In the following report, Hanover Research provides an overview of trends in online postsecondary education. The report discusses the development of online education over the past two decades, recent developments that are reshaping online education, and the challenges that online education providers are facing today, and will continue to face in the near future.
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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

In this report, Hanover Research (Hanover) analyzes the development of online courses and degree programs, as well as the current state of online education more generally. An online course is classified as a course in which over 80 percent of content is delivered online, with few, if any, face-to-face classroom meetings.\(^1\) Hanover explores the rapid expansion of online education from a handful of for-profit institutions in the mid-1990s to over 80 percent of all higher education institutions by 2012.\(^2\) Hanover further assesses the current state of for-credit online education, analyzes the role of massive open online courses (MOOCs) in the future of online education, and discusses a variety of issues and challenges with which online education providers continue to grapple.

The report is divided into four sections:

- **Section I** provides an overview of historical trends in online education. The section assesses the growth of online programs, and changing perceptions of online education among higher education policymakers.
- **Section II** focuses on the current state of for-credit online education at both the undergraduate and graduate level. It analyzes in more depth the types of programs offered online as well as the types of students enrolling in these courses.
- **Section III** discusses the recent rise of MOOCs. The section provides a brief history of the development of these courses, and discusses the major issues that this fledgling subsection of online education faces as it continues to expand.
- **Section IV** outlines the future of online education. The section further considers major challenges facing online education as it continues to grow, especially related to the rigor of course content possible with online learning.

KEY FINDINGS

**GENERAL ONLINE EDUCATION**

- **Online Education has a major role within higher education.** Both for-profit and non-profit institutions have invested heavily in for-credit online learning. In 2012, over 85 percent of postsecondary institutions offered courses or degree programs online, a 15 percent increase in institutions since 2002. Furthermore, new learning platforms, such as MOOCs, are further expanding the reach of online education.

---

\(^1\) This definition, and a broader course classification systems of online learning, has been developed for the Babson surveys of online learning, see Allen, I., Seaman, J. “Changing Course: Ten Years of Tracking Online Education in the United States.” p. 7. http://sloanconsortium.org/publications/survey/changing_course_2012

\(^2\) Ibid, p. 20.
• Even smaller, private non-profit institutions are developing online courses and degree programs. Over three-quarters of private non-profit institutions now offer online courses and degree programs. Even smaller liberal-arts colleges have made efforts into developing online offerings, though the most prominent of these have not yet pursued for-credit online education.

• While initially driven by for-profit institutions, public and private non-profit institutions are now playing a major role in online higher education. In recent years, for-profit institutions have received increasingly bad publicity, and seen enrollment slip and profits decline. Non-profit institutions are finally fully investing the necessary time and money in their online programs to be successful.

• Institutions more commonly offer undergraduate degrees online, though graduate degrees, especially master’s degrees are also offered by a variety of institutions. These degrees are offered in a wide range of subjects, though popular options include business and marketing and the health professions such as nursing. At the master’s degree level, education programs are especially popular.

• The average total tuition for an online bachelor’s program is $43,477 compared to $21,959 for a master’s program. These figures represent tuition paid over the entirety of the program, rather than a semester or credit hour, and don’t include any deductions made via financial aid. Given that a number of one-year master’s programs are included within this calculation, the average annual cost of an online bachelor’s program is probably lower than that of an average online master’s program.

• There has been a huge growth in the online student population in the last decade. Over 30 percent of the postsecondary student population has taken at least one for-credit course online. In 2011, over 6.7 million students enrolled in an online course. Though, in recent years, the growth in the number of students enrolling online has slowed, it is still much higher than growth of total postsecondary enrollment.

• Online students are typically working females in their early 30s who are receiving financial support from their employer to complete their online degree. These students are especially interested in enrolling in business, health professions, and social science degree programs. Upon completion, they are interested in entering into the health professions, professional services, education, or computer and information sciences fields.

• Despite its success, for-credit online education continues to grapple with a variety of issues. Student attrition remains a large issue and there remains little conclusive evidence on the effectiveness of online learning methods. Furthermore, as for-credit online learning, more and more institutions are grappling with confusing state regulation issues that have limited student access in some areas to courses and degree programs.
MASSIVE OPEN ONLINE COURSES (MOOCs)

- Over the last two years, massive open online courses, or MOOCs, have presented a new option for those interested in online learning. These courses are typically free, and not-for-credit. Some MOOCs have enrolled over 100,000 students, and they potentially suggest a new platform through which to deliver education on a large scale. Third-party MOOC providers such as Coursera have partnered with a growing number of institutions while international companies and individual institutions have also developed these types of programs.

- There is little consensus on the role of MOOCs in online higher education. While promising tools to increase access to higher education, higher education leaders have yet to grapple with how to integrate them with the current for-credit educational model. In many ways, they remain in an experimental stage, though some universities are beginning to consider offering them for introductory course credit.

- Liberal arts colleges have started to offer courses via MOOC platforms. Skepticism remains about whether the small-group, intimate form of learning found in many liberal arts colleges is compatible with “massive” online courses. However, certain administrators see MOOCs as an opportunity to publicize their college, particularly at an international level, and to experiment with online learning in a relatively low-risk fashion.

- Another major issue with MOOCs is that they have only recently begun to develop effective financial models. Coursera and other major providers, such as edX and Udacity, have established plans to offer certificates and completion validation to students for a fee. edX has established a partnership model with universities to increase revenue. Coursera and Udacity have established ‘headhunting’ services through which employers can receive data on strong, potential student candidates.

- Furthermore, retention and completion issues continue to plague MOOCs. A recent study completed by Duke University suggests that only a small percentage of the students who signed up for a MOOC actually complete it. This raises questions about the financial viability of models charging students for testing and certificates, with so few actually completing overall.

- The future of MOOCs remains cloudy. Due to their relatively recent development, a variety of issues surrounding MOOCs remain to be confronted. Even professors who have taught, and are enthusiastic about the benefits of MOOCs do not see them as a potential replacement for the traditional classroom. Issues relating to student access, online learners’ rights, and the effect of MOOCs on the financial viability of smaller, lower-ranked colleges also raise questions about their future.
SECTION I: THE DEVELOPMENT OF ONLINE POSTSECONDARY EDUCATION

This section is divided into two subsections: the first chronicles the expansion of online courses and degree programs within higher education, while the second assesses the changing perception of online education by postsecondary faculty and administrators.

THE RISE OF ONLINE POSTSECONDARY EDUCATION

In 1989, the for-profit institution, the University of Phoenix, offered its first course online, enrolling 12 students.³ This marked the beginning of a period when a number of for-profit institutions began to experiment with these types of courses, laying the foundation for their later dominance of the online learning sphere.⁴,⁵ Content was similar to previous distance-learning ventures, and courses continued to enroll a small number of students to ensure some form of personalized relationship between student and instructor.⁶ The online format allowed for-profit institutions to better attract an underserved niche within the higher education landscape: nontraditional working adults who did not have the time to enroll in a full-time, classroom-based degree program.⁷

In the mid- to late-1990s, the number of students enrolled in online courses began to increase rapidly. While figures outlining the growth of online education did not become available until the early 2000s, more general data collected by the National Center for Education Statistics (NCES) on the growth of distance education indirectly highlight this expansion.

Figure 1.1: Student Enrollment in For-Credit Distance Education Courses

<table>
<thead>
<tr>
<th>YEAR</th>
<th># OF STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 1994</td>
<td>754,000</td>
</tr>
<tr>
<td>Fall 1997</td>
<td>1,344,000</td>
</tr>
<tr>
<td>Fall 2000</td>
<td>2,876,000</td>
</tr>
</tbody>
</table>

Source: National Center for Education Statistics.⁸

The growth in distance education highlighted by Figure 1.1 was not solely due to the growth of online courses and degree programs at for-profit institutions. By 1995, non-profit institutions...
institutions were making more concerted efforts at developing online courses and programs at both the undergraduate and graduate level. The University of Illinois system, through its UI-Online, began offering programs in 1997-1998. The Pennsylvania State University system began to offer non-degree programs online in 1998 through its World Campus, and by the early 2000s was offering full master’s and bachelor’s degree programs. By 2000, the percentage of public institutions offering online courses and degree programs was much higher than the percentage of private institutions offering online education. This was at least partially due to the fact that many smaller, private colleges lacked the resources as well as institutional focus to develop online programs.

