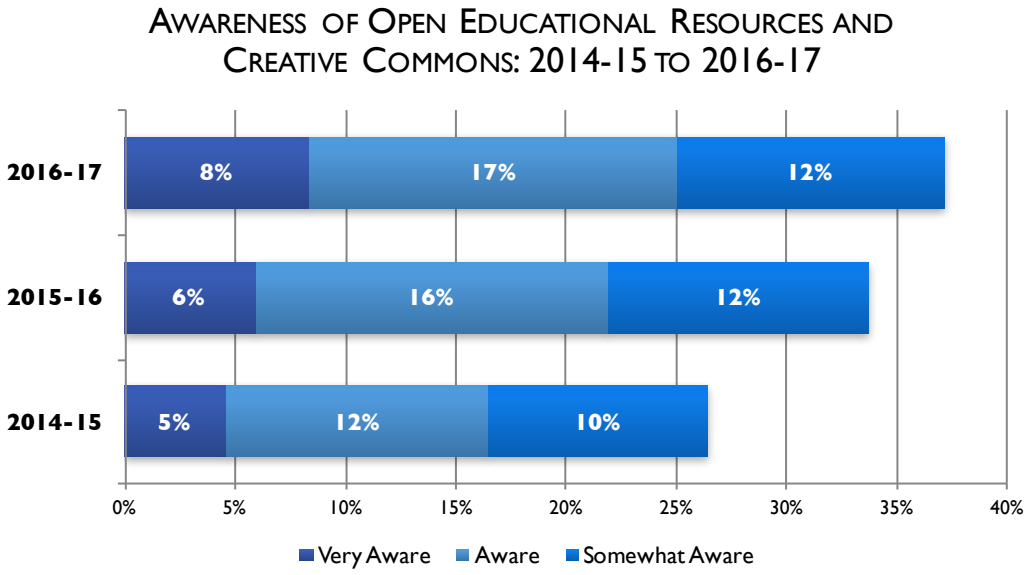
AWARENESS OF LEGAL PERMISSIONS: 2016-17



[9] David Wiley, The Access Compromise and the 5th R, Iterating Toward Openness, http://opencontent.org/blog/archives/3221



Given that faculty members may have only a "fuzzy" understanding and awareness of open educational resources, a more precise understanding of that level of understanding and awareness can be gained from examining a combination of responses. Examining the difference between faculty who report that they are aware of OER and faculty who report that they are aware of *both* OER and Creative Commons licensing provides a good indication of the depth of understanding of OER among faculty members. If faculty who report that they are unaware of Creative Commons licensing are removed for any of the "Aware" categories of the measure of OER awareness, we create a much stricter index of OER awareness.



The level of OER awareness drops when we apply this stricter definition, but only somewhat. Those classified as "Very aware" dips from 10% to 8%, "Aware" from 20% to 17%, and "Somewhat aware" from 15% to 12%. The overall proportion classified into any of the "Aware" categories changes from 44% when awareness of Creative Commons is not required, to 37% when it is.

The level of combined awareness of OER and Creative Commons has increased each year. Faculty reporting that they are "Very aware" increased from 5% in 2014-12 to 8% in 2016-17. Likewise, those reporting that they are "Aware" grew from 12% to 17% over this same period. The total percentage of faculty claiming some degree of awareness using this stricter definition increased from 26% in 2014-15 to 34% in 2015-16, and finally to 37% in 2016-17. This may correlate with faculty exposure to digital copyrights, OER, and other online material with the increasing preference and usage of digital course materials.

Digital versus Print

"Students still prefer printed textbooks." (Full-time Natural Sciences Faculty)

"Textbooks are becoming cost prohibitive. That being said, I think students learn better when they have a printed resource at the ready when they are learning." (Full-time Computer and Information Science Faculty)

"My experience with digital materials assigned in many courses does not suggest that all students will actually do the reading whether in print or digital form." (Full-time Social Sciences Faculty)

"Both the printed and digital versions of the book present pros and cons in students' ability to learn course topics. The reality is many students may not always utilize the ebook, ematerials daily if there is limited to no access to a smartphone or no in-home Internet services. Many students often do not bring a laptop to use during class/lecture, so this makes it difficult to follow along using the ebook/printed textbook." (Part-time Social Sciences Faculty)

"I do not use electronic devices in my classroom and do not permit my students to use anything except print materials in my classes." (Full-time Liberal Arts and Sciences Faculty)

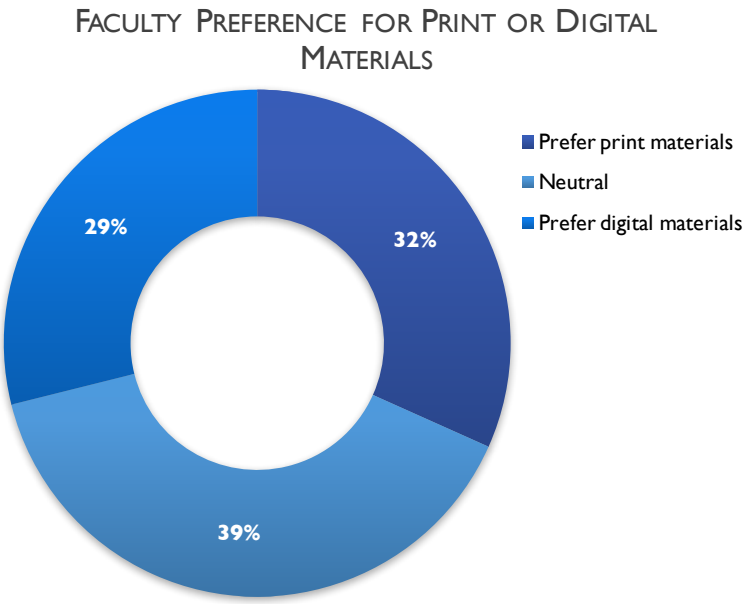
"I have surveyed all of my classes for student preference with regards to textbooks. Overwhelmingly, students indicated a preference for print versions (70-95%)." (Full-time Natural Sciences Faculty)

"Students really want the option of a print version, even if the online version is free." (Full-time Social Sciences Faculty)

"I used an OER for one semester of Intro. to Microbiology. The feedback from the students was that the majority wanted a print book." (Full-time Natural Sciences Faculty)

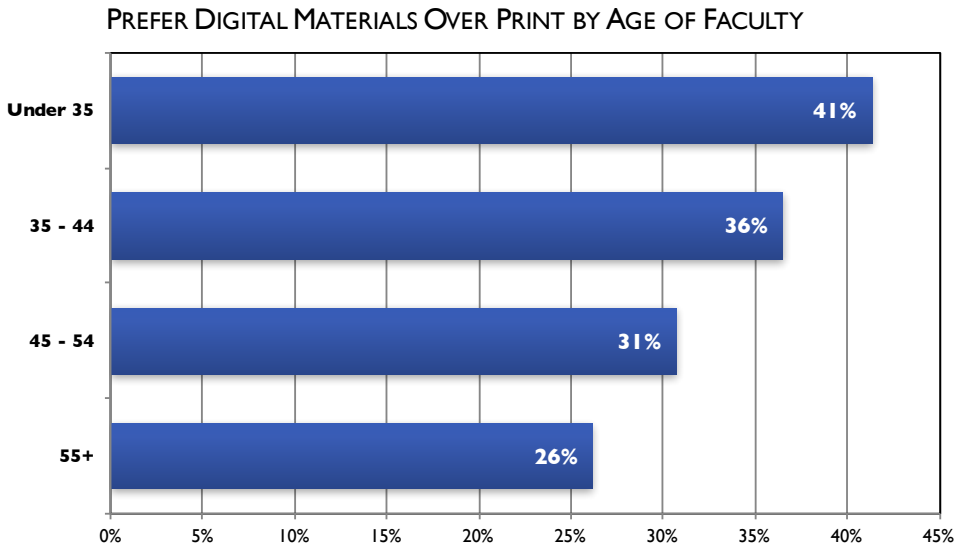
"I want my students to save money, but I teach at a community college and most students are not disciplined enough to pull the book up on the computer. They are getting better, however. Many still need to see the printed words on a page. I am also concerned with online resources not having things such as a table of contents, glossary (important to my students), index, etc." (Full-time Natural Sciences Faculty)

Both commercial publishers and the OER community provide many different sets of course materials in digital formats. In some cases, these are part of a subscription service which students access online during the course. At other times, the material is provided as a free download. Faculty have mixed opinions about the relative merits of digital versus print, with roughly equal numbers saying that they prefer each alternative. The largest group, however, report that they are neutral.



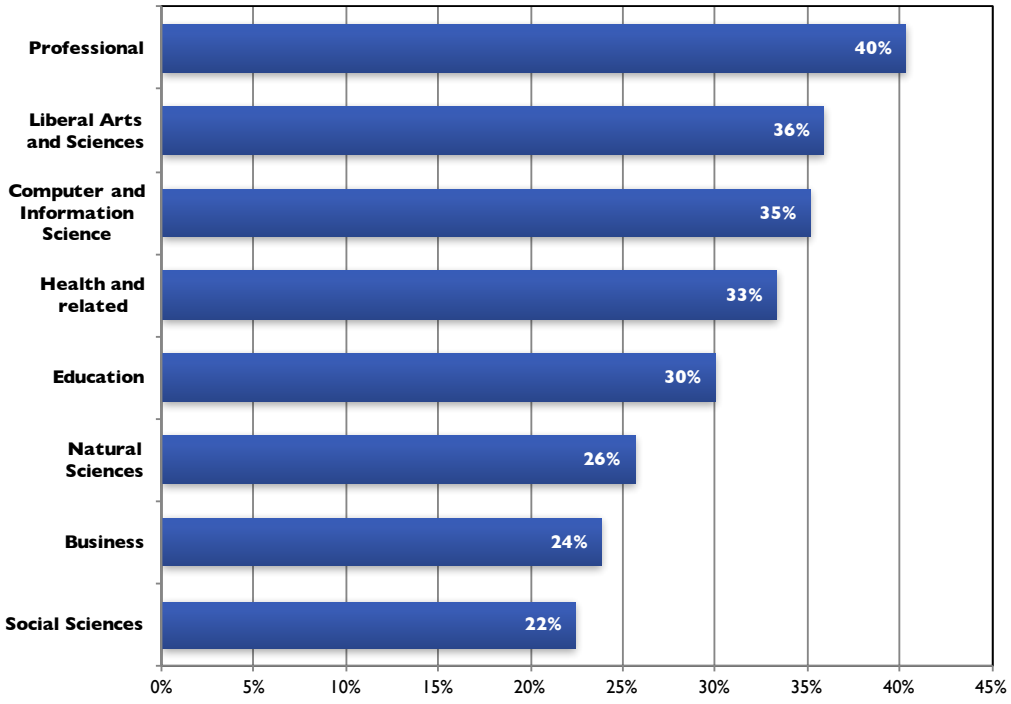
Many faculty do not see the choice between digital and print as mutually exclusive. They often state that prefer to have the choice, and that they prefer for their students to have that choice as well. Faculty comments reflect a potential disconnect, with faculty consistently mentioning the use of digital materials as a means to reduce costs, while at the same time reporting that their students still strongly prefer printed materials.

There is a strong pattern by age in the preference for digital materials over print, with older faculty much less inclined to prefer digital than younger faculty (26% for those over age 55 as compared to only 41% for those under age 35). This result might imply a growing acceptance of digital, as additional younger faculty begin teaching.



