
Instructor Time Requirements to Develop and Teach Online Courses

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Abstract

How much time does it take to teach an online course? Does teaching online take more or less time than teaching face-to-face? Instructors, department chairs, deans, and program administrators have long believed that teaching online is more time-consuming than teaching face-to-face. Many research studies and practitioner articles indicate instructor time commitment as a major inhibitor to developing and teaching online courses. However, while they identify the issue and provide possible solutions, they do not empirically measure actual time commitments or instructor perceptions when comparing online to face-to-face delivery and when comparing multiple iterations of delivery. The results of this study show distinct differences in developing online courses relative to developing face-to-face courses and distinct differences in teaching online courses relative to teaching face-to-face courses. The data from this study can be used by instructors, administrators, and instructional designers to create higher quality course development processes, training processes, and overall communication.

Introduction and Background

How much time does it take to teach an online course? Does teaching online take more or less time than teaching face-to-face? What components of teaching make up the differences between the two methods? Does it matter if the course is being taught for the first time as opposed to the second or third time? Can the technology be separated from the pedagogy for online teaching? How much time does it take instructors to develop an online course? Does online course development take more or less time than face-to-face course development?

These are just some of the many unanswered questions regarding online teaching. Instructors, department chairs, deans, and program administrators have long believed that teaching online is more time-consuming than teaching face-to-face. But this belief is not based on empirical research; it is based on anecdotal evidence, the trade press, and qualitative perceptions. Perhaps the existing beliefs can be supported empirically; perhaps they cannot.

Institutions, administrators, and instructors recognize that developing and teaching online courses are not the same as developing and teaching face-to-face courses. Institutions are developing training courses for instructors that cover both the technology utilized and the pedagogical best practices for online learning (Terantino & Agbehonou, 2012). It is recognized, and has been for some time, that technical support and pedagogical support are necessary for the successful creation of online courses (Li & Shearer, 2005; Oblinger & Hawkins, 2006; Xu & Morris, 2007), yet instructors and administrators still see a lack of technical support and pedagogical support available (Lesht & Windes, 2011). Whether through internal (institution-based) or external (accreditation-based) motivators, quality standards and their measurement play a more critical role when creating successful online courses (Chao, Saj, & Hamilton, 2010; Parscal & Riemer, 2010).

However, even with the awareness of and the implementation of many training and support initiatives, instructors find preparation time for course design and/or delivery (Amiel & Orey, 2007; Crews, Wilkinson, Hemby, McCannon, & Wiedmaier, 2008; Dunlap, 2005; Lesht & Windes, 2011; Maguire, 2005; Sheridan, 2006; Stevens, 2013; Stevenson, 2007), resistance to technological change (Maguire, 2005), and a lack of technical support (Maguire, 2005) as the primary inhibitors of exploring online education. In particular, many researchers and authors have looked at and written about the idea of time spent by instructors developing and delivering online courses, but

instructor time has not been assessed or compared across the two delivery modes (online and face-to-face) or across multiple iterations of delivery.

The purpose of this study is to empirically measure the perceptions of and actual time spent developing and teaching online courses. Beyond that, and in order to reach conclusions with greater relevance and value, the activities associated with development and delivery (teaching) are separated into distinct categories, and the activities associated with delivery across multiple semesters have been separated into distinct iterations.

Survey

A survey (see Appendix) of 165 instructors from three universities (one in the Southeastern US, one in the Midwestern US, and one in the Western US) served as the means of data collection. The survey asked each instructor to respond to questions regarding their experiences and perceptions of developing and teaching online courses. The survey defined “online courses” as those with >80% of course content delivered through a Learning Management System (LMS) (Allen & Seaman, 2008) with all other courses being defined as “face-to-face.” Question types included fill-in, list selections, and 7-point anchored scales.

The survey required approximately 15-20 minutes to complete. All responses remained anonymous, and there was no incentive for participation. Over the course of two weeks, perspective respondents received several reminders soliciting their participation.

Results and Analyses

Instructor Representation and Experience

Of the 165 instructors solicited, 78 responded but only 68 responses were usable for a response rate of 41%. The respondents represent all three institutions and the following academic areas: Liberal Arts – 18, Business – 17, Education – 7, Engineering – 5, Computer Science – 2, Law – 1, Library Science – 1, Information Science – 1, Nursing – 1, and Physical Education and Recreation – 1, with 14 respondents selecting Other.

