

Title: Is the bottom line of online out of line? Calculating the total cost of online courses in Technology Curricula

It was very late at night as Professor Twigg sat at his computer and typed the following,

*MET 111 Applied Statics
Design of Steel beams, Chapter 15*

15-3 Design of steel beams

The allowable stress design for steel beams will be covered in this section. The code frequently used for structural steel design is the American Institute of Steel Construction (AISC) specifications.

Suddenly, he stopped typing, and mumbled: “Is this worth it?”

Over the past several months he asked himself this question many times. This time it broke his concentration completely. His white PC screen glared back at him with its menacing hum. He leaned back in his chair and removed his glasses. He rubbed his eyebrows and then pressed his forefingers deep into his eye sockets. He eased off when they began to ache under the pressure. He was tired. And, he was done with designing the online version of MET 111, Applied Statics ... at least for tonight.

A short three months earlier Twigg’s department chairman asked him if he would be interested in designing and delivering one of their department’s courses totally online. The chairman was enthusiastic as he exclaimed that the course could either be delivered synchronously, asynchronously or in combination, maybe even be a hybrid. And if Twigg wanted, it could utilize streaming video and archived lectures and chats. The words flowed poetically from his department chairman’s mouth, Twigg recalled later. He seemed impressed with himself. Twigg was impressed too. After all, chairman Lunts’ expertise was in mechanical engineering and not in computer technology. Twigg had no idea what Lunts was talking about. Twigg’s intellectual curiosity finally got the better of him and he exclaimed,

“What in the world are you talking about Bruce? I don’t have a clue about anything you just said. What in the name of Sir Isaac is streaming video?”

Lunts looked at Twigg, forming a wry smile, he replied: “Man Twigg, to tell the truth, I’m not altogether sure,” and he paused. He then asked Twigg if he knew that campus administration was extremely motivated to offer online courses. One of central administration’s hottest new strategic initiatives is to deliver courses over the Internet. Hadn’t he picked up on how much IUPUI desired to get into distance education? To

further punctuate this point, Lunts reached for a memo from a pile of papers on his cluttered desk, handed it to Twigg and said,

"Check this out. The University is offering substantial financial resources to entice faculty to go online. It has made available a number of development grants for each unit to award to interested faculty. The grant awards range from \$2,000 - \$6,000 per credit hour to develop a course. The amount awarded depends on the sophistication of the course. Graduate assistants or professional staff provides the graphics, AV or animation as defined in the course. Digital Media Services can also provide high-end production. These resources can, of course, double or triple production costs due to the time and talent invested from their design and production staff. The entire infrastructure or backbone required to deliver instruction online like: *Oncourse*, IUPUI's course environment software, servers, library reserves, testing software, real player, and the help desk functions are all subsidized by the campus and costs are not charged back to academic units, departments or faculty who launch online learning courses or certificates. Central Administration is requesting that Deans offer at least a one-course reduction in teaching load to any faculty member receiving the grant. The reduction is given during the semester he designs the course. The exact monetary package to faculty could vary of course and be more than that amount."

Lunts paused, and reached for another paper on his desk. Handing Twigg a second memo, Lunts continued, "Here's a memo from our University Information Technology Services unit. I've no doubt that you have heard about UITs." Twigg was familiar with the unit. He read recently in the University's annual report that UITs' annual budget was about 8% of the operating budget for the entire Indiana University system. While seeming large, it is a typical percentage among Universities. Quickly doing the math in his head Twigg said, "yeah, they have about an \$80 million dollar per year budget."

"Right," said Lunts, "with part of that money UITs provides the backbone, or the fixed costs, of the University's online capabilities. Our Dean is fired up about offering online classes also. You heard him say in our last convocation that he wanted our school to be offering about 10% of its courses online within three years and increase to 25% within eight years."

"OK Bruce," said Twigg. "I'm convinced that the University and our Dean wants distance education, but like I said before, I don't know much about what it takes to create such a course. I'm not a computer geek."