As might be expected, there is also a strong pattern by discipline in the preference for digital materials over print. Faculty teaching in the Social Sciences are the least likely to show a preference for digital (22%). Those teaching Business and Natural Sciences also show little enthusiasm for digital materials. Faculty teaching in Professional programs, on the other hand, are much more positive towards digital, with a preference rate nearly twice that of those in Social Sciences (40% preferring digital over print).

PREFER DIGITAL MATERIALS OVER PRINT BY DISCIPLINE OF FACULTY



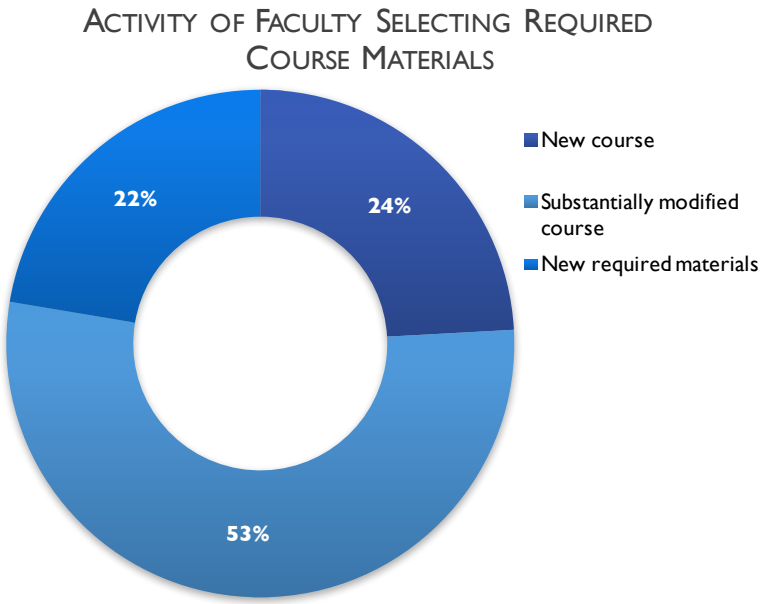
Educational Resource Decision Process

It is important to focus on specific faculty decisions, not hypotheticals. Faculty in this study were asked about three different activities that represent the faculty member making a decision on the required materials for a particular course: creating a new course, substantially revising an existing course, or adding or changing required course materials. The specific question wording used was:

> Over the past two years, either working alone or with others, have you...
>
> Created a new course *(A course that was not previously listed in the course catalog)*
>
> Substantially modified an existing course *(Examples include making a substantive change in the content included in the course, changing the delivery method (e.g., converting a face-to-face course to online) or a similar change of this magnitude. Do not count the normal fine-tuning to a course during its delivery or the typical term-to-term refinements that all courses go through)*
>
> Added or changed required course materials *(Items listed in the course syllabus as required for all students, either acquired on their own or provided to all students through a materials fee, examples include a printed or digital textbook, other course-complete printed (course pack) or digital materials, or materials such as laboratory supplies)*

Deciding on new or revised educational materials is a very common occurrence for teaching faculty. The vast majority (89%) reported that they had performed at least one of these activities over the previous two years, and large numbers had done more than one. The most common activity was changing required materials for an existing course (73%), followed by substantially modifying a course (65%). While creating a new course was the least common activity, nearly one-half of faculty (49%) had performed this action over the previous two years.

Only those faculty who had engaged in a decision process over the past two years were asked about their motivations and process for that decision. Faculty who had engaged in this process for more than one course were asked to respond based on the course with the largest enrollment. A majority (53%) of the resulting decision processes were for a substantial revision to an existing course, with roughly equal numbers of faculty creating a new course (24%) and requiring new materials for a course without doing substantial modifications (22%).



The reasons that faculty gave for engaging in the decision process varied considerably, ranging from the need to fill a gap in the curriculum to just being bored of teaching the course the same way for multiple years:

"I had been teaching the course for 15 years, and it was sucking the life out of me. It needed to be rebuilt from the ground up." (Full-time Mathematics Faculty)

"I have been away from the course for a few years and thought now that I am teaching it again, it was a good time to rework the course from beginning to end. Also, I want to add more digital content and an online component to the course." (Full-time Social Sciences Faculty)

"I wanted to use a 'flipped' class in order free up class time for students to work on problems in groups, helping me to gauge their comfort with the material and better tailor material to their needs." (Full-time Mathematics Faculty)

"A course cross-listed in another department was cancelled by that department and so our department needed a new course for that semester." (Full-time Social Sciences Faculty)

"A new online course was needed and I was asked by our division chair to develop it." (Full-time Natural and Physical Sciences Faculty)

"I participated in a faculty fellow program that asked us to pilot active and engaged learning in our courses. I modified my course to have consistent use of active learning strategies in my ESOL writing and grammar course." (Part-time English Language and Literature Faculty)

"I took over a class from another instructor. It was widely regarded as being too easy and lacking rigor." (Full-time Social Sciences Faculty)

"A traditional course was changed to an online format to better accommodate the varied schedules of the nursing students who take it." (Full-time Mathematics Faculty)

"We wanted the course to appeal to more than just our major students." (Full-time Computer Science Faculty)

"Student feedback and even I was not motivated to read the assignments. It was lacking interesting ways to help students." (Full-time Social Sciences Faculty)

"My goal is to provide students with the most up-to-date material available. I teach from the primary research literature, which requires me to constantly update the required material." (Full-time Natural and Physical Sciences Faculty)

"Based on input from students and from the Graduate Teaching Assistant, I felt the changes would be able to engage students more fully in the material being presented and in thinking critically about the subject matter." (Full-time Natural and Physical Sciences Faculty)

"The person who had refused to share the course for years finally retired." (Full-time Social Sciences Faculty)

"Due to a proposal from the Teaching to Increase Diversity and Equity in STEM from AACU." (Full-time Natural and Physical Sciences Faculty)

"Our course was dreadful outdated, didn't work with today's students, and was not easy to follow. It was too old-grained for today's learners." (Full-time Natural and Physical Sciences Faculty)

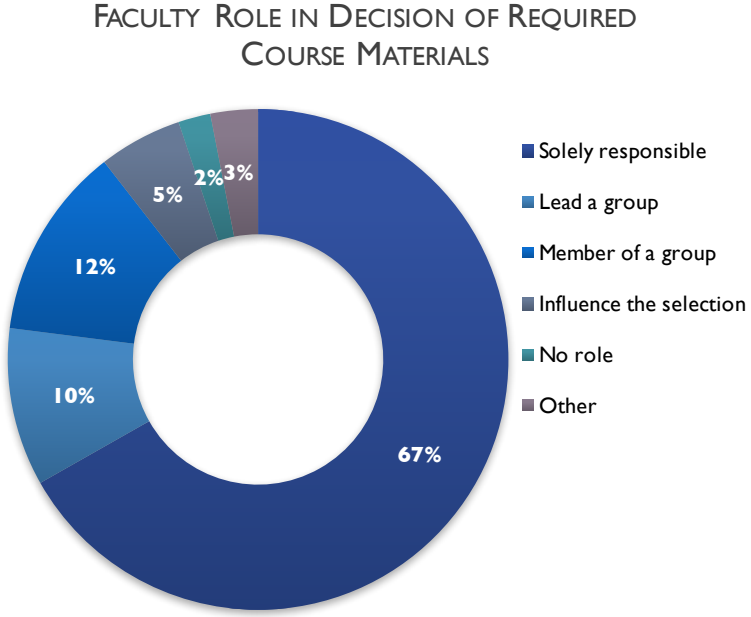
"Effort to improve student retention by providing more options for student credit." (Full-time Natural and Physical Sciences Faculty)

"High failure rates (Full-time Natural and Physical Sciences Faculty)

"I am bored repeating myself. Also, more significantly, the threads of a discipline become clearer with time." (Full-time Natural and Physical Sciences Faculty)

"I decided to participate in a university level effort to include critical and creative testing across the curriculum." (Full-time Computer Science Faculty)

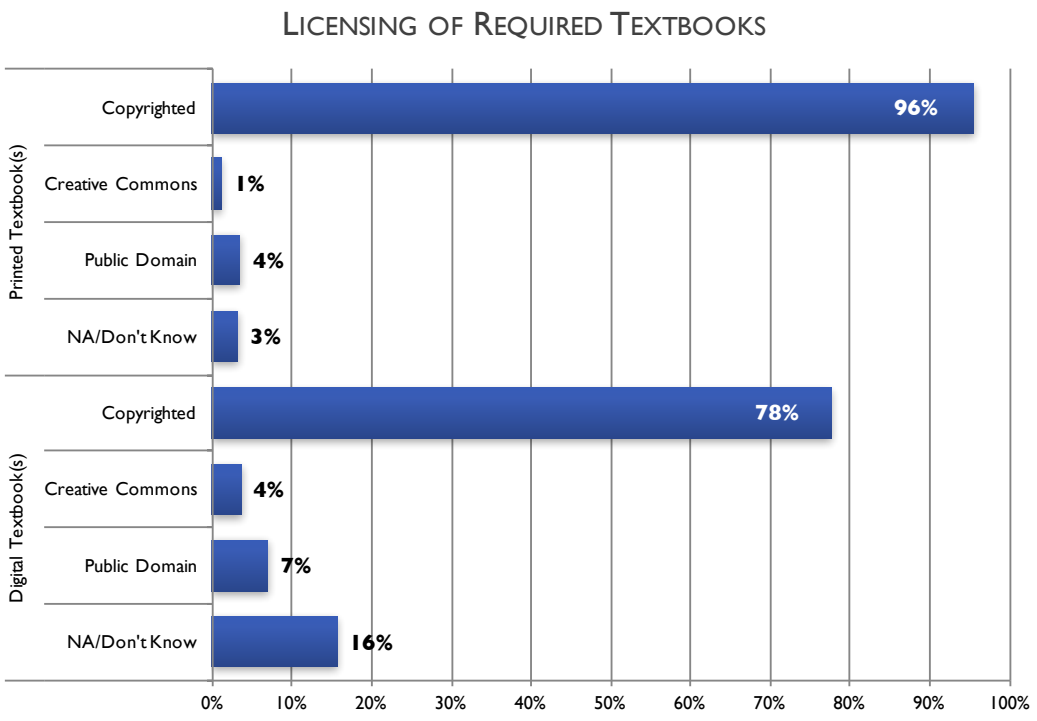
Two-thirds (67%) of all faculty reported that they were the sole decision maker for the new or revised course material. An additional 22% were engaged in a group decision, with 10% being the lead and 12% acting as a member of the group.



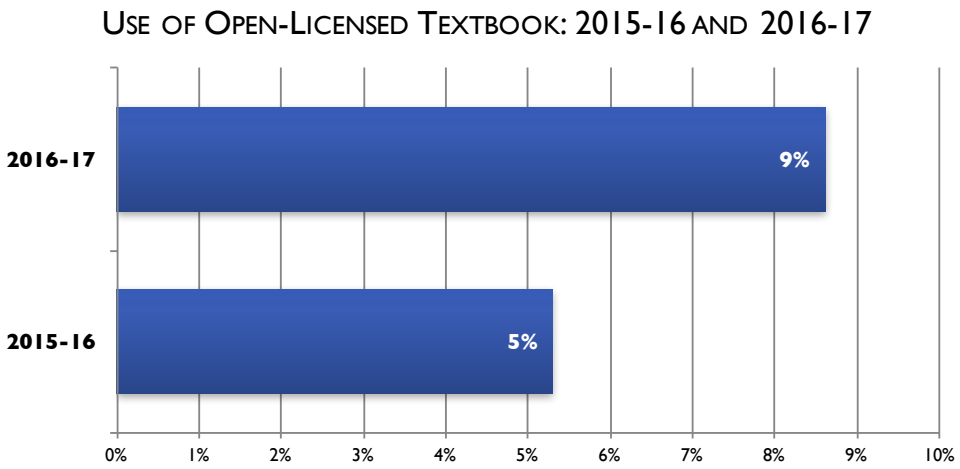
The courses that faculty reported on were overwhelmingly at the undergraduate level (74%). Most were delivered face-to-face (78%), with only 14% blended and 8% online. Faculty classified these courses primarily as an "Introductory course" (40%), but intermediate (31%) and advanced level (28%) courses were both well represented. Because we asked faculty who worked on more than one course to select the largest enrollment course for their responses, the reported courses skew larger than might otherwise be the norm. A large portion of these courses (46%) are taught in multiple sections, a rate that goes up to 66% among the introductory level courses.