The instructors have been teaching at the university level for an average of 14.2 years, with a range of 0 (fresh out of a Ph.D. program) to 41 years. On average, these instructors developed their first online course in 2001 (but as early as 1990) and taught their first online course in 2002 (also as early as 1990). These instructors utilize four distinct Learning Management Systems – Blackboard, WebCT and/or WebCT after purchase by Blackboard, a Sakai-based system, or a home-grown system.

Each respondent has developed an average of 2.13 distinct online courses and has taught an average of 2.03 distinct online courses, both with a range of 0 to 10. The response of 0 is possible as someone could have developed a course, but never taught it online; similarly, someone could have taught an online course without developing it (i.e., developed by someone else). Only 13 of the 68 respondents have ever taken an online course as a student, with an average of 4 classes each. It is likely that this number will increase over time as a greater number of Ph.D. students will take online courses at some point in their educational career before becoming a professor.

Face-to-Face and Online Versions

Approximately 75% of the respondents indicate that a face-to-face version of their online course exists and pre-dates the online version. None of the respondents indicate that their online course pre-dates a face-to-face version. This simply means that of the 25% who have an online course without a corresponding face-to-face course, a face-to-face version could be created, but it has not yet been.

Comparing face-to-face and online “versions” of the same course, 21% of the respondents have never taught the course as a face-to-face class while only 4% have never taught it online. A full 57% have taught the face-to-face version five or more times with 45% having taught the face-to-face version over 10 times. For the online version, 48% have taught it five or more times with only 23% having taught it online 10 or more times. This large drop regarding online teaching is likely

due to the online version not existing for as long as the face-to-face version. The percentage who haven't taught the face-to-face version closely matches the number of courses that do not exist as a face-to-face class (approximately 25%, see above), with the difference explained by potential overlap of courses – i.e., multiple instructors developing different versions of the same online course that does not exist as a face-to-face class – and the possibility that the respondent has taught the face-to-face version of the course at a previous institution but it does not exist at the respondent's current institution.

Course Development Time and Planning

For face-to-face courses, only 7% of the respondents begin course development more than 16 weeks (approximately the beginning of the preceding academic semester) prior to the start of the course. This compares to 12% of respondents beginning their online course development more than 16 weeks prior to the start of the course. Similarly, over 70% of the respondents wait to within 8 weeks of the start of the course to begin development of their face-to-face course, whereas this number is only 40% for online courses. In general, more faculty begin online course development earlier and fewer faculty wait as long to start online course development.

While knowing when the course development process begins is important, knowing how long it lasts (and therefore when it ends) is just as important. Forty-six percent of the respondents complete their online course development in eight weeks or less, and a full 87% of the respondents complete their online course development in sixteen weeks or less. Twelve percent of the respondents take longer than 20 weeks. In terms of actual hours, 29% of the respondents need over 100 hours (median of 70 hours) to develop their online course.

A partial explanation for the time needed to develop online courses is that just over half of the respondents (53%) indicate that they develop over 90% of the course content themselves. Over 75% of the respondents develop at least half of the course content themselves. Textbook publishers and instructional designers also provide content, but not to the same extent, though 81% of the courses utilize a textbook. Table 1 provides the full set of responses. The data in the table should be read as “X percent of respondents indicate that [source] provides [range of content developed] of the content” – i.e., “eight percent of respondents indicate that they provide 0-10% of the content” while “seven percent of the respondents indicate that a textbook publisher provides 41-50% of the content.” The key take-away from Table 1 is that a majority of the course content is developed by the instructor, but publisher materials and content developed by instructional designers and other support personnel also have their place.

	Respondent	Textbook Publisher	Pedagogical Support or Instructional Designer
0-10%	8%	64%	86%
11-20%	3%	7%	8%
21-30%	5%	5%	2%
31-40%	2%	1%	1%
41-50%	3%	7%	1%
51-60%	6%	5%	0%
61-70%	3%	2%	1%
71-80%	4%	3%	0%
81-90%	11%	3%	0%
91-100%	53%	1%	1%

When asked about the entire course (content, assessments, structure, design, etc.), 59% of the respondents indicate that they develop 91-100% of the entire course with only 8% indicating they develop less than 10% of the entire course.