Figure 1.2: Institutions Offering Distance Education Courses by Type and Size, 2000

<table>
<thead>
<tr>
<th>INSTITUTION TYPE</th>
<th>% OFFERING DISTANCE COURSES</th>
<th>INSTITUTION SIZE</th>
<th>% OFFERING DISTANCE COURSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public 2-year</td>
<td>90%</td>
<td>Less than 3,000</td>
<td>41%</td>
</tr>
<tr>
<td>Private 2-year</td>
<td>16%</td>
<td>3,000 to 9,999</td>
<td>88%</td>
</tr>
<tr>
<td>Public 4-year</td>
<td>89%</td>
<td>10,000 or More</td>
<td>95%</td>
</tr>
<tr>
<td>Private 4-year</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: National Center for Education Statistics

NEW TECHNOLOGY, NEW RECRUITMENT STRATEGIES, CONTINUED GROWTH

New technology helped online education further expand. The development of learning management systems, such as Blackboard and WebCT, made it possible for universities to provide more integrated online learning experiences. Massachusetts Institute of Technology and other institutions began to experiment with open course management systems, which were, and continue to be, freely available for other institutions to access, modify, and further develop to meet their own needs.

Though non-profit institutions worked to carve out a niche in online education, many remained tentative and failed to fully invest resources into these ventures. Throughout the 2000s, enrollment in for-profit institutions grew “far faster than in the rest of higher education” through aggressive recruitment of community college students, members of...

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10 For more detailed information about its history and current offerings through Penn State, see “About Us.” Penn State World Campus. http://www.worldcampus.psu.edu/about-us
12 Kiernan, V. “A Survey Documents Growth in Distance Education in Late 1990s.” Op. cit.
the armed forces, and other adult learners. With the aggressive recruiting practices of for-profit institutions and the increasing expansion of non-profit institutions in the online sphere, the number of students enrolling in online courses grew significantly through the 2000s.

Figure 1.3, below—highlights the growth in the number of students enrolled in at least one online for-credit course from 2002 to 2011 (the most recent year for which data is available). While slowing, the online enrollment continues to expand faster than overall enrollment in postsecondary education. The figure further provides total postsecondary enrollment information for comparison.

**Figure 1.3: Total and Online Enrollment in Postsecondary Institutions, 2002-2011**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Enrollment</th>
<th>% Change of Total/Year</th>
<th>Students Taking At Least One Online Course</th>
<th>% Change of Online/Year</th>
<th>Online Students as % of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2002</td>
<td>16,611,710</td>
<td>-</td>
<td>1,602,970</td>
<td>-</td>
<td>9.6%</td>
</tr>
<tr>
<td>Fall 2003</td>
<td>16,911,481</td>
<td>1.8%</td>
<td>1,971,397</td>
<td>23%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Fall 2004</td>
<td>17,272,043</td>
<td>2.1%</td>
<td>2,329,783</td>
<td>18.2%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Fall 2005</td>
<td>17,487,481</td>
<td>1.2%</td>
<td>3,180,050</td>
<td>36.5%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Fall 2006</td>
<td>17,758,872</td>
<td>1.6%</td>
<td>3,488,381</td>
<td>9.7%</td>
<td>19.6%</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>18,248,133</td>
<td>2.8%</td>
<td>3,938,111</td>
<td>12.9%</td>
<td>21.6%</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>19,102,811</td>
<td>4.7%</td>
<td>4,606,353</td>
<td>16.9%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>20,427,711</td>
<td>6.9%</td>
<td>5,579,022</td>
<td>21.1%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>21,016,126</td>
<td>2.9%</td>
<td>6,142,280</td>
<td>10.1%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Fall 2011</td>
<td>20,994,113</td>
<td>-0.1%</td>
<td>6,714,792</td>
<td>9.3%</td>
<td>32%</td>
</tr>
</tbody>
</table>

Source: Babson Survey Research Group

**INCREASED FOR-CREDIT ONLINE OPTIONS, TROUBLE FOR FOR-PROFIT INSTITUTIONS**

Over 85 percent of postsecondary institutions now offer online for-credit courses, with over 60 percent actually offering full degree programs. This contrasts with much lower rates even 10 years ago as online education was rapidly expanding.

**Figure 1.4: Percentage of Institutions Offering Online Education, 2002 and 2012**

Source: Babson Survey Research Group

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19 Ibid., p. 37.
At all types of postsecondary institutions, online courses and degree programs have become increasingly available. **Even colleges and universities with relatively low student enrollment numbers have worked to develop some for-credit online options in recent years.** Figure 1.5, below, outlines enrollment by size of student population at institutions in 2002 and 2012. Institutions with less than 1,500 students have made especially concerted efforts to develop online programs. While only about 45 percent offered online courses in 2002, by 2012 over 75 percent offered these and over 50 percent offered full degree programs.

**Figure 1.5: Percentage of Institutions Offering Online Education by Size, 2002 and 2012**

![Figure 1.5: Percentage of Institutions Offering Online Education by Size, 2002 and 2012](image)

Source: Babson Survey Research Group

This expansion of online offerings at smaller institutions is partially due to the development of online education at private non-profit institutions, including liberal arts colleges. These institutions have made efforts, particularly in the last five years, of broadening their student base with online courses. Combined with the continued expansion of online education at larger private institutions, this has led to a more general growth in the percentage of private non-profit institutions offering online courses and degree programs. This accords with the more general expansion presented in Figures 1.4 and 1.5.

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20 Ibid.
Figure 1.6 highlights the expansion of online education at private non-profit institutions, and the slight overall decline of the number of for-profit institutions offering online education. Online for-profit programs expanded quickly throughout the 2000s and, by 2010, some larger schools such as the University of Phoenix were enrolling hundreds of thousands of students. However, this growth led to questions relating to the recruiting strategies of for-profit institutions, the rigor of their course content, and actual retention and completion rates at these institutions.

In 2010, U.S. governmental investigations released information on unethical recruitment practices by for-profit institutions, and whistle-blower suits against them highlighted issues such as their manipulation of federal financial aid packages. This bad publicity, in conjunction with the growing online presence of non-profit institutions, has led to enrollment difficulties for online programs at for-profit institutions. Furthermore, as online education has matured, potential students are becoming better informed and seeking “out online programs based on price and brand strength.” With increasing options available, students are taking larger consideration into an institutions reputation and “even less-selective public universities have plenty of brand appeal in their regions.”

In the coming years, non-profit institutions are well-placed to capitalize on the growing sophistication of consumers.

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NEW FORMS OF ONLINE EDUCATION

Since fall 2011, developments in for-credit online courses and degree programs have often been overshadowed by the rise of freely available online courses offered by prominent institutions and individual educators. These massive open online courses, or MOOCs, enroll thousands of students at a time and have become the major focus of much coverage of online learning. Some have heralded MOOCs, developed at major research universities, as potentially revolutionary tools to deliver strong, standardized educational content to individuals across the world.\(^{27}\) MOOCs also highlight new opportunities for smaller, liberal arts institutions to expand online, apparent in the recent development of these courses at Wellesley College and Wesleyan University. In Section III of this report, Hanover provides a detailed overview of the rise of MOOCs as well as assesses their future role in higher education.

CHANGING PERCEPTIONS OF ONLINE EDUCATION

The expansion of online learning, particularly in the last decade, has led to growing awareness and changing perceptions of the delivery method by faculty and administrators at postsecondary institutions. While there were,\(^ {28}\) and remain,\(^ {29}\) voices critical towards online learning, an increasing number of individuals are recognizing its benefits, or at least the inevitability that it will be an important component of postsecondary education in the near future.\(^ {30}\)

ONLINE EDUCATION AS A PART OF LONG-TERM INSTITUTIONAL STRATEGIES

The Babson Survey Research Group specifically questions chief academic officers at postsecondary institutions to get a sense of their role and overall interest in online learning and further to more broadly outline how they see online education developing in the coming years. Over the last decade an increasing number of postsecondary chief academic officers have come to believe that online education is critical to the long-term strategy of their institution. This can be seen in Figure 1.7:

\(^{27}\) For a timeline of MOOCs, see “What You Need to Know About MOOCs.” The Chronicle of Higher Education. http://chronicle.com/article/What-You-Need-to-Know-About/133475/


Furthermore, there is a growing acceptance that online learning can potentially be as good as, or even superior to, classroom-based learning. While research into the actual differences in learning outcomes between online education and in-classroom learning remains inconclusive, based on their own experiences chief academic officers have become increasingly receptive to the idea that online education can be comparable to face-to-face learning options. In 2012, over 75 percent of them believed that online education had the same or superior learning options to face-to-face learning. This, however, still indicates that chief academic officers at nearly a quarter of postsecondary institutions believe that online learning is inferior to face-to-face options. This is presented in Figure 1.8.

Figure 1.7: Is Online Education Critical to Long Term Strategies at an Administrator’s Institution? 2003-2012

Source: Babson Survey Research Group

Figure 1.8: Learning Outcomes in Online Education Compared to Face-to-Face, 2003-2012

Source: Babson Survey Research Group

At institutions with well-developed online programs, chief academic officers are much less likely to indicate skepticism towards online learning. Those at institutions without online courses or degree programs are much more likely to consider the delivery method inferior to face-to-face learning.