Nearly three quarters of the courses that faculty are reporting on are required for students, either for all students (28%) or for selected students (e.g., majors in this discipline) (45%).

Faculty were asked how their required printed and digital textbooks were licensed. Faculty overwhelmingly reported that they were using copyrighted printed textbooks (96%), with only small proportions stating that the text was licensed under Creative Commons (1%) or was in the public domain (4%). The numbers for the digital version of the textbook were also highly slanted towards copyrighted material, but at a rate considerably lower (78%) than for print versions. The rate that faculty said that their digital textbooks were either creative Common Commons or public domain were higher than for printed textbooks, but the second largest group (16%) were faculty reporting that they did not know how the digital materials were licensed. This is well in line with earlier results showing faculty do not have a high level of awareness of the various legal permissions that govern the use and sharing of their required textbooks.



Only a small proportion of faculty report that they are using an open-licensed textbook (defined as either public domain or Creative Commons). However, the 9% rate for 2016-17 represents a substantial increase over the rate for 2015-16 of 5%. Use of open-licensed textbooks may be rare, but it is growing.



Potential Barriers

"I prefer the 'regular' publishers who have been providing excellent resources for many, many years. I'm very old-school about textbooks and hope I will never be forced to use OER." (Full-time Social Sciences Faculty)

"After settling on the idea of teaching statistics in a Simulation-based Inference manner, there were very sparse offerings in the OER domain." (Full-time Computer and Information Science Faculty)

"I'm convinced OER is the future of education. The reason we have such exceptional educational resources today is because authors/publishers were motivated by $$ to build them. I would love to believe that OER can get there (pedagogical excellence) without required avarice but so far, I haven't seen it." (Full-time Natural Sciences Faculty)

"I am not satisfied with the current crop of OER, creative commons, or open source resources available." (Full-time Social Sciences Faculty)

"My chief reason for not using more 'free' textbooks has to do with the supplemental resources and the need to 'start over' in class design." (Full-time Natural Sciences Faculty)

"I disagree with the basic premise that more students will get a better education if course material (or tuition) is free. Motivation, prioritizing, and commitment seem to be the biggest factors in educational success, so having reasonably priced, high quality materials is my priority." (Part-time Social Sciences Faculty)

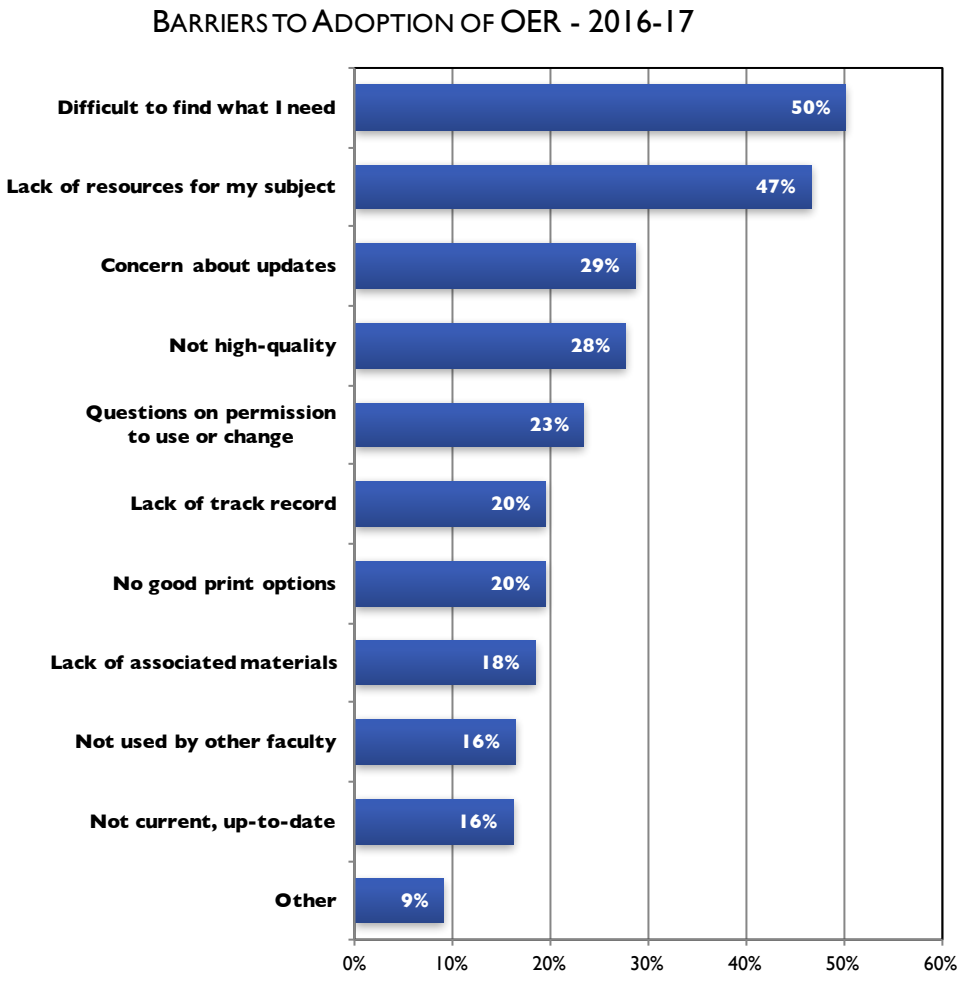
"I have found that there are problems with free material. Massive infusion of funds to develop free material does not assure quality." (Full-time Computer and Information Science Faculty)

"I teach detailed scientific Concepts and we require high quality medical illustrations. From what I've seen from open source materials, the quality of the illustrations and the accuracy of the information is often lacking, and there have been many times that illustrates have been lifted from copyrighted sources and presented as open source." (Full-time Natural Sciences Faculty)

"I tried using an OER textbook in the spring. It was a catastrophic experience. I assumed the materials would be high quality because I have colleagues who have used OER and had good experiences. I didn't spend much time adapting the materials for my classroom. My students' learning suffered in response." (Full-time Natural Sciences Faculty)

The results from this year's survey show that the most serious issues facing wider adoption of open educational resources continues to be the effort needed to find and evaluate suitable material. Nearly one-half of all faculty report that "there are not enough resources for my subject" (47%), and that it is "too hard to find what I need" (50%). These rates exceed those of any other potential barrier. The pattern has been consistent over time, with faculty ranking the effort needed to find and evaluate suitable material as the most critical barriers to adoption. This has been the top issue for each of the three years the question has been asked.

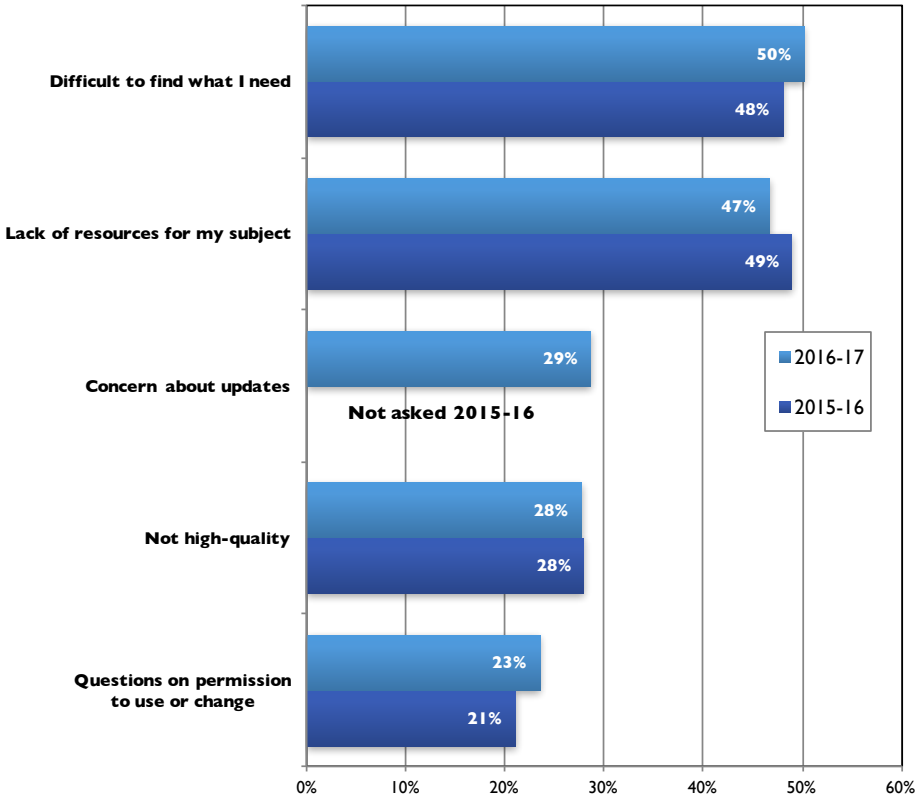
Many faculty members also voice concerns about the long-term viability of open educational resources, and worry about who will keep the materials current. The third-most mentioned barrier, "concern about updates," is also often cited in the open-ended comments. Faculty specifically mention the lack of a financial incentive as reason to think that there will not be regular updates.



Concerns about quality are reflected in both the fourth-mentioned item, "not high quality" (28%), and "not current or up-to-date" (16%). The lack of nuanced understanding of the full nature of open educational resources is evident in the fact that nearly one-quarter of all faculty report that "questions about permissions to use or change" the materials as a potential barrier to their adoption. There also appear to be concerns about fitting in with other standards at the department and institution, or faculty not wanting to be early adopters of OER materials: 16% of respondents listed "not used by other faculty" as a barrier to adoption.

There has been little change among faculty perceptions of these barriers. Comparing the 2016-17 results for the top-mentioned barriers to those reported last year shows only the smallest changes. The top two continue to relate to the difficulty in finding suitable resources, while concerns about quality and permissions also remained relatively stable. The 2015-16 survey did not include an option asking about updates to the OER materials. It was added to the most recent survey because many faculty mentioned this in their open-ended response to this question.