Course Enrollment

Thirty percent of the online courses enroll between 21 and 25 students with 76% of the courses enrolling between 6 and 30 students. For face-to-face courses, 21% of the courses enroll between 21 and 25 students with only 61% of the courses enrolling between 6 and 30 students. While both course types also show high numbers of courses with enrollments of 46+ (15% and 14% for online and face-to-face, respectively), 21% of face-to-face courses enroll between 31 and 45 students where this accounts for only 7% of the online courses. This indicates not only a tendency towards smaller enrollment in online courses, but also an apparent demarcation within online courses at around 30 students. There are courses with larger enrollments, but they tend to be much larger and not on a continuum as with face-to-face courses.

Course Development Perceptions

Several questions measured instructor perceptions of the time required to develop online courses. One question asked respondents to indicate their level of agreement with the statement “it is more time consuming to develop an online course than a face-to-face course” based on a 7-point scale ranging from Strongly Disagree to Strongly Agree with a mid-point of Neutral. Eighty-one percent agree with this statement (not including Neutral), with 43% choosing Strongly Agree.

Two follow-up questions directly compared the development of subsequent online courses by asking respondents to indicate their level of agreement with the statements “it is more time consuming to develop a second online course than to develop a first online course” and “it is more time consuming to develop a third online course than to develop a second online course” based on a 7-point scale ranging from Strongly Disagree to Strongly Agree with a mid-point of Neutral. The responses are shown in Table 2. Only 50% (n=34) of the respondents have developed more than one online course, so the number of respondents to these two questions is lower.

	It is more time consuming to develop a second online course than to develop a first online course	It is more time consuming to develop a third online course than to develop a second online course
Strongly Disagree	2%	4%
Disagree	27%	25%
Somewhat Disagree	29%	27%
Neutral	31%	34%
Somewhat Agree	7%	7%
Agree	5%	2%
Strongly Agree	0%	2%

These questions, in combination, point to the conclusion that there is a definite difference in course development between online and face-to-face courses, but subsequent online course developments are less time consuming (not merely equally time consuming) than prior online course developments. This suggests that there is something that occurs during or after the development of a first online course to make subsequent online course developments much less time consuming.

Course Delivery Perceptions

Several questions measured instructor perceptions of the time required to teach online courses. All three questions compare teaching online courses to teaching face-to-face courses by asking respondents to indicate their level of agreement with the statement “it is more time consuming to

for Online															
Much More	48%	10%	11%	41%	7%	5%	27%	24%	23%	16%	10%	11%	21%	14%	17%
More	21%	21%	14%	25%	29%	16%	24%	20%	17%	21%	27%	26%	19%	19%	17%
Somewhat More	16%	36%	24%	16%	33%	27%	24%	27%	26%	17%	22%	29%	16%	24%	17%
Neither	14%	19%	30%	16%	24%	38%	21%	24%	29%	27%	24%	20%	19%	19%	22%
Somewhat Less	2%	7%	14%	2%	7%	14%	0%	2%	3%	10%	12%	11%	17%	10%	17%
Less	0%	5%	5%	0%	0%	0%	5%	2%	3%	10%	5%	3%	5%	7%	6%
Much Less	0%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	7%	6%

When teaching a course the first time, Content Development (85%) is clearly more time-consuming for online courses than face-to-face courses. The same can be said for Pre-Semester Setup (82%) and Instructor-Student Interaction (75%), while Grading & Assessment (54%) and Overall Involvement in the Class (56%) are less so.

Comparing the second time teaching a course in both modes, Content Development (67%), Pre-Semester Setup (69%), and Instructor-Student Interaction (71%) are still more time-consuming for online courses than face-to-face courses (though each category has moved a bit towards the center of the spectrum). Grading & Assessment (59%) and Overall Involvement in the Class (57%) remain fairly consistent for the second time teaching, though both moved a bit towards the “more time-consuming” end of the spectrum.