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http://www.insidehighered.com/news/2013/02/25/study-finds-some-groups-fare-worse-others-online-courses
CONTINUING FACULTY SKEPTICISM TOWARDS ONLINE EDUCATION

Chief academic officers recognize that one key to the success of online courses is faculty acceptance. However, since 2002, few chief academic officers believe there has been a significant change in faculty acceptance of the value and legitimacy of online education. Only about 30 percent believe faculty actually recognizes the value or legitimacy of online education. Many educators remain skeptical of online education due to the lack of human interaction or discussion opportunities in the courses. Others are concerned by the fact that online learning technologies lend themselves to more general multitasking activities that make it more difficult to learn complex material.

Figure 1.10: Faculty at my Institution Accept the Value and Legitimacy of Online Education, 2006-2012

Source: Babson Survey Research Group

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34 Ibid., p. 39.
SECTION II: THE CURRENT STATE OF FOR-CREDIT ONLINE EDUCATION

INTRODUCTION

In this section, Hanover Research analyzes the current state of for-credit online education in both the undergraduate and graduate levels. This is presented in two subsections: in the first, Hanover turns to the Peterson’s Distance Learning Database, one of the most comprehensive datasets on distance and online learning currently available, to provide an outline of what types of degree programs are currently offered online, and the cost of these programs; in the second, Hanover turns to a recent survey of students enrolled in online degree programs to better outline the demographics of online learners.

CURRENT DEGREE OFFERINGS ONLINE

The Peterson’s Distance Learning Database provides an integral tool in understanding the current state of for-credit online undergraduate and graduate degree programs.38 One of the “most comprehensive and complete databases in the field,” it provides information about accredited online programs from “992 institutions and units in the United States…and Canada.” While only 904 of these actually report their online enrollment, this account for a total of 2,119,628 online learners. Furthermore, 715 of these institutions list online degree programs. In total, the database lists 9,110 different online degree programs ranging from programs at the undergraduate certificate level to those at the doctoral level.39

Hanover has focused on only the 699 institutions offering online degree programs within the United States.40 This group provides a useful base through which to outline the current types of degrees offered online as well as in which subject fields these are commonly offered.

There are a variety of issues with the information provided by the Peterson Database. It only provides information about a portion of the online education market and especially excludes a large portion of the for-profit online education market. Only 5 percent of the 699 institutions are classified as for-profit institutions.

Figure 2.1: Institutions with Detailed Online Programs Listed within the Peterson’s Database, 2012

Source: Peterson’s Distance Learning Database

38 For more information on the database, see “Distance Learning Database.” Peterson’s College Data. http://www.petersonsdata.com/specialized/distance-learning-database.aspx
40 This excludes mainly Canadian institutions listing online programs
While not accounting for much of the for-profit sector of for-credit online education (including the University of Phoenix), the database does provide a useful tool in assessing the current state of the other portions of the market and provides a more general overview of for-credit online education. The database further allows analysis of these portions of the market in more depth, from the degree level of programs to the subject fields most commonly offered. Figure 2.2, below, provides a basic outline of the number of institutions listed offering programs at the undergraduate and graduate levels. Over 80 percent of institutions offer programs at the undergraduate level, while only about 56 percent offer programs at the graduate level.

**Figure 2.2: Level of Degree Programs Offered by Institutions by Type**

<table>
<thead>
<tr>
<th>INSTITUTION TYPE</th>
<th>UNDERGRADUATE ONLY</th>
<th>UNDERGRADUATE AND GRADUATE</th>
<th>GRADUATE ONLY</th>
<th>TOTAL INSTITUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public, Non-profit</td>
<td>227</td>
<td>149</td>
<td>40</td>
<td>416</td>
</tr>
<tr>
<td>Private, Non-profit</td>
<td>13</td>
<td>51</td>
<td>39</td>
<td>103</td>
</tr>
<tr>
<td>Private, Religious</td>
<td>29</td>
<td>88</td>
<td>28</td>
<td>145</td>
</tr>
<tr>
<td>Private, For-profit</td>
<td>12</td>
<td>17</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>Private, Unspecified</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Aggregate</strong></td>
<td>282</td>
<td>306</td>
<td>111</td>
<td>699</td>
</tr>
<tr>
<td><strong>Aggregate % of Total</strong></td>
<td>40.3%</td>
<td>43.8%</td>
<td>15.9%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Peterson’s Distance Learning Database

In total, this selection of institutions offers 8,936 online certificates and degree programs. The majority of these are offered by public, non-profit institutions though private, non-profit institutions (when including private, religious institutions) offer about 35 percent of the offerings listed. This information is presented in Figure 2.3, below. The figure further provides a breakdown of programs by degree level. Nearly 5,000 are offered at the undergraduate level, while nearly 4,000 are offered at the graduate level.

**Figure 2.3: Certificates and Degree Programs Offered by Institution Type**

<table>
<thead>
<tr>
<th>INSTITUTION TYPE</th>
<th># OF COURSES OFFERED</th>
<th>% OF TOTAL</th>
<th>UNDERGRADUATE</th>
<th>GRADUATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public, Nonprofit</td>
<td>5,317</td>
<td>59.5%</td>
<td>3,246</td>
<td>2,071</td>
</tr>
<tr>
<td>Private, Nonprofit</td>
<td>1,454</td>
<td>16.3%</td>
<td>605</td>
<td>849</td>
</tr>
<tr>
<td>Private, Religious</td>
<td>1,535</td>
<td>17.2%</td>
<td>724</td>
<td>811</td>
</tr>
<tr>
<td>Private, For-profit</td>
<td>617</td>
<td>6.9%</td>
<td>362</td>
<td>255</td>
</tr>
<tr>
<td>Private, Unspecified</td>
<td>13</td>
<td>0.1%</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>8,936</td>
<td>100%</td>
<td>4,945</td>
<td>3,991</td>
</tr>
</tbody>
</table>

Source: Peterson’s Distance Learning Database

**DEGREES OFFERED AT THE UNDERGRADUATE LEVEL**

More detailed information about the 4,945 certificates and degree programs offered by 588 institutions provide further understanding of the current state of online education. Peterson’s lists undergraduate degrees at the certificate, associate’s, and bachelor’s award levels. Associate’s degrees and bachelor’s degrees are both relatively common offerings; though undergraduate certificates are also are a significant portion of the total
undergraduate degrees on offer. These are presented in Figure 2.4 on the following page. They are, again, sorted by institution type as well as degree level.

**Figure 2.4: Total Undergraduate Degree Programs Offered by Institution Type**

<table>
<thead>
<tr>
<th>INSTITUTION TYPE</th>
<th>ASSOCIATE</th>
<th>UNDERGRADUATE CERTIFICATE</th>
<th>BACHELOR'S</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public, Nonprofit</td>
<td>1,437</td>
<td>825</td>
<td>984</td>
<td>3,246</td>
</tr>
<tr>
<td>Private, Nonprofit</td>
<td>117</td>
<td>148</td>
<td>340</td>
<td>605</td>
</tr>
<tr>
<td>Private, Religious</td>
<td>127</td>
<td>109</td>
<td>488</td>
<td>724</td>
</tr>
<tr>
<td>Private, For-profit</td>
<td>132</td>
<td>24</td>
<td>206</td>
<td>362</td>
</tr>
<tr>
<td>Private, Unspecified</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,816</td>
<td>1,106</td>
<td>2,023</td>
<td>4,945</td>
</tr>
</tbody>
</table>

Source: Peterson’s Distance Learning Database

These programs are offered in a wide variety of subject fields. Through an analysis of each program’s assigned 2-digit Classification of Instructional Program group code (the U.S. education department’s classification system for postsecondary degree programs), Hanover has identified a number of popular degree programs offered at the undergraduate level. These include programs in computer science, in the health professions, and those in business and marketing.