BARRIERS TO ADOPTION OF OER - 2016-17 AND 2015-16



The Process of Textbook Adoption for Introductory Courses

"I think it would be great if there were free, open access course materials for introductory courses in biology and other disciplines. But then, I think it would be great if we had universal health care in the U. S., too." (Full-time Natural Sciences Faculty)

"I use an OpenStax text in my introductory courses only. I have looked at other free/OER resources, but I have not found any of sufficient quality to use. The OpenStax book I use is not the best, but is sufficient with supplements I provide." (Full-time Social Sciences Faculty)

"I was very interested in using OpenStax Chemistry but found many major errors when I read a few chapters." (Full-time Natural Sciences Faculty)

"We are extremely happy with our adoption of the OpenStax biology textbook. We have derived and edited our own collection. The process allows us to customize our teaching materials." (Full-time Natural Sciences Faculty)

"I chose the OpenStax textbook because it addressed all my concerns about OER: print option available, high quality (not as high as some texts, but high enough considering what I add during my class time), and resources available (although not as much as I would like to see, but for an experienced instructor, they are fine)." (Full-time Social Sciences Faculty)

"We are all using OpenStax biology books. The main issue is lack of supporting material, but that is overcome by a collection of resources that the department has collected over the years, and is provided to all new adjuncts." (Full-time Natural Sciences Faculty)

"I chose OpenStax because it was reviewed by the California state committee, because it covers every topic in the course outline of record at my college, and because it comes with a test bank (a must!)." (Part-time Social Sciences Faculty)

"I have used OER materials from OpenStax and found the supplements really helpful. Students really want the option of a print version, even if the online version is free. I love the adaptability and played around with adding content, too." (Full-time Social Sciences Faculty)

"I tried out an OpenStax text for my course this spring and was very pleased. Especially now that I know that they do offer a print version of the book." (Full-time Natural Sciences Faculty)

Not all faculty textbook choices have the same level of impact. The decisions of those who teach large enrollment introductory level courses will affect far more students than those teaching smaller enrollment courses. OER publishers are well aware of this, and have concentrated their offerings to serve these large enrollment courses. Faculty members in this study who made a textbook decision for a large enrollment introductory level course were presented with additional questions concerning their decision. The courses addressed in this study were:

- Algebra and Trigonometry
- American Government
- Anatomy and Physiology
- Biology (majors/mixed majors)
- Biology (non-majors)
- Calculus
- Chemistry (2 semester)
- Chemistry (General)

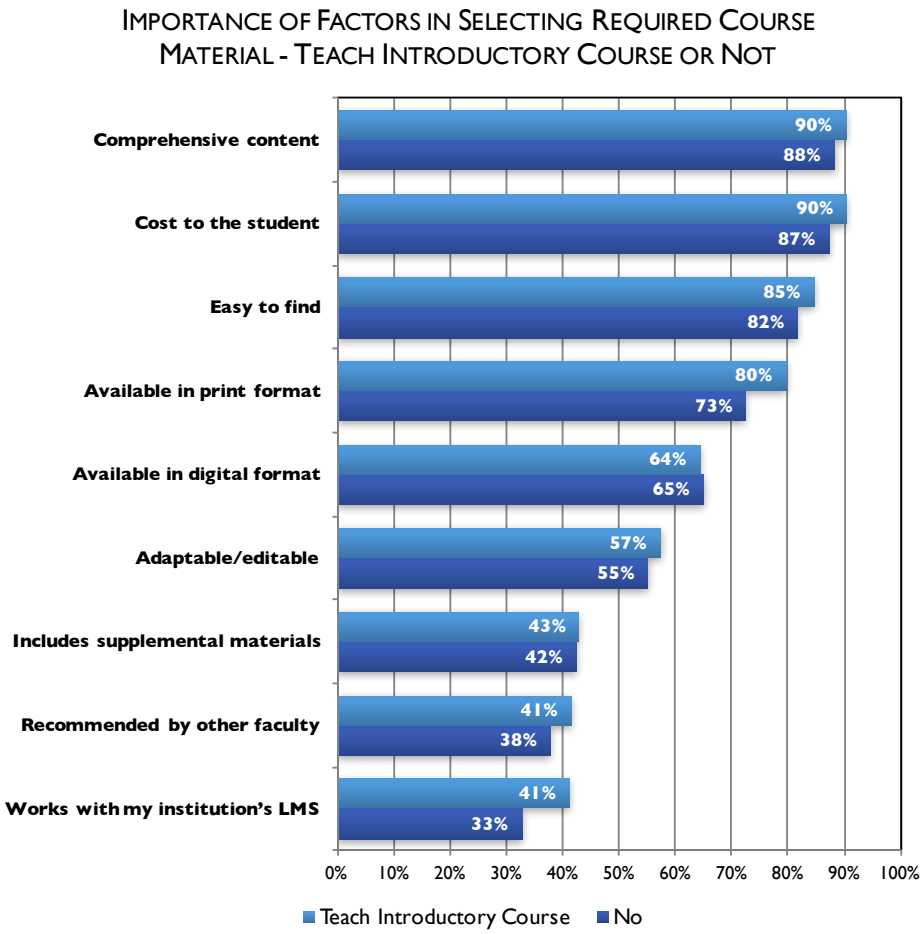
- College Algebra
- College Physics (Algebra based)
- Introductory Psychology
- Introductory Sociology
- Macro Economics
- Micro Economics
- Microbiology
- Pre-algebra
- Precalculus
- Principles of Economics
- Statistics
- U.S. History
- University Physics (Calculus based)

Faculty teaching one of these courses were presented with a list of the most commonly used commercial textbooks (up to twelve) for that specific course, along with an open text alternative from OpenStax, a non-profit OER publisher based out of Rice University. The choice of an OpenStax OER alternative for these courses was made to provide a consistent set of options for all courses, so relative adoption rates could be estimated. OpenStax has been providing texts and ancillaries for introductory courses since 2012, and currently have an OER offering for each of the above-listed courses.[10]

Introductory level courses are often taught in multiple sections (66%) and are typically required for at least some students (79%). Faculty teaching these courses are still the primary decision maker for selecting the required course materials. However, the decision is made at the department or higher level 19% of the time, a rate only slightly higher than the overall rate of 16% for all courses.

The selection process for the large enrollment courses is very similar to that for all courses. Faculty teaching these courses rank the importance of the various factors in their decision in exactly the same order as the general faculty, with only a few small differences in reported levels. The difference in rated importance for most factors is within a few percentage points. The only ones where there is any hint of a difference are the availability in print format (where those teaching introductory level courses rate it 7% higher) and that the resources work with the institution's learning management system (where there is a similar 7% difference).

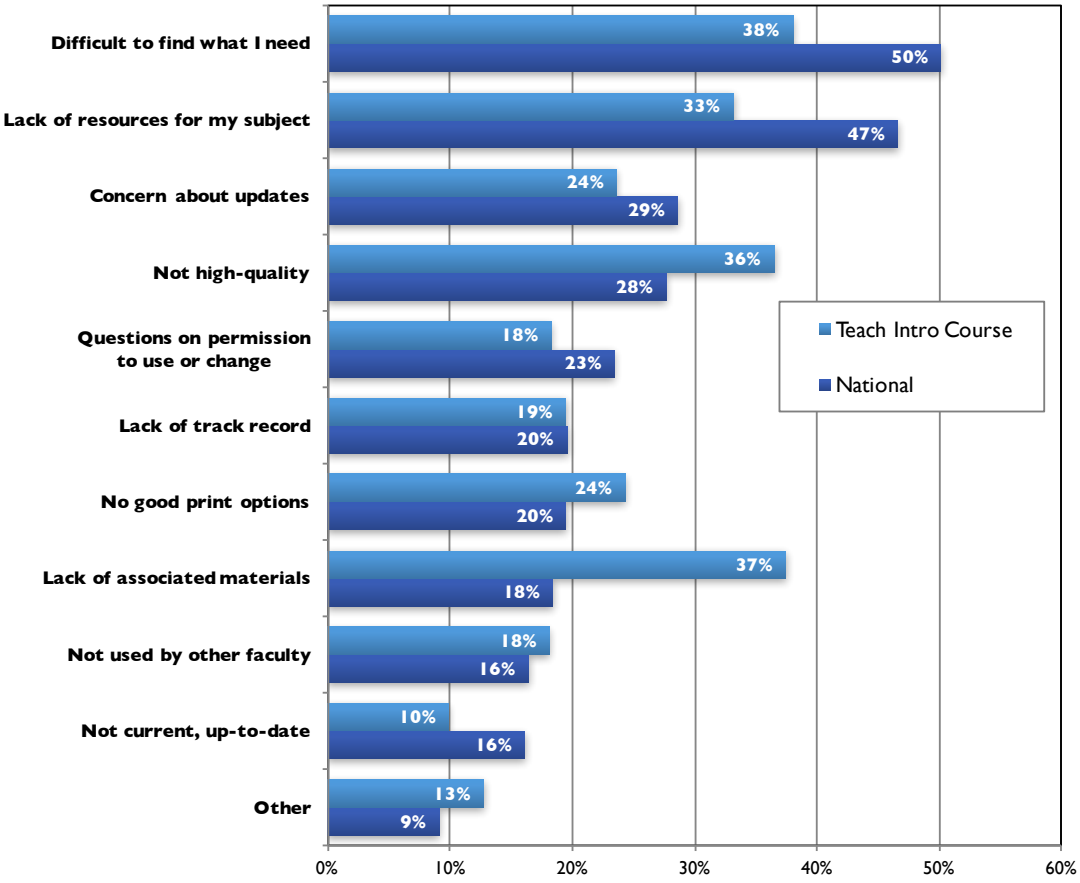
[10] There are other open textbook options for several of these courses. OpenStax textbooks were used in this study to provide a consistent alternative for all courses. https://OpenStax.org/



While the relative ranking of factors used in selecting course materials is very similar between those teaching introductory-level courses and all other faculty, the perception of what barriers prevent them from adopting an OER alternative are very different. Faculty teaching introductory-level courses are concerned that it is "difficult to find what I need" and a "lack of resources for my subject" but at a much lower level than the overall faculty response. This is most likely because it is exactly these courses that OER publishers have been targeting, meaning that the range of OER options is far better for these courses than for most others.

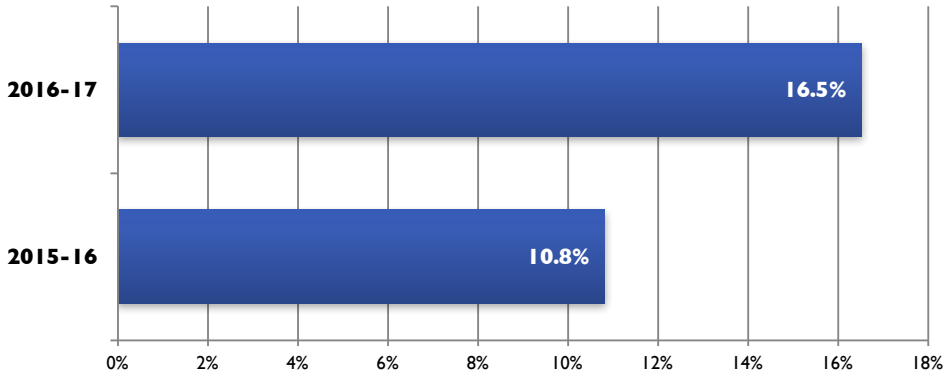
Faculty teaching introductory-level courses may be more aware of OER options that are other faculty, but that does not mean that they do not have some serious concerns. They are more concerned that the OER alternatives are not of high quality (36% as compared to 28% among all faculty), and very concerned about the lack of associated materials, with a rate more than double that of the overall faculty sample (37% compared to 18%).