"No problem," laughed Lunts, sensing Twigg's interest. "We can get you *geeked-up* quickly enough with the right training and support. See, check this out," said Lunts as he handed Twigg a brochure from the Campus' Center for Teaching and Learning. "The center can help you learn all you need to know." Twigg took the brochure and quickly scanned it. The brochure explained very clearly how the center could quickly teach professors how to design, implement and assess online courses.

“Let me think about it Bruce. I’ve got to go now and get to my class, but I **will** think about it,” said Twigg reassuringly as he began to move toward the door. “Let me study this brochure and I’ll get back to you.” He turned left out of Lunts’ office and hurried off to meet his 11:00 am class.

Two days later, Twigg agreed to take on the project.

Twigg applied for and received an \$8,000 in-house grant to develop his three credit hour MET 111 course. Twigg also received a one-course reduction to his teaching load to develop the course. He figured it cost his school about \$3,000 to do this. This was the salary it paid a part-time instructor to teach one of his classes.

He decided that the course should be synchronous and contain archived video taped lectures. Thus far, his learning curve had been extremely steep, but he felt proud of himself. He had learned a great deal about online course design. His pride however was not sufficient to overcome his sense of frustration at how long the project was taking and how it was interfering with his other responsibilities, especially his research, writing and home life. Twigg kept track of his time on the project and had logged about 200 hours on the project thus far. He feels like a permanent fixture at the Center for Teaching and Learning. He even attended an office birthday party for one of the center’s staff members last week. He had attended way too-many-to-count group training sessions, not to mention all the individual consultations with the center’s staff. The really depressing part, Twigg kept thinking, was that he was only about two thirds done with the course design and would put in other 100 hours before being done. He shuttered when the thought about the time he was going to spend in delivering the course. Colleagues had warned him that facilitating a synchronous online course took much more time than did a traditional one. Some believed it took twice as much time or more.

And, just now, late at night as he turned off his computer to retire for the evening, exhausted and frustrated, Twigg uttered, soft but clear, as if maybe someone could hear...”Is it worth it?”

Defining worth

Is it worth it? Answering this question is the purpose of this research study. Assessing the *worth* of any endeavor depends on how one wishes to define the concept. The authors chose to adopt a very practical definition of *worth* and answer Twigg’s question from a strictly financial approach, one informed by cost accounting principles and thus, evaluate its *financial worth*. Evaluating the philosophical worth of online courses we leave to learning theorists, and others drawn to analyzing the philosophical side of teaching and learning. Evaluating the equivalency between online and traditional delivery methods in terms of student learning was also not the author’s focus. We believe that a thorough accounting of the financial costs associated with online courses taken together with other research on the efficacy of online teaching provides a more complete picture of the total worth of an online course specifically, and the worth of distance education in general.

Our task was to calculate the actual costs associated with the design and delivery of an online course from start to finish. We needed to identify and quantify all the fixed, and variable costs incurred. Using this data we completed a breakeven analysis to determine when the expenses would be recovered through course tuition.

Calculating and assigning fixed costs to a single course like Twigg's was problematical however as you will see in our analysis below. But this fact notwithstanding, we have produced a fairly accurate accounting of the costs associated with producing an online course. In the process we designed a logical framework for completing a cost analysis that you may find useful as you answer the question: "Is it worth it?"

Research design:

The authors interviewed five professors who have designed and delivered online courses to determine the costs accrued as they designed and facilitated their online courses. They also interviewed the Director of their school's Computer Network Center. The center is responsible for managing all computer resources within the school. The director provided cost estimates for the backbone and infrastructure requirements.

Summary data from interviews of Costs Associated With Online Courses

The following information was gathered from interviews of faculty who have designed and delivered online courses and from administrators who manage online services for the University.