**Figure 2.5: Top Twenty Most Popular Online Programs Offered at the Undergraduate Level by Overall Subject Field**

<table>
<thead>
<tr>
<th>CIP CODE</th>
<th>CIP CATEGORY</th>
<th>TOTAL</th>
<th>% OF TOTAL</th>
<th>ASSOCIATE</th>
<th>UNDERGRADUATE CERTIFICATE</th>
<th>BACHELOR'S</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>Business, Management, Marketing, And Related Support Services.</td>
<td>1,179</td>
<td>23.80%</td>
<td>465</td>
<td>222</td>
<td>492</td>
</tr>
<tr>
<td>51</td>
<td>Health Professions And Related Programs.</td>
<td>556</td>
<td>11.20%</td>
<td>139</td>
<td>140</td>
<td>277</td>
</tr>
<tr>
<td>11</td>
<td>Computer And Information Sciences And Support Services.</td>
<td>520</td>
<td>10.50%</td>
<td>173</td>
<td>191</td>
<td>156</td>
</tr>
<tr>
<td>24</td>
<td>Liberal Arts And Sciences, General Studies And Humanities.</td>
<td>450</td>
<td>9.10%</td>
<td>311</td>
<td>22</td>
<td>117</td>
</tr>
<tr>
<td>13</td>
<td>Education.</td>
<td>380</td>
<td>7.70%</td>
<td>96</td>
<td>155</td>
<td>129</td>
</tr>
<tr>
<td>43</td>
<td>Homeland Security, Law Enforcement, Firefighting And Related Protective Services.</td>
<td>342</td>
<td>6.90%</td>
<td>140</td>
<td>58</td>
<td>144</td>
</tr>
<tr>
<td>15</td>
<td>Engineering Technologies And Engineering-Related Fields.</td>
<td>186</td>
<td>3.80%</td>
<td>72</td>
<td>49</td>
<td>65</td>
</tr>
<tr>
<td>45</td>
<td>Social Sciences.</td>
<td>118</td>
<td>2.40%</td>
<td>30</td>
<td>18</td>
<td>70</td>
</tr>
<tr>
<td>9</td>
<td>Communication, Journalism, And Related Programs.</td>
<td>113</td>
<td>2.30%</td>
<td>15</td>
<td>22</td>
<td>76</td>
</tr>
<tr>
<td>42</td>
<td>Psychology.</td>
<td>110</td>
<td>2.20%</td>
<td>22</td>
<td>3</td>
<td>85</td>
</tr>
</tbody>
</table>

### Degrees Offered at the Graduate Level

The 3,991 certificates and degree programs offered by 417 different institutions at the graduate level are primarily master’s degrees. Over 70 percent of the total graduate degrees are offered at this level, with relatively few doctoral or other graduate degree programs offered online. This is presented in Figure 2.6, below. Like those at the undergraduate level, these programs are listed by institution type.

#### Figure 2.6: Total Graduate Degree Programs Offered by Institution Type

<table>
<thead>
<tr>
<th>INSTITUTION TYPE</th>
<th>GRADUATE CERTIFICATE</th>
<th>MASTER’S</th>
<th>GRADUATE COMBINED DEGREE</th>
<th>GRADUATE DOCTORAL</th>
<th>OTHER ADVANCED DEGREE</th>
<th>GRADUATE CERTIFICATE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public, Nonprofit</td>
<td>513</td>
<td>1,373</td>
<td>10</td>
<td>120</td>
<td>55</td>
<td>513</td>
<td>2,071</td>
</tr>
<tr>
<td>Private, Nonprofit</td>
<td>154</td>
<td>623</td>
<td>5</td>
<td>57</td>
<td>10</td>
<td>154</td>
<td>849</td>
</tr>
<tr>
<td>Private, Religious</td>
<td>98</td>
<td>635</td>
<td>14</td>
<td>55</td>
<td>9</td>
<td>98</td>
<td>811</td>
</tr>
<tr>
<td>Private, For-profit</td>
<td>35</td>
<td>183</td>
<td>1</td>
<td>21</td>
<td>15</td>
<td>35</td>
<td>255</td>
</tr>
<tr>
<td>Private, Unspecified</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>800</strong></td>
<td><strong>2,819</strong></td>
<td><strong>30</strong></td>
<td><strong>253</strong></td>
<td><strong>89</strong></td>
<td><strong>800</strong></td>
<td><strong>3,991</strong></td>
</tr>
</tbody>
</table>

Source: Peterson’s Distance Learning Database

Again, these programs are offered in a variety of subject fields. Like at the undergraduate level, health professions and business and marketing degree programs are popular, particularly as master’s programs. Even more popular are master’s degrees and graduate certificates in education. Graduate programs in the fields of education make up nearly 30 percent of the total number of online graduate programs.
Figure 2.7: Top Twenty Most Popular Online Programs Offered at the Graduate Level by Overall Subject Field

<table>
<thead>
<tr>
<th>CIP Code</th>
<th>CIP Category</th>
<th>Total</th>
<th>% of Total</th>
<th>Graduate Certificate</th>
<th>Masters</th>
<th>Graduate Combined Degree</th>
<th>Graduate Doctoral</th>
<th>Other Advanced Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Education.</td>
<td>1,171</td>
<td>29.30%</td>
<td>178</td>
<td>831</td>
<td>2</td>
<td>87</td>
<td>73</td>
</tr>
<tr>
<td>52</td>
<td>Business, Management, Marketing, And Related Support Services.</td>
<td>565</td>
<td>14.20%</td>
<td>117</td>
<td>418</td>
<td>14</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>51</td>
<td>Health Professions And Related Programs.</td>
<td>454</td>
<td>11.40%</td>
<td>77</td>
<td>274</td>
<td>7</td>
<td>90</td>
<td>6</td>
</tr>
<tr>
<td>14</td>
<td>Engineering.</td>
<td>351</td>
<td>8.80%</td>
<td>66</td>
<td>271</td>
<td>1</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Computer And Information Sciences And Support Services.</td>
<td>278</td>
<td>7.00%</td>
<td>90</td>
<td>183</td>
<td>0</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>43</td>
<td>Homeland Security, Law Enforcement, Firefighting And Related Protective Services.</td>
<td>117</td>
<td>2.90%</td>
<td>30</td>
<td>85</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Communication, Journalism, And Related Programs.</td>
<td>112</td>
<td>2.80%</td>
<td>29</td>
<td>76</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>44</td>
<td>Public Administration And Social Service Professions.</td>
<td>108</td>
<td>2.70%</td>
<td>14</td>
<td>89</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>30</td>
<td>Multi/Interdisciplinary Studies.</td>
<td>74</td>
<td>1.90%</td>
<td>20</td>
<td>52</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Natural Resources And Conservation.</td>
<td>63</td>
<td>1.60%</td>
<td>14</td>
<td>47</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Engineering Technologies And Engineering-Related Fields.</td>
<td>62</td>
<td>1.60%</td>
<td>22</td>
<td>38</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>38</td>
<td>Philosophy And Religious Studies.</td>
<td>62</td>
<td>1.60%</td>
<td>8</td>
<td>47</td>
<td>0</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>39</td>
<td>Theology And Religious Vocations.</td>
<td>63</td>
<td>1.60%</td>
<td>1</td>
<td>53</td>
<td>0</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Agriculture, Agriculture Operations, And Related Sciences.</td>
<td>57</td>
<td>1.40%</td>
<td>23</td>
<td>33</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CIP Code</td>
<td>CIP Category</td>
<td>Total</td>
<td>% of Total</td>
<td>Graduate Certificate</td>
<td>Masters</td>
<td>Graduate Combined Degree</td>
<td>Graduate Doctoral</td>
<td>Other Advanced Degree</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------</td>
<td>-------</td>
<td>------------</td>
<td>-----------------------</td>
<td>---------</td>
<td>-------------------------</td>
<td>-------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>19</td>
<td>Family And Consumer Sciences/Human Sciences.</td>
<td>51</td>
<td>1.30%</td>
<td>16</td>
<td>34</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>42</td>
<td>Psychology.</td>
<td>52</td>
<td>1.30%</td>
<td>5</td>
<td>38</td>
<td>0</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>Parks, Recreation, Leisure, And Fitness Studies.</td>
<td>47</td>
<td>1.20%</td>
<td>4</td>
<td>42</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>45</td>
<td>Social Sciences.</td>
<td>40</td>
<td>1.00%</td>
<td>9</td>
<td>27</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>Biological And Biomedical Sciences.</td>
<td>33</td>
<td>0.80%</td>
<td>14</td>
<td>18</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>Visual And Performing Arts.</td>
<td>31</td>
<td>0.80%</td>
<td>4</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Peterson's Distance Learning Database

**Online Program Tuition**

Figure 2.8 shows a variety of data relating to the tuition rates of online programs contained within the Peterson’s Database. The amounts in this table are indicative of total program tuition, rather than amounts calculated by credit hour, semester or academic year. Thus, if a typical master’s degree lasts two years and a bachelor’s degree for four years, there would appear to be little difference between the average annual tuition costs at the two academic levels (approximately $11,000 per year each). However, the cost of an online master’s program may be somewhat artificially low owing to the presence of one year, as well as two-year, programs in the Peterson’s Database. Indeed, the minimum tuition of an online master’s degree is slightly above that of a bachelor’s degree. Online associate’s degrees would seem, on the whole, to be less expensive than either bachelor’s or master’s degrees.