BARRIERS TO ADOPTION OF OER - 2016-17

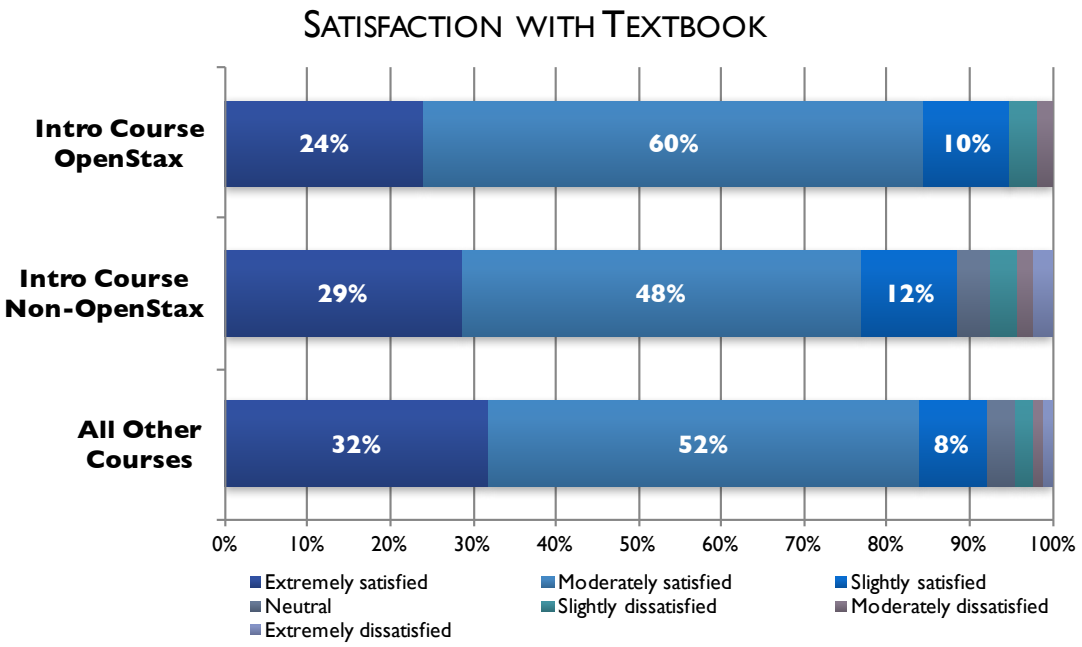


The rate of adoption of OpenStax textbooks among faculty teaching these large enrollment courses is now at 16.5%, a rate which rivals that of most commercial textbooks. This is a substantial increase over the rate observed in the previous year (10.8%).

ADOPTED AN OPENSTAX TEXTBOOK FOR INTRODUCTORY LEVEL COURSE: 2015-16 AND 2016-17

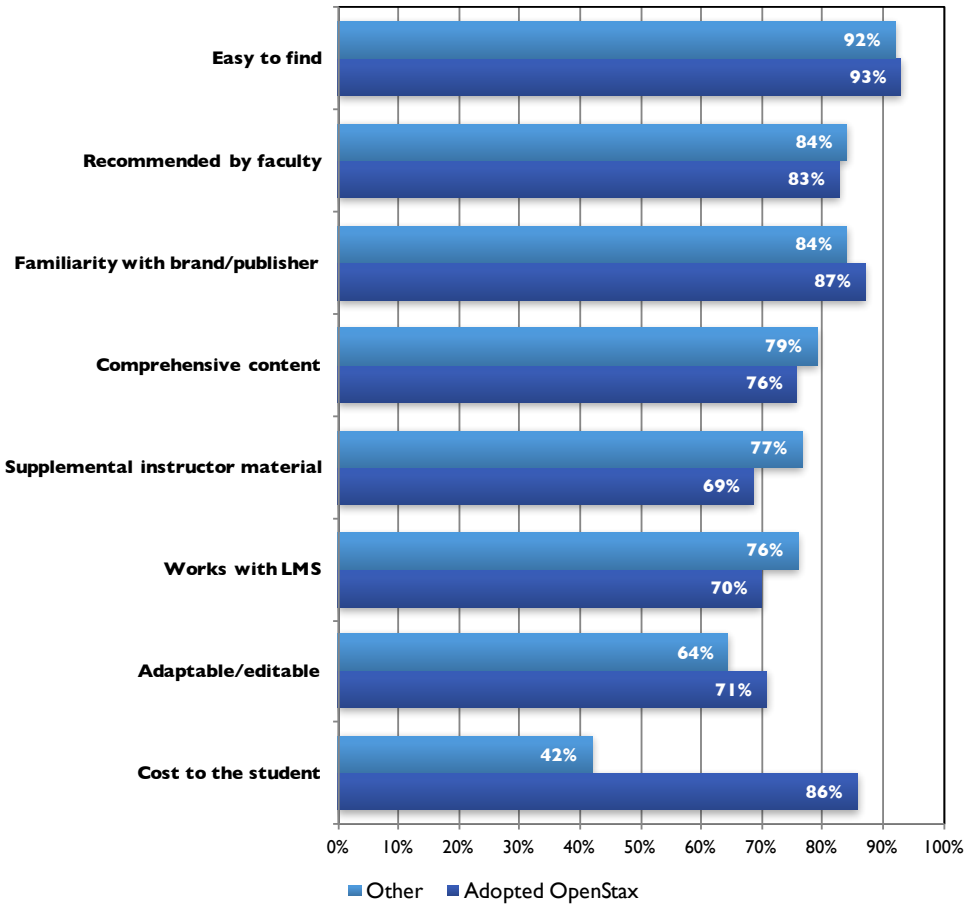


All faculty were asked about their level of satisfaction with the textbook they selected and used. Users of OpenStax textbooks had levels of satisfaction equal to their peers teaching introductory level courses who had selected commercial textbooks. A higher proportion of faculty using non-OpenStax textbooks reported that they were extremely satisfied (29%, as compared to 26% for the OpenStax users). That said, OpenStax users reported lower levels of dissatisfaction, and higher levels of "moderate" satisfaction. Interestingly, there were only satisfied or dissatisfied responses, and no "neutral" satisfaction responses with OpenStax. Overall, the pattern for OpenStax users has the majority clustered in the moderately satisfied group.



In addition to an overall satisfaction with their textbook choice, faculty were asked about their level of satisfaction with a number of specific aspects of their choice. With the single exception of the dimension of cost, where the OpenStax users were far more satisfied, levels of satisfaction were very similar among faculty teaching introductory level courses between those who adopted an OpenStax textbook and those who had selected something else.

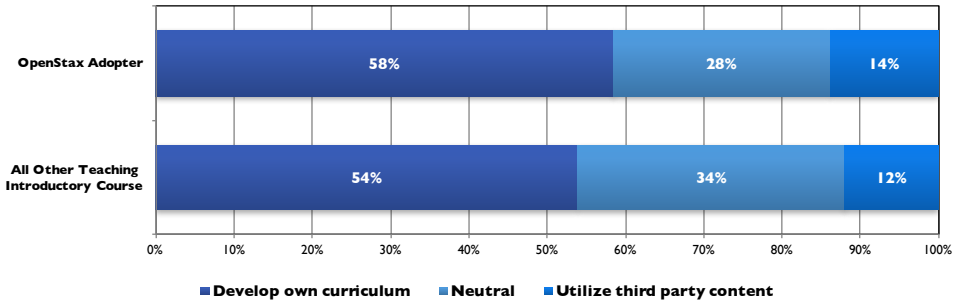
SATISFACTION WITH SELECTED TEXTBOOK - OPENSTAX USER OR NOT



The higher level of satisfaction with cost to the student is evident in faculty's reported textbook costs. Faculty teaching large enrollment introductory courses who did not select an OpenStax textbook reported an average cost of $125 for the required textbook. Those who selected an OpenStax text reported an average cost of $31. This is also reflected in faculty perceptions of how many of their students purchased all the required textbooks for the course. The median rate reported by faculty who did not select an OpenStax textbook was 85%, while the rate among those who did select an OpenStax textbook was 92%.

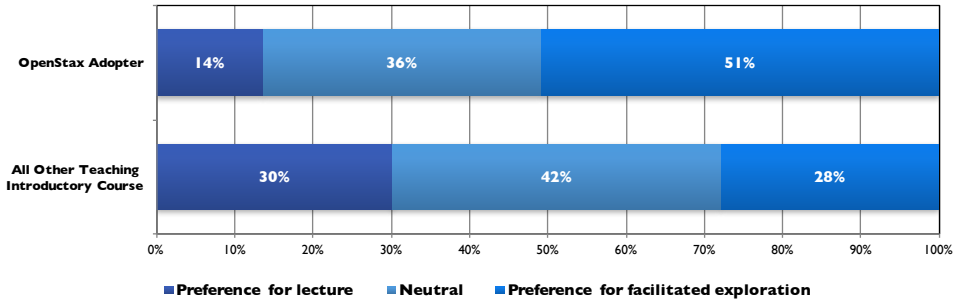
Are faculty who select an OpenStax textbook different from other faculty? Faculty were asked to rate themselves on a scale of how much they used existing materials and how much they created new materials for their classes. Faculty who adopted an OpenStax textbook are similar to their peers on this dimension, with a majority reporting that they develop their own curriculum.

USE EXISTING MATERIALS OR DEVELOP OWN



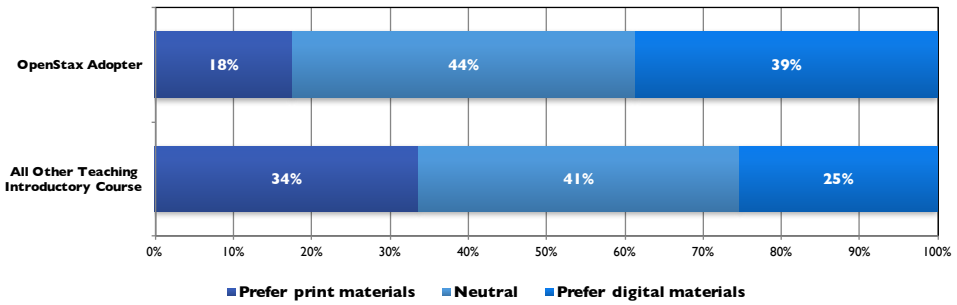
The picture is very different when faculty report on their teaching styles, however. A majority (51%) of faculty who adopted an OpenStax textbook say that they prefer facilitated exploration (which compares to only 28% among those who did not adopt an OpenStax textbook). OpenStax adopters are only half as likely to say they prefer lectures as those who did not adopt.

PREFERENCE FOR LECTURE VERSUS FACILITATED EXPLORATION



OpenStax adopters are also far more comfortable with digital materials. They are twice as likely to prefer digital over print (39% compared to 18%), while their peers tend to prefer print (34% for print compared to 25% who prefer digital).