For the third time teaching a course in both modes, Content Development (49%), Pre-Semester Setup (48%), and Overall Involvement in the Class (51%) have lower ratings than in previous iterations. These three components are still more time-consuming for online courses than face-to-face courses. However, Instructor-Student Interaction (66%), while slightly lower as well, remains high, and Grading & Assessment (66%) is at its highest level yet, and is the only factor to increase in this iteration.

There is supporting evidence to the earlier finding that teaching an online course the second and third time becomes about as time-consuming as teaching a face-to-face course the second and third time. The factors that still remain more time-consuming for online teaching compared with face-to-face teaching, even after teaching the course three times, are Instructor-Student Interaction and Grading & Assessment, the two specific factors that can not be prepared in advance for online courses (unlike Content Development and Pre-Semester Setup) or likely occur equally across all courses in all modes (Overall Involvement in the Class).

Learning Curves

To corroborate the earlier responses regarding changes in time commitment over time, the survey introduced the following definitions to the respondents:

Learning curves refer to the time it takes to “get used to” the course and/or the method of teaching. In other words, the amount of time before you are comfortable as an instructor. The technological learning curve concerns the skills and nuances associated with the technology used to deliver the course. The pedagogical learning curve concerns the methods and nuances of both designing and delivering a course to meet the learning objectives. All courses (online and face-to-face) have pedagogical learning curves. For the following questions, assume that only online courses have a technology learning curve.

Respondents indicated how many times teaching their first online course it took them to make it through the Technology learning curve for e-learning. Respondents also indicated how many times teaching an online course and a face-to-face course, respectively, it took them to make it through the Pedagogical learning curve for that course in the respective mode of delivery. Table 5 provides the responses.

Table 5. Learning Curves

	Online Technology Learning Curve	Online Pedagogical Learning Curve	Face-to-Face Pedagogical Learning Curve
One Time	38%	22%	38%
Two Times	30%	36%	38%
Three Times	8%	28%	12%
Four Times	15%	7%	3%
Five Times	3%	3%	5%
More than Five Times	5%	3%	3%

The responses in Table 5 clearly show that instructors make it through the Online Technology Learning Curve faster than the Online Pedagogical Learning Curve, and they make it through the Face-to-Face Pedagogical Learning Curve the fastest. This makes intuitive sense as instructors have experience teaching in the face-to-face mode for years or decades (on an individual basis) and centuries and millennia (on an institutional and societal basis). The “how to teach” issues of face-to-face courses have been around for a long time, and instructors have experience with and resources for dealing with these issues. However, the effort and energy to “convert” the pedagogical issues from face-to-face to online is not a straightforward exercise. While some instructors make it through the Online Pedagogical Learning Curve after teaching the course only one time, it takes three times before a clear majority of instructors have made it through this learning curve. Still, while the Online Pedagogical Learning Curve requires three iterations of teaching the course, the Online Technology Learning Curve requires about one less iteration. This indicates that the problems, “myths,” and concerns associated with online course development and delivery are more likely associated with pedagogy than with technology, though both are surely factors at the onset.

Overall Preferences and Perceptions

In addition to the data collected regarding the numerous aspects of online course development and delivery discussed above, respondents provided their opinions about developing and teaching online courses as well as their preferences for course delivery.

When asked to develop their first online course, 83% of the respondents indicate that they were initially excited to teach online with less than 15% indicating they were not excited. With hindsight, 75% of the respondents indicate that they enjoy developing online courses and 85% indicate that they enjoy teaching online courses. The initial excitement remains fairly constant through development and delivery and provides one more indication that instructors enjoy online teaching and can adjust to the nuances of the technology and pedagogy.

At the undergraduate level, there is a strong preference (59%) for face-to-face course delivery with only 25% preferring online delivery. While the face-to-face preference drops to 41% at the graduate level, the online preference only rises to 27% (with a large group of “neutral” responses). There is a definite move towards online delivery at the graduate level among the respondents, but it does not show up as a full shift in preferences. Rather, it is more of a partial shift with the respondents moving from face-to-face to neutral, but not all the way to online. When asked about overall course delivery preferences, 44% prefer face-to-face with 21% preferring online (again with a large group of “neutral” responses).