**Figure 2.8: Tuition for Online Programs (Total)**

<table>
<thead>
<tr>
<th></th>
<th>Associates</th>
<th>Bachelors</th>
<th>Masters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>$12,486</td>
<td>$43,477</td>
<td>$21,959</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>$6,882</td>
<td>$30,256</td>
<td>$13,608</td>
</tr>
<tr>
<td>Median</td>
<td>$8,060</td>
<td>$41,444</td>
<td>$18,600</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>$14,400</td>
<td>$52,000</td>
<td>$27,180</td>
</tr>
<tr>
<td>Minimum</td>
<td>$1,200</td>
<td>$1,796</td>
<td>$3,924</td>
</tr>
<tr>
<td>Maximum</td>
<td>$69,480</td>
<td>$145,908</td>
<td>$88,830</td>
</tr>
</tbody>
</table>

Source: Peterson’s Distance Learning Database.
**Online Student Demographics**

Students enrolling in online courses and degree programs are generally in their early 30s and female, according to a recent survey by Aslanian Market Research and the Learning House. These female students in their early 30s are typically “not the first in their family to attend college and [...] have a total family income of about $66,500. They work full-time for an employer who offers tuition reimbursement.” Online students are also most likely to use student loans and other types of financial aid to pay for their studies.\(^{42}\) In many ways, this matches typical demographics of online learners noted from the 1990s onwards.\(^{43}\) These students are typically older than a traditional student population and have specific, professional goals that an online degree program is expected to meet.

These students are especially interested in business and health professions (such as nursing) degree programs. This is highlighted in Figure 2.8, below.

![Figure 2.9: Online Student Enrollment by broad Field of Study](image)

Source: The Learning House.\(^{44}\)

Following completion of their programs, graduates are especially interested in using their business or health professions degree to find a job within the healthcare industry. This is especially true of those earning an undergraduate degree online. Other popular career fields that graduates hope to gain entry into include professional services, education, as well as computer and information systems fields. This information is outlined in Figure 2.9, below.

---


\(^{43}\) Though early online education had a higher proportion of males. At the University of Phoenix in the 1990s, students were typically “men in their early 40s holding middle- and upper-management positions, with a household income of between $50,000 and $70,000 a year,” see Levine, S. Op. cit.

Figure 2.10: Industry Students Plan to Enter On Completion of Online Degree

<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>TOTAL</th>
<th>UNDERGRADUATE</th>
<th>GRADUATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care</td>
<td>26%</td>
<td>30%</td>
<td>22%</td>
</tr>
<tr>
<td>Professional services</td>
<td>18%</td>
<td>16%</td>
<td>26%</td>
</tr>
<tr>
<td>Education</td>
<td>12%</td>
<td>11%</td>
<td>15%</td>
</tr>
<tr>
<td>Computer, communications, or information systems</td>
<td>10%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Government</td>
<td>7%</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td>Financial services or insurance</td>
<td>6%</td>
<td>4%</td>
<td>10%</td>
</tr>
<tr>
<td>Entertainment, hospitality, or sports or leisure services</td>
<td>5%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>Nonprofit</td>
<td>3%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Retail or wholesale</td>
<td>2%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Energy</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Building and construction</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: The Learning House.\(^{45}\)

\(^{45}\) Ibid., p. 31.
SECTION III: A BRIEF HISTORY OF MOOCs

WHAT ARE MOOCs?

Over the last two years, postsecondary institutions have developed massive open online courses, or MOOCs. These courses are taught online, and are usually offered free of charge to the participating student. These courses are frequently offered by an established higher education institution, via a third-party website. Students do not typically have to be fully-enrolled in the higher education institution which is offering a course – in this way, students can take a course offered at, for example, Princeton University via a MOOC provider, such as Coursera, without actually enrolling at Princeton. Instruction largely occurs via pre-taped video lectures. Students are tested on what they have learnt by methods such as automated quizzes, or assignments that are graded by other students participating in the course. This combination of relatively “open” access, and the potential for a single, or small number, of professors to teach a “massive” number of individuals via relatively automated means has given rise to the abbreviation of “MOOCs.”

At present, most MOOCs are offered as stand-alone courses. Only a few institutions within the United States currently consider them for credit, though recent months have seen growing interest in this possibility. Accordingly, it is not yet possible to obtain a significant amount of college credit, let alone a full degree, via the completion of a series of MOOCs.

The recent surge in interest in MOOCs can be ascribed to two phenomena: The huge number of students that have enrolled in a number of these courses, and the move by certain, elite higher education institutions to become involved in MOOC provision. The large number of students that can potentially take a MOOC was first seen in a class offered via Know Labs (now Udacity). 160,000 people in 190 countries signed up for a single course offered in the field of Artificial Intelligence by Professor Sebastian Thrun in fall 2011. Since this course was offered, a variety of MOOC providers have developed, led by prominent educators and higher education institutions.

The major providers of MOOC providers within the United States are listed below in Figure 3.1. As can be seen in the list, MOOCs are provided in a variety of ways. Some are partnerships between third-party websites and higher education institutions. Others are

47 For one example, see Fitzgerald, M. “Coursera Courses Approved For College Credit.” Information Week. February 7, 2013. http://www.informationweek.com/education/online-learning/coursera-courses-approved-for-college-cr/240148119
49 This is discussed in more depth below.
merely platforms for instructional videos or instructors that are not necessarily linked to a course offered by a higher education institution.

**Figure 3.1: Leading US-Based MOOC Providers**

<table>
<thead>
<tr>
<th>MOOC PROVIDER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>edX</td>
<td>edX is a “not-for-profit enterprise” founded by Harvard University and MIT in May 2012 and governed by the two bodies. Currently, twelve institutions offer courses, or are developing courses to be offered, through the MOOC provider. This includes the liberal arts college Wellesley University, which joined the MOOC provider in early December 2012. Courses are offered in a variety of subjects: including computer science, mathematics, and the humanities.</td>
</tr>
<tr>
<td>Coursera</td>
<td>Coursera initially offered 14 courses when it launched in early 2012, from institutions such as the University of Michigan. Since then, multiple additional institutions have partnered with the MOOC platform. Currently, 62 institutions offer courses via Coursera. These include Ivy League institutions such as Princeton, one prominent liberal arts college in Wesleyan University, and prestigious non-North American institutions, such as the École Polytechnique Fédérale de Lausanne. Courses are offered in a number of subjects: including the humanities, business, and STEM fields.</td>
</tr>
<tr>
<td>MOOC2Degree</td>
<td>In January 2013, Academic Partnerships – a company that partners with institutions to develop online learning options – launched MOOC2Degree “to offer credit-bearing MOOCs as a first step and a free start toward earning a degree.” Students completing a MOOC have the option of enrolling in MOOC2Degree institutions with initial credit options fulfilled. Currently, 7 institutions, including Utah State University and Cleveland State University, have joined this initiative.</td>
</tr>
<tr>
<td>Udacity</td>
<td>Unlike edX, MOOC2Degree and Coursera, instruction on Udacity is provided by independent professors, rather than partnerships with higher education institutions. Teaching largely occurs via the same methods (video and automated quizzes). Udacity has stated that its courses will focus on “computer science and related fields.”</td>
</tr>
</tbody>
</table>

51 edX. https://www.edx.org/
53 “Courses.” edX. https://www.edx.org/courses
55 “Course Explorer.” Coursera. https://www.coursera.org/courses
56 “Conversation About a MOOC.” MOOC2Degree. http://www.moc2degree.com/about.php#.UWLNAJOG3y0
58 MOOC2Degree. http://www.moc2degree.com/index.php#.UWLNJOG3y0
### MOOC PROVIDER

<table>
<thead>
<tr>
<th>MOOC PROVIDER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Khan Academy</strong></td>
<td>Khan Academy, founded in 2006, is largely composed of a collection of instructional videos on YouTube, relating to subjects such as math, science, computer science, finance and economics, humanities, and test preparation. The majority of its content does not take the form of an actual course in a given subject, although it has recently begun to offer structured instruction in computer science. Khan Academy does not have any content partnerships with higher education institutions, but it has received financial assistance from the Gates Foundation.</td>
</tr>
<tr>
<td><strong>Udemy</strong></td>
<td>Udemy offers a platform by which instructors can offer courses in a wide variety of subjects. The most popular courses have over 10,000 participants. Some instructors are college professors, but many are independent individuals. Udemy has also launched “The Faculty Project,” in which a small number of professors from leading higher education institutions will provide tuition in a variety of subjects. “Most courses are free on Udemy, although some charge a fee, ranging from $5 to $250.”</td>
</tr>
<tr>
<td><strong>Goodsemester</strong></td>
<td>Goodsemester describes itself as a “global network of teachers, learners, and schools.” The aim of the site is to allow anyone to make a course on any topic, which they can then teach online. A small number of higher education institutions are offering courses via the service, although it is unclear whether this is via a formal partnership or not with Goodsemester. While it is free to sign-up and participate in courses, certain premium services – mainly relating to data storage on the website – incur monthly fees of between $5 and $50.</td>
</tr>
<tr>
<td><strong>Class2Go</strong></td>
<td>This platform is run entirely by Stanford University, and launched in fall 2012. It has recently partnered with edX to “help realize edX’s aspiration of becoming an open-source platform to provide free and open online learning tools to higher education institutions around the globe,” and will soon cease to exist independently.</td>
</tr>
</tbody>
</table>

Source: Various MOOC provider websites, as noted.