PREFERENCE FOR PRINT VERSUS DIGITAL MATERIALS



Future Use

"Free resources cannot compete with customize updated textbooks and websites made available by commercial publishers with proven authors." (Business Faculty)

"I want to use open source materials. My first foray into it was disappointing." (Full-time Social Sciences Faculty)

"There is no OER for Human Biology for non-biology majors specifically. That is why I have yet to use it. There is only a general biology text so far." (Full-time Natural Sciences Faculty)

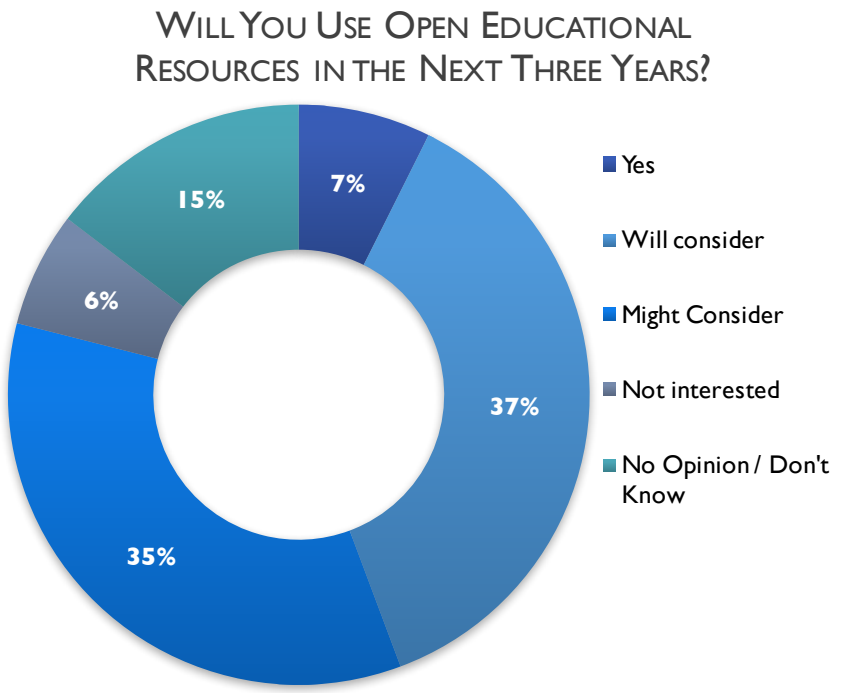
"Lack of ongoing payment to authors means open material is almost never well maintained." (Full-time Computer and Information Science Faculty)

"OER sounds fascinating." (Full-time Computer and Information Science Faculty)

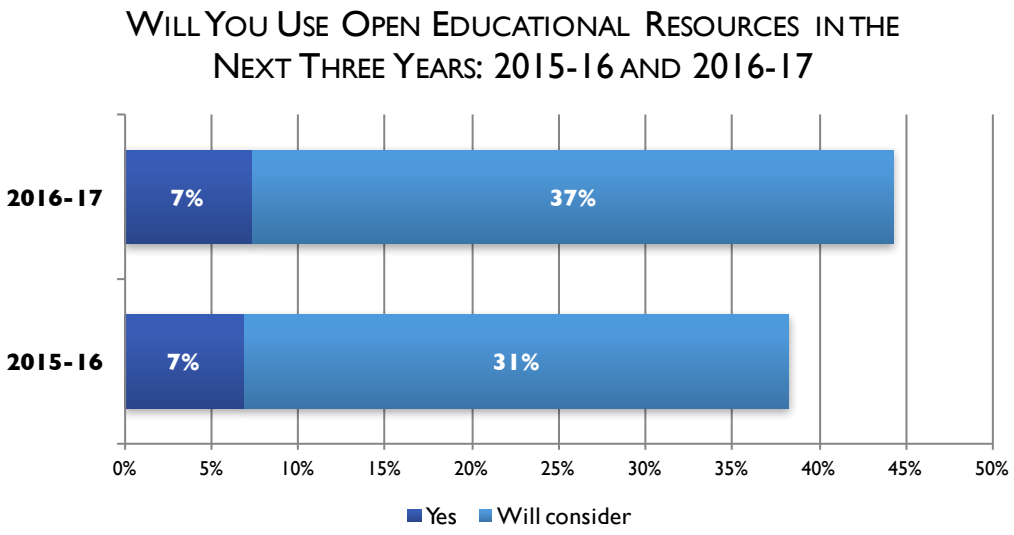
"My focus is research and doctoral advising. I should look for open resources but the time it takes versus the reward and expectations make putting in the time an un-rewarding proposition. Neither students nor colleagues bring it up, so why invest the time?" (Full-time Education Faculty)

"When I looked at the available OER a few years ago, I found the search clumsy and the materials a bit outdated. I would more often consider OER if it was easier to find what I need and to build a course around it." (Full-time Liberal Arts and Sciences Faculty)

Faculty members who are not current users of open educational resources were asked if they expected to be using OER in the next three years. Only 6% reported that they were not interested, while an additional 15% had not yet decided and were unable to offer an opinion. A small number of faculty claim that they will use OER in the future (7%), while a larger group (37%) say that they will consider future OER use.



There has been no change in the proportion of faculty who report that they will use OER in the next three years, remaining at the same 7% this year as it was in 2015-16. There has been an increase in the number who report that they "Will consider" OER, growing from 31% in 2015-16 to 37% this year.



The results from this year's survey show strong growth in the proportion of faculty selecting OER for their large enrollment introductory-level courses. This has been coupled with small to moderate levels of growth in:

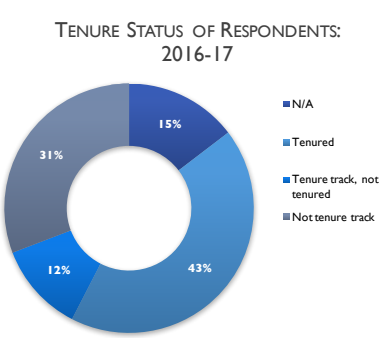
- Self-reported OER awareness
- Awareness of legal permissions
- Combined awareness of OER and legal permissions
- Proportion reporting that they "Will consider" OER in the future

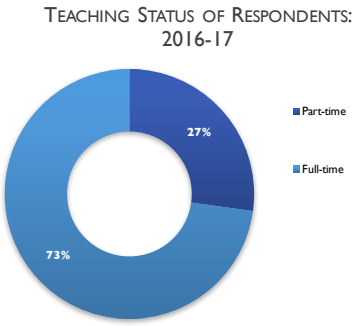
OER remains a minority (or even niche) product among higher education teaching faculty. Even in the area where it is strongest - large enrollment introductory-level courses - it still represents only a small portion of faculty selections. The trends over the past three years, and the stated willingness of additional faculty to consider it in the future, suggests continued but moderate growth.

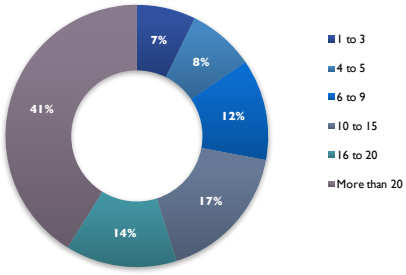
METHODOLOGY

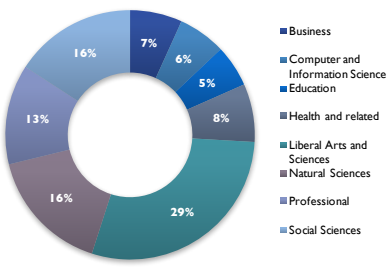
A national faculty sample is used in this analysis, designed to be representative of the overall range of faculty teaching in U.S. higher education. A multi-stage selection process was used for creating a stratified sample of all teaching faculty. The process began by obtaining data from a commercial source, Market Data Retrieval[11], which has over one and a half million faculty records and claims that its records represent 93% of all teaching faculty. All faculty who taught at least one course were selected for this first stage. Faculty were then randomly selected from the master list in proportion to the number contained in each Carnegie Classification, to produce a second-stage selection of teaching faculty members. This sample was then checked against opt-out lists, as well as for non-functioning email addresses.

A total of 2,711 faculty responded to a sufficient number of questions to be included in the analysis, representing the full range of higher education institutions (two-year, four-year, all Carnegie classifications, and public, private nonprofit, and for-profit) and the complete range of faculty (full- and part-time, tenured or not, and all disciplines). More than 73% of the respondents report that they are full-time faculty members. Over 26% teach at least one online course and 28% teach at least one blended course.









[11] http://schooldata.com/wordpress/wp-content/uploads/2014/06/MDR-Education-Catalog.pdf

Institutional descriptive data come from the National Center for Educational Statistics' IPEDS database[12]. After the data were compiled and merged with the IPEDS database, responders and nonresponders were compared to ensure that the survey results reflected the characteristics of the entire population of schools. The responses are compared for 35 unique categories based on the 2015 Carnegie Classification of Institutions of Higher Education.

Analysis for this report has been conducted for three different subgroups of the survey respondents:

- A series of questions were directed to all responding faculty (all teaching faculty) on such issues as their criteria for selecting educational resources, awareness of openly licensed resources and open textbooks, future plans, etc.

- A second set of more detailed questions were directed only to those faculty members who had been through a decision process related to course materials over the past two years. Approximately 89% of all responding faculty qualified for these questions because they had created a new course, substantially modified an existing course, and/or selected new required course materials.

- A final set of textbook selection questions was directed at faculty members who had recently been through the decision process for a large enrollment undergraduate course. These faculty were presented with detailed lists of possible textbooks that they may have considered, to determine which books they considered and adopted.

The wording of the question is critical in measuring the level of OER awareness. Many academics confuse "open" with "free," while others confuse "open resources" with "open source," and assume OER refers only to open source software. The wording of the question for this report matches that used in previous reports in this series.

The wording used (listed below) was found to have the best balance in differentiating among the different levels of awareness, while avoiding leading those with no previous knowledge of the concept.

How aware are you of Open Educational Resources (OER)? OER is defined as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others." Unlike traditionally copyrighted material, these resources are available for "open" use, which means users can edit, modify, customize, and share them.

[12] http://nces.ed.gov/ipeds/datacenter/

- I am not aware of OER
- I have heard of OER, but don't know much about them
- I am somewhat aware of OER but I am not sure how they can be used
- I am aware of OER and some of their use cases
- I am very aware of OER and know how they can be used in the classroom

Based on our testing, the results from this question may still slightly overstate the level of OER awareness, but this was considered a better option than leading the respondent. By using a series of additional questions, the results from this question can be adjusted to remove those who might have thought that they were aware of OER, but when probed did not have knowledge of all of the aspects that make up the concept.

Because licensing for remixing and reuse is central to the concept of OER, a question about the respondent's awareness of different legal permissions was asked of all respondents *before* any questions about OER awareness itself:

How aware are you of each of the following licensing mechanisms?

	Unaware	Somewhat Aware	Aware	Very Aware
Public Domain				
Copyright				
Creative Commons				

By combining the responses from the OER awareness question with those of the licensing questions, a combined index of awareness can be constructed. This process was also used in previous reports in this series, to permit year-to-year comparisons and trend analysis.

Appendix Tables

Selecting Educational Resources

Proportion of Faculty requiring Particular Materials for Their Course

Textbook(s)	68.2%
Articles/Case studies	52.7%
Video/Film	22.4%
Software	19.9%
Supplies (Laboratory, Art, etc.)	15.4%
Other	13.0%
Calculator	11.3%
Data sets	8.1%
Clicker (Classroom response system)	6.3%

Importance of Factors in Selecting Required Course Materials

	Works with my institution's LMS	Recommended by other faculty	Includes supplemental materials
Very important	16.8%	9.0%	21.7%
Important	18.3%	29.9%	20.8%
Somewhat important	20.9%	37.3%	23.2%
Not important	43.9%	23.9%	34.3%

	Adaptable/editable	Available in digital format	Available in print format
Very important	29.2%	32.4%	44.6%
Important	26.6%	32.3%	30.0%
Somewhat important	18.1%	25.2%	16.7%
Not important	26.2%	10.0%	8.7%

	Easy to find	Cost to the student	Comprehensive content
Very important	43.2%	55.5%	57.9%
Important	39.3%	32.6%	30.9%
Somewhat important	12.5%	10.1%	8.2%
Not important	4.9%	1.8%	3.0%

Importance of Factors in Selecting Required Course Materials by Type of Institution

	2015-16	2016-17
Works with my institution's LMS	34.1%	35.1%
Recommended by other faculty	44.3%	38.8%
Includes supplemental materials	41.0%	42.5%
Adaptable/editable	43%	55.8%
Available in digital format	Not Asked	64.8%
Available in print format	Not Asked	74.6%
Easy to find	69%	82.5%
Cost to the student	87%	88.1%
Comprehensive content	76%	88.8%

Cost to the Student

Importance of Cost in Selection of Curriculum Materials

	Very important	Important
Part-time	58.5%	29.7%
Full-time	54.5%	33.5%
N/A	57.1%	27.8%
Tenured	51.4%	33.6%
Tenure track, not tenured	56.3%	34.4%
Not tenure track	59.1%	33.2%
Under 35	64.3%	26.2%
35 - 44	58.1%	32.4%
45 - 54	57.6%	31.4%
55+	53.1%	32.6%