Implications

While an empirical understanding of instructor perceptions regarding online course development and teaching is helpful, the true benefit will only come when these results are used in positive ways – by instructors, administrators, and institutions. Faculty trainers and instructional designers should carefully coach instructors through their first time teaching online, making sure instructors know that time commitment is an issue and that the time commitment will likely get better the next time.

Trainers and support personnel should make instructors aware of realistic expectations in terms of

the pedagogical learning curve and the technological learning curve. These two areas, while linked together because of online courses, should be treated separately when possible. All parties need to be aware that the Technological learning curve is shorter, but still exists. Instructors should be reminded that learning objectives, many assessments, and much of the course content for an online course will be the same as for a face-to-face course.

Instructional designers should look for ways to remove time-consuming (and perhaps unnecessary) pedagogical approaches during online course development. Additionally, instructors need to be aware that some aspects of teaching online may be faster than in a face-to-face class and some aspects may be more time-consuming. Through multiple iterations of delivery, instructors will fine-tune the course to match their needs and the needs of the students. In the end, instructors have been teaching for years and decades, and moving to a new medium can be difficult for some. It is important to remind them that there were hurdles and problems the first time they taught in the classroom, but now (after many years and iterations) the class runs smoothly.

While instructors already begin developing online courses in advance of when they begin developing face-to-face courses, administrators and support personnel need to be cognizant of instructor time and other commitments. At some point, there will be a reduction in effectiveness and efficiency if a course development project starts too early, i.e., too far in advance of the first day of teaching. This is likely true for both online and face-to-face courses, but institutions and administrators usually do not spend time coordinating the development of face-to-face courses and the accompanying resources required.

Future Research

This study has shed light on many aspects of online course development and teaching. However, it is just the first attempt to understand these processes, especially in relation to face-to-face course development and teaching. Ideally, future studies can expand the data set to include a greater number of institutions, and therefore better representation across academic disciplines. Additional work is necessary to answer the following questions and gain a more complete understanding of possible influences on instructor perceptions and time commitments:

- What is the impact of different levels and methods of development support? Do different methods of support (e.g., from instructional designers) impact the development time? Is there an optimal development support method or approach?
- Is there a difference across academic disciplines? Further research with larger sample sizes is needed to better understand the differences across academic disciplines.
- Is there a difference across academic levels (undergraduate versus graduate)?
- Is there a relationship between instructor preferences and ratings of enjoyment with perceptions and time commitments?
- What is the impact of course enrollments?
- What are the impacts of pedagogical (levels and types of interaction, level of engagement, asynchronous versus synchronous delivery, etc.) choices?
- What are the impacts of technological (LMS choice, tool usage within the LMS, etc.) choices?
- Will greater exposure to online courses as a student (e.g., MA, MS, MBA, PhD) impact perceptions and time commitments for developing and teaching online courses?

Conclusion

Many research studies and practitioner articles indicate instructor time commitment as a major inhibitor to developing and teaching online courses. However, while they identify the issue and provide possible solutions, they do not empirically measure actual time commitments or instructor perceptions when comparing online to face-to-face delivery and when comparing multiple iterations of delivery. The results of this study show distinct differences in developing online courses relative to developing face-to-face courses and distinct differences in teaching online courses relative to teaching face-to-face courses. Additional data collection and analyses are needed for a more robust understanding and application to specific academic disciplines, especially in light of the academic discipline breakdown of the respondents (i.e., generalizing these data to all academic disciplines should be done with caution).

Developing online courses is more time consuming than developing face-to-face courses, but the development of each subsequent online course is not as time consuming as the previous online course development. In addition, teaching online is more time consuming than teaching face-to-face, but this is only the case for the first time and perhaps the second time teaching the course. After the second time, teaching a course online or face-to-face is relatively the same in terms of time. In addition, the Technology learning curve is shorter than the Online Pedagogical learning curve.

While the data from this study can be used by instructors, administrators, and instructional designers to create higher quality course development processes, training processes, and overall communication, there is still much to be learned through further data analysis as well as additional data collection. Instructor time commitment is an issue, and now a more clear understanding is available.