### THE EXPANSION OF MOOCs

As noted, massive open online courses began to first receive considerable attention in fall 2011 with Thrun’s artificial intelligence course, though the term had circulated and the format discussed in educational technology circles as early as 2008. By the end of 2012 this attention had ramped up considerably. edX and Coursera, both established early in 2012, began in the fall 2012 to expand at faster and faster rates and media latched onto stories about the revolutionary potential of massive open online courses. The New York Times education section dubbed 2012 the “Year of the MOOC” and debate surrounding

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60 Ibid.
62 “The Faculty Project.” The Faculty Project. http://facultyproject.org/
these courses has little abated through early 2013. Through March 2013, Coursera offered over 300 courses to a user-base of over 2.9 million individuals.

Since late 2012, universities and third-party providers have taken a variety of steps to increase the number of MOOC options. The number of third-party MOOC providers has continued to grow, with a small number of international consortiums and individual institutions implementing MOOC platforms. The major third-party providers – such as edX and Coursera – have increased their base of universities. Due to these shifts the number of massive open online courses has also increased. This subsection discusses this growth, and further outlines how courses within the MOOC universe are becoming viable for-credit options at a growing number of universities.

**INCREASE OF THIRD-PARTY MOOC PROVIDERS**

In January, a third-party MOOC platform, MOOC2Degree, designed to compete with Coursera, edX, and others was launched by the online learning provider Academic Partnerships. Partnered with seven U.S. institutions and university systems, MOOC2Degree employs massive open online courses in a unique way, more explicitly tying them to a university credential:

the initial course in select online degree programs will be converted into a MOOC. Each MOOC will be the same course with the same academic content, taught by the same instructors, as currently offered degree programs at participating universities. Students who successfully complete a MOOC2Degree course earn academic credits toward a degree, based upon criteria established by participating universities.

A small number of international third-party MOOC providers have also been established in recent months. The United Kingdom-based third-party platform Futurelearn, launched in early 2013, already has 19 partners: 17 UK universities as well as the British Library and the British Council. It is further working to attract students from across the globe – even enlisting the British Prime Minister to promote the MOOC provider during a trip to India. Futurelearn “marks the first significant entry of a foreign player” into a MOOC market that continues to be dominated by American providers and universities.

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74 Redden, E. “Multinational MOOCs.”
75 For the complete list, see “About Us: F/L.” Futurelearn. http://futurelearn.com/about/
Other European countries have been slower to create MOOC platforms, and many have questioned the validity/potential of these ventures. The Berlin-based iversity, established in 2011 (though still getting off the ground), is currently the only third-party MOOC provider based in continental Europe. The rest of the world has also been slow in creating unique MOOC platforms. There is currently only one other international third-party provider: Open2Study, an all-Australian MOOC platform, which was launched in mid-March. Created by the private distance and online education organization Open Universities Australia, Open2Study has already partnered with a number of Australian universities.

**Increase of Institution-Based MOOC Providers**

A number of institutions have experimented with creating their own platform to provide MOOCs. While MIT and others pioneered this type of internal platform in the early 2000s and MOOCs were initially pioneered as single institution offerings, they are now becoming popular and viable for most universities not yet involved in other MOOC ventures. Stanford’s Class2Go, though soon to merge with edX, was developed and is now run as Stanford’s internal MOOC platform, which is designed to allow effective online teaching and research. It offered two courses in fall 2012 and one in winter 2013. Syracuse University has also recently offered an in-house MOOC through its School of Information Studies and Florida International University established an open online education platform in January offering a variety of business and management courses. Other institutions and university

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80 This is not to say there are no other MOOC platforms within Europe, just no other large, third-party versions. For example, the University of Amsterdam is currently experimenting with its own in-house MOOC, see Olds, K. “The making of a MOOC at the University of Amsterdam.” Inside Higher Ed. February 5, 2013. http://www.insidehighered.com/blogs/globalized/making-mooc-university-amsterdam
81 For information on this topic and further the overall development of MOOCs, see Olds, K. “Globalizing MOOCs.” Inside Higher Ed. http://www.insidehighered.com/blogs/globalized/globalizing-moocs
83 Counihan, B. Op. cit.; Other universities within Australia have developed or modified internal MOOC platforms; the University of Western Australia has adapted the Stanford internal MOOC platform, Class2Go, for its courses, see Rowbotham, J. “Do the maths – MOOCs break the mould.” The Australian. February 20, 2013. Accessed via the scalablelearning Blog at http://scalablelearning.org/2013/02/21/do-the-maths-moocs-break-the-mould-the-australian/
90 “FIU Online: Open Education.” Florida International University. http://www.open.fiu.edu/#courses
systems, such as the University of Chicago and the State University of New York system, are also considering development of these platforms.

**INCREASE IN PARTNERSHIPS BETWEEN MAJOR THIRD-PARTY PROVIDERS AND UNIVERSITIES**

Perhaps the most significant example of the growth of MOOCs in recent months has been the increase in size of major third-party course providers, such as edX and Coursera. In February 2013, both announced they would be building courses with a number of new university partners. Many of these are international universities. edX announced six new partners in February, to join a growing list of universities, including Wellesley University and the University of Texas System, that have partnered with the provider since the fall 2012. The service is now partnered with 12 institutions across the globe (though many of these will not offer courses until 2014) including universities in Canada, France, the Netherlands, and Australia.

Coursera announced 29 new partner universities in February, nearly doubling its number of partners. This included the first liberal arts college to join the MOOC provider, Wesleyan University. The provider is now partnered with 62 institutions throughout the world, increasing its reach to universities throughout Europe, Canada, Australia, and China. These new partnerships will also allow Coursera to begin providing courses in a number of new languages, such as French, Chinese, Italian, and Spanish. The university currently has plans to offer over 20 non-English courses, with nine of these to be offered in French.

Udacity, another major MOOC provider which generally works with individual professors to offers courses, has also begun to team with universities and reach out to an international audience. In late October, the provider announced a partnership with the University of Alberta. This partnership will lead to a number of University of Alberta courses being offered through Udacity and further will lead to research “for the collaborative

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96 edX. https://www.edx.org/


98 Coursera. https://www.coursera.org/


100 For further information about these offerings, see “Coursera Courses.” Coursera. https://www.coursera.org/courses?orderby=upcoming

development of systems for delivery, measurement and assessment of online learning
courses and experiences.\textsuperscript{102}

**GROWTH IN THE NUMBER OF COURSE OFFERINGS**

This increase in universities offering MOOCs has, unsurprisingly, led to an increasing variety
in the types of courses available. While a large number of MOOCs continued to be offered in
STEM fields – especially in computer science related subjects – a growing number of
humanities, business, and social sciences courses are also being offered.\textsuperscript{103} As noted above,
these courses are also being offered in a variety of different languages, especially French.\textsuperscript{104}
Starting in September, the École Polytechnique Fédérale De Lausanne (EPFL) will offer
French-language courses in history, mathematics, and computer programming through
Coursera.\textsuperscript{105}

**FOR-CREDIT MOOCs**

Along with this significant growth, for-credit options for some MOOCs are becoming
available. Currently, a number of universities are instituting plans to integrate online course
credit with traditional courses.\textsuperscript{106} Furthermore, the American Council on Education has
recommended five courses offered through Coursera for credit.\textsuperscript{107}

One of the most ambitious plans to offer MOOCs for credit is currently being considered by
the government of California. This proposal would allow “public college students who are
shut out of popular courses to attend low-cost online alternatives” and receive credit for
completion of them.\textsuperscript{108} University leaders and others involved with educational policy have
taken a critical view of this proposal and their remains little information on how exactly this
policy would function.\textsuperscript{109} For-credit opportunities for MOOCs such as this, also suggest a

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http://www.news.ualberta.ca/newsarticles/2012/10/ualbertaudacityteamupforonlinelearning

\textsuperscript{103} For one example, see “Coursera Courses.” Op. cit.

\textsuperscript{104} Anderson, N. “Providers of free online college courses add schools, including many foreign ones.” The Washington Post. February 21, 2013.
http://www.washingtonpost.com/local/education/providers-of-free-online-college-courses-add-schools-including-many-foreign-ones/2013/02/20/b2e93832-7b7b-11e2-9a75-dab0201670da_story.html


http://chronicle.com/article/American-Council-on-Education/137155/


variety of opportunities to monetize these courses many of which are slowly being integrated into third-party MOOC platforms.