Average Cost of Required Textbook by Discipline

Discipline	Average Cost
Computer and Information Science	$68
Liberal Arts and Sciences	$69
Social Sciences	$74
Education	$87
Natural Sciences	$101
Business	$132
Professional	$155
Health and related	$182

Satisfaction With Cost for the Selected Textbook

	Very satisfied	Satisfied
Business	12.8%	31.9%
Education	18.2%	27.3%
Natural Sciences	14.1%	32.0%
Computer and Information Science	20.8%	35.4%
Liberal Arts and Sciences	26.8%	33.9%
Professional	28.6%	32.9%
Social Sciences	19.7%	43.6%
Health and related	18.2%	65.5%

Proportion of Faculty Reporting that at Least 90% of their Students had Purchased the Required Textbook by Discipline

Computer and Information Science	25.0%
Natural Sciences	26.7%
Business	28.3%
Social Sciences	31.1%
Liberal Arts and Sciences	35.5%
Education	41.2%
Health and related	51.0%
Professional	58.1%

Awareness of Open Educational Resources

AWARENESS OF OPEN EDUCATIONAL RESOURCES: 2016-17

Very Aware	9.6%
Aware	19.6%
Somewhat Aware	15.3%
Not Aware	55.5%

AWARENESS OF OPEN EDUCATIONAL RESOURCES: 2014-15 TO 2016-17

	2014-15	2015-16	2016-17
Very Aware	5%	7%	9.6%
Aware	15%	19%	19.6%
Somewhat Aware	14%	16%	15.3%
Not Aware	65.9%	58.4%	55.5%

Awareness of Licensing of Open Educational Resources

AWARENESS OF LEGAL PERMISSIONS: 2016-17

	Creative Commons	Public Domain	Copyright
Very Aware	19%	30%	42%
Aware	28%	40%	42%
Somewhat Aware	24%	22%	13%
Unaware	29%	8.7%	4%

AWARENESS OF CREATIVE COMMONS: 2014-15 TO 2016-17

	2014-15	2015-16	2016-17
Very Aware	14%	16%	19%
Aware	23%	22%	28%
Somewhat Aware	28%	28%	24%
Unaware	36%	34.2%	34%

AWARENESS OF OPEN EDUCATIONAL RESOURCES AND CREATIVE COMMONS: 2014-15 TO 2016-17

	2014-15	2015-16	2016-17
Very Aware	5%	6%	8.4%
Aware	12%	16%	16.6%
Somewhat Aware	10%	12%	12.1%
Not Aware	73.6%	66.3%	62.9%

Digital versus Print

Faculty Preference for Print or Digital Materials

Prefer print materials	31.7%
Neutral	39.4%
Prefer digital materials	28.9%

Prefer Digital Materials Over Print by Age of Faculty

Under 35	41.3%
35 - 44	36.5%
45 - 54	30.7%
55+	26.2%

Prefer Digital Materials Over Print by Discipline of Faculty

Professional	40.3%
Liberal Arts and Sciences	35.9%
Computer and Information Science	35.2%
Health and related	33.3%
Education	30.0%
Natural Sciences	25.6%
Business	23.9%
Social Sciences	22.4%

Educational Resource Decision Process

Activity of Faculty Selecting Required Course Materials

Created new course	24.1%
Substantially modified course	53.5%
New required materials	22.4%

Faculty Role in Decision of Required Course Materials

Solely responsible	66.8%
Lead a group	10.2%
Member of a group	12.5%
Influence the selection	5.4%
No role	2.1%
Other	3.1%

Use of Open-Licensed Textbook

2015-16	5.3%
2016-17	8.6%

Licensing of Required Textbooks

Digital Textbook(s)	Copyrighted	77.6%
	Creative Commons	3.6%
	Public Domain	7.0%
	NA/Don't Know	15.7%
Printed Textbook(s)	Copyrighted	95.6%
	Creative Commons	1.1%
	Public Domain	3.5%
	NA/Don't Know	3.2%

Potential Barriers

Barriers to Adoption of OER - 2016-17

Difficult to find what I need	50.2%
Lack of resources for my subject	46.6%
Concern about updates	28.6%
Not high-quality	27.7%
Questions on permission to use or change	23.5%
Lack of track record	19.6%
No good print options	19.5%
Lack of associated materials	18.4%
Not used by other faculty	16.4%
Not current, up-to-date	16.1%
Other	9.1%

Barriers to Adoption of OER - 2016-17 and 2015-16

	2015-16	2016-17
Difficult to find what I need	48%	50.2%
Lack of resources for my subject	49%	46.6%
Concern about updates	Not Asked	28.6%
Not high-quality	28%	27.7%
Questions on permission to use or change	21%	23.5%

The Process of Textbook Adoption for Introductory Courses

Importance of Factors in Selecting Required Course Materials - Teach Introductory Course or Not

	No	Teach Introductory Course
Comprehensive content	88.2%	90.2%
Cost to the student	87.2%	90.4%
Easy to find	81.7%	84.6%
Available in print format	72.5%	79.6%
Available in digital format	64.9%	64.3%
Adaptable/editable	55.1%	57.3%
Includes supplemental materials	42.3%	42.9%
Recommended by other faculty	37.8%	41.5%
Works with my institution's LMS	32.7%	41.2%

Barriers to Adoption of OER - 2016-17

	National	Teach Intro Course
Difficult to find what I need	50.2%	38.0%
Lack of resources for my subject	46.6%	33.2%
Concern about updates	28.6%	23.7%
Not high-quality	27.7%	36.5%
Questions on permission to use or change	23.5%	18.3%
Lack of track record	19.6%	19.5%
No good print options	19.5%	24.3%
Lack of associated materials	18.4%	37.5%
Not used by other faculty	16.4%	18.2%
Not current, up-to-date	16.1%	9.9%
Other	9.1%	12.7%

OpenStax adoption

	2015-16	2016-17
Adopted OpenStax	10.8%	16.5%

Satisfaction with Textbook

	Intro Course OpenStax	Intro Course Non-OpenStax	Non-Intro Courses
Extremely satisfied	24%	29%	32%
Moderately satisfied	60%	48%	52%
Slightly satisfied	10%	12%	8%
Neither satisfied nor dissatisfied	0%	4%	3%
Slightly dissatisfied	3%	3%	2%
Moderately dissatisfied	2%	2%	1%
Extremely dissatisfied	0%	2%	1%

Satisfaction with Selected Textbook - OpenStax User or Not

	Adopted OpenStax	Other
Easy to find	93%	92%
Recommended by faculty	83%	84%
Familiarity with brand/publisher	87%	84%
Comprehensive content	76%	79%
Supplemental instructor material	69%	77%
Works with LMS	70%	76%
Adaptable/editable	71%	64%
Cost to the student	86%	42%

Use Existing Materials or Develop Own

	OpenStax Adopter	All Other Teaching Introductory Course
Develop own curriculum	58.5%	54.0%
Neutral	27.7%	34.1%
Utilize third party content	13.8%	11.9%

Preference for Lecture Versus Facilitated Exploration

	OpenStax Adopter	All Other Teaching Introductory Course
Preference for lecture	13.6%	30.2%
Neutral	35.6%	41.9%
Preference for facilitated exploration	50.8%	27.9%

Preference for Print Versus Digital Materials

	OpenStax Adopter	All Other Teaching Introductory Course
Prefer print materials	17.5%	33.7%
Neutral	43.9%	41.0%
Prefer digital materials	38.6%	25.3%

Future Use

Will You Use Open Educational Resources in the Next Three Years?

Yes	7.4%
Will consider	36.9%
Might Consider	34.7%
Not interested	6.4%
No Opinion / Don't Know	14.6%

Will You Use Open Educational Resources in the Next Three Years: 2015-16 and 2016-17

	Yes	Will consider
2015-16	6.9%	31.3%
2016-17	7.4%	36.9%

Methodology

Tenure Status

N/A	14.6%
Tenured	42.9%
Tenure track, not tenured	11.6%
Not tenure track	30.8%

Teaching Status

Part-time	27.2%
Full-time	72.8%

Number of years teaching

1 to 3	7.3%
4 to 5	8.2%
6 to 9	12.5%
10 to 15	17.2%
16 to 20	13.7%
More than 20	41.2%

Discipline

Business	6.8%
Computer and Information Science	6.2%
Education	5.4%
Health and related	7.5%
Liberal Arts and Sciences	29.0%
Natural Sciences	16.2%
Professional	13.0%
Social Sciences	15.8%

APPENDIX: QUESTIONNAIRE

Welcome.

The Babson Survey Research Group is working with the William and Flora Hewlett Foundation in understanding faculty attitudes and practice on the selection of teaching materials. The foundation's Education Program is making investments to ensure that faculty and students have high-quality resources to meet their needs. We value your feedback and insight to help guide us in meeting this objective.

Most respondents can complete the survey in 10 minutes or less. All respondents will receive a copy of the study report.

Best Regards,
Dr. Jeff Seaman
Babson Survey Research Group

We value your privacy. All survey respondents are provided complete anonymity. No personally identifiable information is ever released.

In order to help us understand your instructional style, please use the sliders below to indicate where your instructional tendencies and preferences fall on these dimensions.

Develop my own curriculum and content _____ Utilize existing third-party content

Preference for lecture to deliver content _____ Preference for facilitated exploration of content

Prefer print materials _____ Prefer digital materials

Please tell us a bit about yourself. *Note: This information is used only to classify the survey responses. No individual-level data will be released. Information that you provide in this survey will not be used to target you for any marketing.*

Your status:

Teaching Status

Part-time

Full-time

Tenure Status

DROPDOWN LIST:
N/A
Tenured
Tenure track, not tenured
Not tenure track

Your Age

- ☐ Under 35
- ☐ 35 – 44
- ☐ 45 – 54
- ☐ 55+

Number of Years Teaching

DROPDOWN LIST:
Less than 1
1 to 3
4 to 5
6 to 9
10 to 15
16 to 20
More than 20

Which of the following have you taught during the most recent academic year?

Please use the following definitions:
Face-to-face Course: A course where all meetings are face-to-face, may use a learning management system (LMS) or web pages to post the syllabus and assignments.
Blended/Hybrid Course: A course where sufficient content is delivered online to create a reduction in the number of face-to-face class meetings.
Online Course: A course in which all, or virtually all, the content is delivered online. Typically have no face-to-face class meetings (with the possible exception of proctored exams). *Please check all that apply.*

- ❑ Face-to-face course
- ❑ Blended/Hybrid course
- ❑ Online Course

Over the past two years, either working alone or with others, have you...

- ❑ Created a new course (A course that was not previously listed in the course catalog)
- ❑ Substantially modified an existing course (Examples include making a substantive change in the content included in the course, changing the delivery method (e.g., converting a face-to-face course to online) or a similar change of this magnitude. Do not count the normal fine-tuning to a course during its delivery or the typical term-to-term refinements that all courses go through)
- ❑ Added or changed required course materials (Items listed in the course syllabus as required for all students, either acquired on their own or provided to all students through a materials fee, examples include a printed or digital textbook, other course-complete printed (coursepack) or digital materials, or materials such as laboratory supplies)
- ❑ None of the above

Considering all the new courses, substantially modified courses, and/or courses with changed required materials that you have been involved with over the past two years, please select the one with the largest enrollment. (If more than one course has the same enrollment, then select the one you are most familiar with.)
The following questions will apply to this selected course. This selected course is:

- ❍ A new course
- ❍ A substantially modified course
- ❍ A course with new required materials

Considering all the new courses that you have been involved with over the past two years, please select the one with the largest enrollment. (If more than one course has the same enrollment, then select the one you are most familiar with.)
The following questions will apply to this selected course.