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Appendix Survey Questions

Professional Information

Please select the Unit/College/School of which you are a member
 At which institution are you employed?
 Number of years teaching at university level post-doctorate
 Year doctorate earned

Distance Learning Experience

Number of online courses you have taken as a student
 Semester in which you developed your first online course
 Semester in which you taught your first online course
 Number of online courses you have developed in total
 Number of online courses you have developed at your current institution
 Number of online courses you have been asked to develop but did not, and reason(s) why not
 Number of unique online courses you have taught in total
 Number of unique online courses you have taught at your current institution
 Number of unique online courses you have been asked to teach but did not, and reason(s) why not

Course Development and Delivery

For each of the last three online courses you have developed (or fewer if you have not developed three):

	Most recent developed course	Second most recent developed course	Third most recent developed course
Development			
Number of times you have taught this course face-to-face			
Number of times you have taught this course online			
Developed first for face-to-face or online delivery			
If developed first for online delivery, has it been developed for face-to-face delivery			
Is this course within your area of expertise			
Percent of online course content (teaching materials) you developed			
Percent of online course content created by the publisher			
Percent of online course content created by pedagogical support or instructional design personnel			
Percent of entire online course you developed (content, assessment, structure, design, etc.)			
Number of weeks to develop the online course, and approximate total hours			
Semester you first taught this course face-to-face			
Semester you first taught this course online			
Average face-to-face enrollment			

Average online enrollment			
How far in advance of face-to-face delivery did you begin course development (measured in weeks)			
How far in advance of online delivery did you begin course development (measured in weeks)			
What forms of support were available to you during the development period for online delivery			
What form(s) of compensation did you receive during the development period for online delivery			
What form(s) of compensation did you receive during the first semester/quarter you taught this course online			
Course Management System utilized for development			
Course Management System utilized for most recent delivery (if different than for development)			
Structure			
How many units or modules does this course contain			
Do you use a textbook			
Do you use a coursepack or other supplemental reading materials			
Do you have small group activities in your course			
If you utilize discussions, do you grade or rate student participation			
How do you encourage your students to email you within this course			
What percentage of a student's overall course grade is based on participation			
What percentage of a student's overall course grade is based on individual work (as opposed to group work and not including participation)			
Do you have your students share their work with each other			

The Commitment

Indicate your level of agreement with the following statements:

- It is more time consuming to develop an online course than a face-to-face course.
- It is more time consuming to teach an online course the first time than a face-to-face course the first time.
- It is more time consuming to teach an online course the second time than a face-to-face course the first time.
- It is more time consuming to teach an online course the third time and beyond than a face-to-face course the first time.
- It is more time consuming to develop a second online course than to develop a first online

- course.
- It is more time consuming to develop a third online course than to develop a second online course.

How do the following tasks compare between online and face-to-face courses when teaching a course the first time, second time, and third time in each mode:

	Teaching online the first time relative to teaching face-to-face the first time is...	Teaching online the second time relative to teaching face-to-face the second time is...	Teaching online the third time relative to teaching face-to-face the third time is...
Content development			
Pre-semester setup: syllabus, schedule, assignments, etc.			
Student questions, office hours, etc.			
Grading and assessment			
Weekly time involved "in" the class			

Learning Curves

Many faculty, distance learning coordinators, and administrators feel that there are two learning curves that a faculty goes through when first developing and teaching online courses – technological and pedagogical. These learning curves refer to the time it takes to “get used to” the course and/or the method of teaching. In other words, the amount of time before you are comfortable as an instructor. The technological learning curve concerns the skills and nuances associated with the technology used to deliver the course. The pedagogical learning curve concerns the methods and nuances of both designing and delivering a course to meet the learning objectives. All courses (online and face-to-face) have pedagogical learning curves. For the following questions, assume that only online courses have a technology learning curve.

After how many times teaching your **first online course** did you make it through the **technology** learning curve for e-learning

After how many times teaching an **online course** have you made it through the **pedagogical** learning curve for that particular course

After how many times teaching a **face-to-face course** have you typically made it through the **pedagogical** learning curve for that course

Overall Impressions

Initial level of excitement for teaching online when developed first course

Who/what was the impetus for this first online course development

What is your current preference for course delivery

Indicate your level of agreement with the following statements:

- My technology self-efficacy is higher than average
- I enjoy teaching online courses
- I enjoy developing online courses