**LIBERAL ARTS COLLEGES AND MOOCS**

As one analyst has put it, “The word massive [...] seems inconsistent with one of the hallmarks of an education at a small liberal arts college.” As the President of Wesleyan University, Michael Roth, has stated, most of the classes offered by the institution have fewer than 20 students, and have a focus on intimate, small-group learning. Accordingly, many faculty members at liberal arts colleges have been skeptical about MOOCs. Fears have been raised that the large-scale, potentially anonymous form of educational delivery seen in MOOCs could ultimately undermine the type of education seen at liberal arts colleges.

However, in recent months, two prominent liberal arts colleges have become involved in the provision of MOOCs: Wesleyan University and Wellesley College. The former has started to offer a small number of courses via Coursera, whilst the latter has recently launched a “WellesleyX” MOOC platform, as part of the edX initiative spearheaded by Harvard University and MIT. Wellesley will offer four courses via edX from fall 2013, with the courses in question yet to be determined. The Provost and Dean of Wellesley College, Andrew Shennan stated that by joining edX he hoped that Wellesley could partner with other “education leaders [...] [to] help shape the rapidly evolving online learning environment [...] [and] explore ways to incorporate technology creatively and effectively in the classroom.” In other words, Shennan feels that being involved with edX will be a “great experiment” for the college. It will allow them to be involved in cutting-edge online education provision, and gain insight into how students learn online, potentially helping professors in how they teach their classes.

At a more basic level, being involved with major MOOC providers can potentially provide liberal arts colleges with publicity. Michael Roth has stated that he hopes that being involved with edX will raise Wellesley’s profile, particularly at an international level – something that will possibly benefit the college’s students after graduation.

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111 Ibid.
112 “Wesleyan University.” Coursera. https://www.coursera.org/wesleyan
115 Tilsley, Op cit.
TENTATIVE BUSINESS MODELS

One of the major concerns surrounding MOOC developers and providers since their beginnings has been how these courses could be monetized. In recent months, Coursera, Udacity, and edX all have tentatively laid-out and begun to implement realistic financial models. While, in many cases, these efforts remain experimental, in early April 2013, Coursera announced that it is actually “beginning to make money.” The company earned $220,000 in the first quarter of 2013.116 The business models currently in development at MOOC providers center on a variety of different options: including fees for certificate testing and validation which prove student completion of a course, content licensing, career referral and headhunting services, and university—provider partnerships.

CERTIFICATE TESTING, VALIDATION STRATEGIES, AND COURSE-BASED MONETIZATION

Since early January, Coursera has implemented a “fee-based pathway with identity verification for students who want to earn a more meaningful certificate of completion” from one of their courses; this is currently referred to as the “Signature Track.” Coursera splits revenue from this fee-based path with partner universities. Universities keep “6-15 percent of revenue from courses taught by their professors, as well as 20 percent of profits.” Under this option:117

students will need to submit their pictures to Coursera through a webcam, as well as an image from a picture ID that the company deems verifiable. Coursera will also create profiles of students’ unique typing patterns, the company said. Once students have registered a keystroke signature, determined by typing a short phrase, they will use the same phrase to log in when submitting work in a course.

Coursera partners are also experimenting with credit-based options. The University of Washington offers “souped-up” versions of its Coursera-based courses to students for a fee. Students have the option of earning credits from the university upon completion.118

Udacity and edX have partnered with education giant Pearson “to offer fee-based proctored exams.” These will provide students further validation and a certificate for completion of a course. Udacity charges students $89 to take these exams, while edX will likely charge around $100 per exam. These suggest strong potential revenue streams, though, as will be discussed below, there potential remains relatively limited at the moment.119

118 Ibid.
CONTENT LICENSING

Coursera has also experimented with content licensing. They have developed a relationship with Antioch University in which “Antioch will pay Coursera an undisclosed amount for permission to use several courses, including ones from Duke University and the University of Pennsylvania.” These courses would function as entry-level, for-credit courses at Antioch. This licensing agreement appears to have a similar fee structure as the student validation and certificate services discussed above, and the universities and professors whose courses are licensed will receive a portion of revenues.120

CAREER REFERRAL SERVICES AND STUDENT DATA CHARGES

Coursera and Udacity have both created a service to charge employers for access to student data.121 These MOOC providers will, with permission from students, sell data on successful students to companies that sign up for their service. As a Coursera blog post explains:122

If you opt-in to our Career Services, we will try to find companies that match your interests, skills and knowledge. If you do well in a Coursera class and allow us to share that information with potential employers (who will have agreed to keep this information in strict confidence, and use only for the purpose of considering you for employment), this could make you even more appealing to employers.

Employers such as Facebook and Twitter have already signed on with Coursera.123 Over 350 partner companies have signed on for Udacity’s matching service.124

UNIVERSITY—PROVIDER PARTNERSHIPS

edX has turned to partnership models with affiliated universities in an attempt to monetize. The provider currently offers two partnership types to university affiliates: the ‘university self-service model’ and the ‘edX-supported model.’ The ‘university self-service model’ allows participating universities “to use edX’s platform as a free learning-management system for a course on the condition that part of any revenue generated by the course flow to edX.” Under the model, edX does not provide aid in course development. Until courses pass “a quality-review process” they will be labeled ‘edge’ courses in the edX catalog.125

Under the ‘edX-supported model,’ edX provides universities assistance in designing and implementing their MOOC. For this service, the provider charges “a base rate of $250,000

for each new course, plus $50,000 for each time a course is offered for an additional term.” Despite high upfront costs, under this model a university receives 70 percent of revenue generated by a course.\(^{126}\) Though this provides a relatively clear plan of how edX will structure university relationships, it fails to explain how the provider’s MOOCs will make money. Those at edX still “don’t quite know what the key source of revenue will be.”\(^ {127}\)

**OTHER REVENUE SOURCES**

While business plans discussed above are currently major MOOC monetization plans, there are other efforts being tested by providers as well as individual universities. Coursera is an affiliate of Amazon and receives “a sliver of the money each time Coursera students click through the site to buy recommended textbooks or any other products from Amazon.”\(^ {128}\) Cornell University’s online subsidiary, eCornell, has designed a MOOC “to steer students towards a follow-up course for $1,200 to get a professional certificate,” similar to the MOOC2Degree model, suggesting another avenue through which to monetize a venture.\(^ {129}\)

**MAJOR ISSUES AND THE FUTURE OF MOOCs**

The expansion of MOOCs, particularly in recent months, has led to more questions than answers about their future. While MOOC providers have made great strides in monetizing their courses and taken tentative steps in establishing certificate and for-credit options, their future designs remain unknown. MOOCs appear to have gained a foothold in the higher education landscape but they still lack the recognition that a traditional classroom holds as an effective pedagogical tool. This is emphasized in a recent survey, conducted by *The Chronicle of Higher Education*, of 103 professors who have taught a MOOC.\(^ {130}\)

While 79 percent of these professors believe MOOCs are “worth the hype,” few see them as viable paths to a college education. Only 28 percent believe successful students in MOOC courses deserve “formal credit” from their institution, and only 34 percent believe that their home institution will eventually provide “formal credit to students” succeeding in their MOOCs.\(^ {131}\) This lukewarm reception from professors teaching MOOCs on their viability to overtake traditional postsecondary education models crops up in a variety of other discussions of the future of MOOCs. These are often driven by course retention and

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126 Ibid.
127 Quote by Anant Agarwal, edX President, taken verbatim from Ibid.
completion struggles that have plagued MOOCs, the logistical problems of recent MOOC efforts, as well as more general uncertainty about MOOCs effect on higher education.

**COURSE RETENTION AND COMPLETION STRUGGLES**

While thousands of individuals might sign up for a MOOC, only a small percentage will actually complete the course. Low retention and completion rates have continued to plague massive open online courses, and an increasing amount of research is devoted to analyzing when and why students drop-out.\(^{132}\) In February, researchers at Duke University released a report about completion and retention for its first MOOC, a course on bioelectricity that was offered by the university via Coursera for eight weeks during fall 2012.\(^{133}\) This provides detailed information on a variety of student characteristics, and highlights student persistence in the course. As can be seen, only 313 (2.5 percent) of the 12,725 students who registered to take the course actually earned a certificate of completion.

![Figure 3.2: Student Persistence in Duke’s Bioelectricity MOOC, fall 2012](image)

Source: “Bioelectricity: A Quantitative Approach, Duke University’s First MOOC”\(^{134}\)

While others have argued that examples such as this do not accurately represent the full rationale behind MOOCs (as many of those who enroll but do not complete courses are simply using MOOCs as extra study for other for-credit courses, or signed up simply out of curiosity),\(^ {135}\) they do raise questions about the validity of certain financial models. Specifically, only a small percentage of the small percentage of completers is likely to pay for additional validation and testing services to receive a certificate or other credential.