Considering all the substantially modified courses that you have been involved with over the past two years, please select the one with the largest enrollment. (If more than one course has the same enrollment, then select the one you are most familiar with.)
The following questions will apply to this selected course.

Considering all the courses with changed required materials that you have been involved with over the past two years, please select the one with the largest enrollment. (If more than one course has the same enrollment, then select the one you are most familiar with.)
The following questions will apply to this selected course.

Whose decision was it to create the new course/modify the course/select new required course materials?
- ❍ The decision was mine alone
- ❍ The decision was made by me in concert with others
- ❍ The decision was made at the department level
- ❍ The decision was made at the division level
- ❍ The decision was made the institutional level
- ❍ Other

(Optional) Why was this decision taken?

Level of course
- ❍ Undergraduate
- ❍ Graduate
- ❍ Other

Is this course taught in multiple sections?
- ❍ Yes
- ❍ No

How would you classify this course?
- ❍ Introductory course
- ❍ Intermediate level course
- ❍ Advanced course
- ❍ N/A Does not apply

Course Type
- ❍ Face-to-face
- ❍ Blended
- ❍ Online

Is the course required?
- ❍ Yes, for all students
- ❍ Yes, for some students (e.g., majors)
- ❍ No

What is the discipline of the course?

DROPDOWN LIST:
Arts and Literature
Business Administration
Computer and Information Science
Economics
Education
Engineering
Humanities
Law
Linguistics / Language
Mathematics
Medicine

Natural Sciences
Philosophy
Psychology
Social Sciences
Other

What is your role in selecting the required materials for this course?

- ❍ I am solely responsible for the selection
- ❍ I lead a group that makes the selection
- ❍ I am a member of a group that makes the selection
- ❍ I influence the selection, but do not have decision-making power
- ❍ Others make the selection, I have no role
- ❍ Other _____

What types of course materials are required and/or recommended for this course? Required items are those listed in the course syllabus as required for all students, either acquired on their own or provided to all students through a materials fee. Recommended items are those that are NOT required of students, but are listed on the syllabus as recommended.

	Required	Recommended	Not required or recommended
Textbook(s)	❑	❑	❑
Articles/Case studies	❑	❑	❑
Calculator	❑	❑	❑
Clicker (Classroom response system)	❑	❑	❑
Data sets	❑	❑	❑
Software	❑	❑	❑
Supplies (Laboratory, Art, etc.)	❑	❑	❑
Video/Film	❑	❑	❑
Other	❑	❑	❑

How are the required textbooks for this course licensed? (Check all that apply.)

	Copyrighted	Public Domain	Creative Commons	Other	NA/Don't Know
Textbook(s) (print versions)	❑	❑	❑	❑	❑
Textbook(s) (digital versions)	❑	❑	❑	❑	❑

What is your best estimate of the cost to students to purchase the required materials for your course?

	Average cost to student
Required textbook(s) (if any)	
Non-textbook required materials (if any)	

What proportion of your students do you believe purchase ALL of the required materials for your course?

0% _____ 100% Required textbook(s)

0% _____ 100% Non-textbook required materials

(Optional) We welcome your thoughts on the cost of required course materials.

When selecting required course materials, how important are the following factors in your selection?

	Very important	Important	Somewhat important	Not important
Adaptable/editable	❍	❍	❍	❍
Available in print format	❍	❍	❍	❍
Available in digital format	❍	❍	❍	❍
Cost to the student	❍	❍	❍	❍
Comprehensive content	❍	❍	❍	❍
Easy to find	❍	❍	❍	❍
Includes supplemental materials (homework, quizzes, etc.)	❍	❍	❍	❍
Recommended by other faculty members	❍	❍	❍	❍
Works with my institution's Learning Management System (LMS)	❍	❍	❍	❍
Other	❍	❍	❍	❍

How satisfied are you with the required textbook(s) you are currently using for this course?

❍ Extremely satisfied
❍ Moderately satisfied
❍ Slightly satisfied
❍ Neither satisfied nor dissatisfied
❍ Slightly dissatisfied
❍ Moderately dissatisfied
❍ Extremely dissatisfied

How satisfied are you with the following aspects of the material available to you for selection as a required material for your course(s)?

	Very satisfied	Satisfied	Somewhat satisfied	Not satisfied
Cost to the student	❍	❍	❍	❍
Easy to find	❍	❍	❍	❍
Comprehensive content and activities	❍	❍	❍	❍
Works with my institution's Learning Management System (LMS)	❍	❍	❍	❍
Recommended by other faculty members	❍	❍	❍	❍
Adaptable/editable	❍	❍	❍	❍
Familiarity with brand/publisher	❍	❍	❍	❍
Includes test banks	❍	❍	❍	❍
Includes supplemental instructor material	❍	❍	❍	❍

How aware are you of each of the following licensing mechanisms?

	Unaware	Somewhat Aware	Aware	Very Aware
Public Domain	❍	❍	❍	❍
Copyright	❍	❍	❍	❍
Creative Commons	❍	❍	❍	❍

How aware are you of Open Educational Resources (OER)? OER is defined as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others." Unlike traditionally copyrighted material, these resources are available for "open" use, which means users can edit, modify, customize, and share them.

- ❍ I am not aware of OER
- ❍ I have heard of OER, but don't know much about them
- ❍ I am somewhat aware of OER but I am not sure how they can be used
- ❍ I am aware of OER and some of their use cases
- ❍ I am very aware of OER and know how they can be used in the classroom

Have you used Open Educational Resources in any of the following ways for any of your courses?

	Used as required course material	Used as supplemental course material	Not used	Don't Know
Open Educational Resources	❍	❍	❍	❍

What are the three most important deterrents to your adoption of Open Educational Resources in your courses? Please drag up to three deterrents to the box on the right (the order in which you drag the three deterrents does not matter).

Three most important (in any order)

_____ Difficult to find what I need
_____ Not enough resources for my subject
_____ Not high-quality
_____ Not current, up-to-date
_____ Only digital - no good print options
_____ Not knowing if I have permission to use or change
_____ Concern about updates and staying current
_____ Lack of track record
_____ Not used by other faculty I know
_____ Lack of associated materials (homework, quizzes, etc.)
_____ Other

Do you think you will use Open Educational Resources in the next three years?

- ❍ Yes
- ❍ Will consider
- ❍ Might Consider
- ❍ Not interested
- ❍ No Opinion / Don't

We welcome your comments. Please let us know your thoughts on any of the issues covered in this survey.

May we quote your response? Published comments will only include attribution of the discipline of the faculty member and if they are full- or part-time ("Full-time Natural Sciences Faculty", "Part-time Mathematics Faculty"). No personal identifiable information will be included.

- ❍ Yes
- ❍ No

May we contact you with follow-up questions?

- ❍ Yes
- ❍ No

Thank you. This is the end of the survey - pressing the "Next" button below will record your responses. Note: Do not press "Next" until you are sure you are finished - once your survey has been recorded you will no longer be able to edit your responses.

BABSON SURVEY RESEARCH GROUP

The Babson Survey Research Group conducts regional, national, and international research, including survey design, sampling methodology, data integrity, statistical analyses and reporting.

http://www.onlinelearningsurvey.com/

Open Educational Resources

- What We Teach: K-12 School District Curriculum Adoption Process, 2017
- Opening the Textbook: Open Education Resources in U.S. Higher Education, 2015-16
- Opening Public Institutions: OER in North Dakota and the Nation, 2015
- Opening the Curriculum: Open Educational Resources in U.S. Higher Education
- Growing the Curriculum: Open Educational Resources in U.S. Higher Education

National Surveys of Online Education

- Digital Learning Compass: Distance Education Enrollment Report 2017
- Online Report Card: Tracking Online Education in the United States
- Grade Change: Tracking Online Education in the United States
- Changing Course: Ten Years of Tracking Online Education in the United States
- Going the Distance: Online Education in the United States, 2011
- Online Learning Trends in Private-Sector Colleges and Universities, 2011
- Class Differences: Online Education in the United States, 2010
- Learning on Demand: Online Education in the United States, 2009
- Staying the Course: Online Education in the United States, 2008
- Online Nation: Five Years of Growth in Online Learning
- Making the Grade: Online Education in the United States, 2006
- Growing by Degrees: Online Education in the United States, 2005
- Entering the Mainstream: The Quality and Extent of Online Education in the United States, 2003 and 2004
- Sizing the Opportunity: The Quality and Extent of Online Education in the United States, 2002 and 2003

Higher Education Faculty and Technology

- Digital Faculty, Professors, Teaching and Technology, 2012
- Conflicted: Faculty and Online Education, 2012

K-12 Online Learning Survey Reports

- Online Learning in Illinois High Schools: Has the Time Come?
- Class Connections: High School Reform and the Role of Online Learning
- K–12 Online Learning: A 2008 follow-up of the Survey of U.S. School District Administrators
- K–12 Online Learning: A Survey of U.S. School District Administrators

The A•P•L•U-Sloan National Commission on Online Learning

- Online Learning as a Strategic Asset, Volume II: The Paradox of Faculty Voices
- Online Learning as a Strategic Asset: A Survey of APLU Presidents and Chancellors
- Online Learning as a Strategic Asset: A Survey of NAFEO Presidents and Chancellors
- Online Learning as a Strategic Asset: A Survey of AIHEC Tribal College and University

Responses from over 2,700 U.S. faculty paint both a "Good news" and a "Bad news" picture for the role of open educational resources (OER) in U.S. higher education.

Levels of awareness of OER, the licensing tied to it, and overall adoption of OER materials, remains low. Only 10% of faculty reported that they were "Very aware" of open educational resources, with 20% saying that they were "Aware." Awareness of Creative Commons licensing also remains low, with only 19% of faculty reporting that they are "Very aware."

Faculty continue to report significant barriers to OER adoption. The most serious issues continue to be the effort needed to find and evaluate suitable material. Nearly one-half of all faulty report that "there are not enough resources for my subject" (47%) and it is "too hard to find what I need" (50%). In light of this, the reported level of adoption of open-licensed textbooks (defined as either public domain or Creative Commons) of only 9% is not a surprise. Many faculty members also voice concerns about the long-term viability of open educational resources, and worry about who will keep the materials current.

That said, there is also considerable cause for optimism among those who support OER. The awareness and adoption levels may be low, but they also show steady year-to-year improvements. OER also addresses a key concern of many faculty - the cost of materials. A majority of faculty classify cost as "Very important" for their selection of required course materials.

A particular area of OER success is among large enrollment introductory-level courses. These courses touch the largest numbers of students, are often taught in multiple sections (66%), and are typically required for some subset of students (79%). Faculty teaching these courses were presented with a list of the most commonly used commercial textbooks (up to twelve) for their specific course, along with an open text alternative from OpenStax, a non-profit OER publisher based out of Rice University.

The rate of adoption of OpenStax textbooks among faculty teaching large enrollment courses is now at 16.5% - a rate which rivals that of most commercial textbooks. This is a substantial increase over the rate observed last year (10.8%). Users of OpenStax textbooks also had levels of satisfaction equal to their peers teaching introductory level courses who had selected commercial textbooks. These adoptions address concerns about cost as well: faculty who did not select an OpenStax textbook reported an average cost of $125 for the required textbook, while those who did select an OpenStax text reported an average cost of $31.

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BABSON Survey Research Group

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