**LOGISTICAL ISSUES**

MOOCs require a large amount of time. The median amount of time surveyed professors spent preparing for their MOOC was 100 hours, with another 8 hours spent each week the


\(^{134}\) Ibid., p. 8.

course was in session. Despite this effort, a variety of issues can go wrong with MOOCs. Recent examples include a Coursera course that was forced to shut down due to a series of design flaws. Professors and students also must adapt to a new kind of student—teacher relationship. Professors have to consider “what to do if students post about suicide or murder,” or other unsavory, potentially dangerous topics. They also have to determine whether or not to engage with students outside of the structured course. Only 51 percent of surveyed professors indicated they responded to all MOOC student emails, and determining boundaries such as these will continue to be an issue.

**UNCERTAINTY ABOUT MOOCs EFFECT ON HIGHER EDUCATION STRUCTURES**

Furthermore, there remains general uncertainty about the impact of MOOCs on higher education. As survey responses indicate, few teaching these courses see them as a viable alternative to the traditional classroom, yet universities continue to scramble to offer their own open online courses. This expansion will have an effect on services across universities. For example, a recent conference on the relationship between MOOCs and libraries suggests that these courses will – along with a variety of other technological shifts – redefine the role of librarians over the course of the next years. As MOOCs create new teaching opportunities within traditional settings and make it possible to effectively ‘flip the classroom’ – with the lecturing done outside of class and discussion within it – the role of a textbook is being outsourced and potentially disappearing.

**MOOCs, ACCESS TO EDUCATION, AND ELITISM**

Finally, the rise of MOOCs raises a variety of questions about the supposedly egalitarian ideals behind these courses. These questions are often central to arguments against the rise of MOOCs. While MOOCs are seen as a potential tool in providing freer access to education for individuals across the globe, there remains a major barrier to this ideal: referred to as the “bandwidth divide.” Researchers argue that there is a widening gap “between those who have access to fast [internet] connections and those who have only dial-up speeds or access via a cellphone.” This is especially acknowledged as an issue outside of the United States or Canada, but there remain many students even in these countries with limited access. Public libraries do provide one option to solve this issue,

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though these often have limited hours and long wait times for computer access. There are further concerns about the rights of those enrolling in MOOCs. Though a group of technology leaders convened in January to outline a potential “Bill of Rights” for online learners, this has been met with skepticism and criticism, and raises concerns about MOOC providers’ intentions into the future.

Regardless of student access and rights issues, with the increasing number of universities offering massive open online courses, there are fears that smaller, lower-ranked institutions will suffer. This was noted in a report released in September 2012 and has been further emphasized in more recent months. Coursera is “contractually obliged to turn away the vast majority of American universities.” Its contract ensures that it only partners with “members of the Association of American Universities or ‘top five’ universities in countries outside of North America.” This effort, seemingly meant to ensure that Coursera does not dilute the brand of top universities, suggests the competitive nature and potential exclusivity of online education. As one professor notes, the rise of for-credit MOOCs could lead to “decreased enrollment and tuition revenue” at smaller, lower-ranked institutions which could lead to a decrease in “tenure-track faculty positions and/or compensation to current faculty members as a result.”

SECTION IV: THE FUTURE OF ONLINE EDUCATION

There are a variety of indicators suggesting online education will continue to grow. With new online platforms – massive open online courses being just one example – institutions are expanding their online reach at a growing pace. With the increased access to these options, students from across the globe now have increasing opportunities and interest to enroll in these expanded online options.

FUTURE ONLINE PLATFORMS

*Inside Higher Ed* has speculated about new types of online learning, and suggested that two new categories of online education might potentially become more prominent: mid-sized online closed courses (MOCCs) and micro-targeted online programs (MTOPs).

- **Mid-sized online closed courses (MOCCs)** are, in many ways, the continued evolution of the original MOOC model. As described by *Inside Higher Ed*, MOCCs might be:149
  - *Online courses taught by “freelance” professors.* In this direct-to-student model, a self-described “eBay for professors,” the individual professor sets the course price, office hours and class size. Tutors would be available to help students, and some universities would offer credit for these courses.
  - *Traditional MOOCs – for a fee.* This might be considered a MOCC as registrants must pay to enroll. This may have the effect of turning massively open courses into mid-sized open courses – a step in the direction toward MOCCs.
  - *Licensed content to traditional universities.* This is what Antioch University is doing with Coursera. From the Antioch University website: “Each Coursera course will be facilitated by an AULA faculty member who will also be enrolled in the course, thereby enabling both frequent interaction between students and instructor and augmentation of the course through supplemental exercises and projects focused on expanding the learning experience.”
  - *Publishers surrounding content with star instructors and/or facilitators.* University and traditional publishers have a wide array of content and can now use technology and facilitators to bring it alive for university students and company clientele alike. One example of this is Pearson College. Some business school publishers are also doing this.

- **Micro-targeted online programs (MTOPs)** are seemingly described as somewhat streamlined models of current for-credit online education. They share the following seven characteristics:150
  - An online (or blended) program with 50 or fewer students per year.

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Narrowly focused, with a specialized curriculum and student demand profile.

- A program that leads to an accredited degree.
- Built on the expertise and specialization of a department, rather than individual faculty members.
- Designed to build strong relationships between students and faculty.
- Has a revenue model that is self-sustaining.
- Is not limited to elite institutions, but is dependent on great academic departments.

More generally, considerations of the future of online education have focused on the way that the lessons learned from the development of MOOCs can inform future developments. One recent commentary noted that while MOOCs themselves do “not ‘fix’ what is broken in our system of education,” and, in many ways, “massively scale” what is broken in that system, their commitment to open access and increased interconnectivity highlight new and important approaches to education. By embracing these principles, the commentary argues, there is great potential to reinvigorate and rethink approaches to higher education.151

**CHALLENGES FACING ONLINE EDUCATION’S EXPANSION**

Many debates surrounding current issues in online education echo those that developed at its beginning, particularly those relating to retention and the rigor of online course content. In addition, as online learning expands, there are growing concerns about the legality of institutions delivering programs to students in certain states.

**OVERALL ONLINE STUDENT RETENTION AND COURSE CONTENT ISSUES**

For-credit online education providers have consistently struggled with improving student retention rates. While for-profit institutions are often singled out when discussing this issue,152 all types of institutions have struggled with student attrition. This is perhaps put most succinctly by a recent editorial summarizing recent research into online education, it notes that:153

First, student attrition rates — around 90 percent for some huge online courses — appear to be a problem even in small-scale online courses when compared with traditional face-to-face classes. Second, courses delivered solely online may be fine for highly skilled, highly motivated people, but they are inappropriate for struggling students who make up a significant portion of college enrollment and who need close contact with instructors to succeed.

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Students in online courses, buffeted by a variety of distractions, often struggle to fully engage in learning material.\(^{154}\) This is especially true for those underserved students who could specifically benefit from the access of online education. A recent study of community college students indicates that “males, Black students, and students with lower levels of academic preparation experienced significantly stronger negative coefficients for online learning compared with their counterparts, in terms of both course persistence and course grade.” The study further concludes that “the continued expansion of online learning could strengthen, rather than ameliorate, educational inequity.”\(^{155}\)

Concerns about student attrition often are part of larger discussions of the overall quality of online education. While, as noted in Section I, there is growing belief that online education can offer the same quality of learning experience as face-to-face education, research into this remains inconclusive. One recent research survey concludes that there is “little, if any, evidence to suggest that online or hybrid learning, on average, is more or less effective than face-to-face learning.”\(^{156}\)

**STATE AUTHORIZATION AND ACCREDITATION ISSUES**

Institutions operating online outside of their home state are required to gain authorization from states in which they have students enrolled in a course or degree program.\(^{157}\) And many institutions struggle to, or do not, seek authorization to operate in some states. A survey by the Western Cooperative for Educational Telecommunications (WCET) indicates that only about two-thirds of institutions have applied to at least one state (outside of their own) for authorization of online programs. Furthermore, many institutions are deciding not to apply in states such as Minnesota, Massachusetts, Arizona, Maryland, and Alabama because of difficulties posed by state regulations.\(^{158}\) The survey further suggests that institutions are being forced to dedicate significant time and institutional resources to ensure they comply with state authorization standards, rather than investing in resources that might improve educational quality.\(^{159}\) Figure 4.1 provides a better view of the general state of the progress of institutions in receiving state authorization.


\(^{159}\) Ibid.
Figure 4.1: Institution’s Progress in Applying for Authorization Outside Home State, 2012

- 52%: Applied to one or more states
- 15%: Initial steps, no formal contact or application to any states
- 18%: Applied/received approval from all states of interest
- 9%: Contacted States, no applications
- 5%: No action taken

Source: What are Institutions Doing (or Not Doing) About State Authorization - Revisited

160 Ibid.
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