- I. Level 1 Online course
 - a. Description: Low-end solution. Only requires use of a Course Management System like OnCourse or Blackboard. Exploits tools such as chats, forums, and e-mail. Primarily uses static course content.
 - b. Cost to Develop: If campus already has a Course Management System, then cost to develop/convert course material is relatively small. Typical course conversion effort for a single Web-based course is 200-250 hours. Typical course development effort for a new Web-based course is approximately 700-1000 hours. If campus does not have an existing Course Management System, then costs to develop an adequate infrastructure for an individual course may be prohibitive. For example, a school that wishes to serve 10,000 online students would have to invest in hardware and software. The hardware would consist of buying at least two servers at \$10,000 each with a monthly fee of \$1000 per month for service. Two people would have to be hired to provide support for the computers, students and faculty. Software and database management costs will vary greatly depending on the deal the school can negotiate with the provider. Part of the \$1,000 service fee would pay for some of these expenses.

- c. Cost to Deliver: Asynchronously delivered courses cost 20% more to deliver than classroom courses. This is primarily the result of the increased communication that is required in DE courses.

II. Level II On-line Course

- a. Description: Middle Solution: Also uses Course Management System and conventional course materials (off-line readings, Web-enabled documents, etc.). In addition, streaming audio and video is included. This would require a screen-capturing tool, like Camtasia, which costs approximately \$175 per license for educational use. Camtasia has a low learning curve so training time is minimal. This solution also requires use of a Web server that ideally has been configured to support Web streaming. Server and software costs would be approximately \$25,000.
- b. Costs to develop and deliver are approximately 10% higher than what is required for the Level 1 course.

III. Level III Online Course

- a. Description: High-end. This approach would extend the use of Level 1 and II components by including the ability to capture the audio and video of a classroom course. Currently, we use equipment from Polycom to Web-cast courses. Individual classroom units for web-casting are approximately \$3500. In addition, a centralized storage and retrieval system must be developed and maintained. Approximate hardware and software costs are \$30,000. People costs to maintain this environment would be approximately \$20,000 annually. This approach would only make financial sense if there were at least 20-25 Web-based courses to support.
- b. Costs to develop and deliver are approximately 25-30% less than what is required for the Level 1/II courses. There is quite a bit of synergy that can be exploited when a classroom-based course can also be used for online students.¹

One-time or infrequent costs per faculty member:

Hardware and software upgrades, especially for desktop audio / video and graphic editing costs \$1,200. Training received for instructional design - 40 hours. Training included: Web design; writing basic html code; techniques for digital imaging, digital audio and digital video; assessment of online learning; security of online learning; copyright management; instruction on effective use of core software. To research the cost of a 13-hour training program access the following WEB address:

<http://www.edtech.neu.edu/workshops/descriptions/blackboard/>

- Upgrades to instructor's home computer configuration: - \$500-\$1200.

¹ Ed Sullivan, Professor of Computer Information Technology, Purdue School of Engineering and Technology, IUPUI, personal interview, 21 December, 2003.

Recurring costs for each course:

Development time: typically a 50% reduction in teaching load for one semester.
High speed Internet service from home or other remote location: \$50 per month.

- Help-desk that provides support to online students and faculty:

University Information Technology Services (UITS) handles this, for the most part. They have figures on their costs to handle a single call, and they might have stats on how many calls relate to online courses. I think it safe to estimate that a class of 25 students generates at least 25 calls over the course of the semester. Technical questions often come directly to the instructor, even if UITS is specified as the proper channel. Estimated instructor time for re-routing of technical questions and short answers to easy questions: 1 hour per week.²

Cost, if course development is outsourced:

“The Average cost to develop a three-credit-hour college course is \$40,000, not counting development of original video, says Denzil Edge (dsedge@bellsouth.net) CEO of Learning House Inc., an e-learning firm. Edge was previously director of Distance Education at the University of Louisville in Kentucky.”³

²Tim Diemer, Visiting Lecturer in Organizational Leadership and Supervision, Purdue School of Engineering and Technology, IUPUI, personal interview, 20 December, 2003.

³ <http://www.knowledgeability.biz/weblearning/#Faculty%20>

Analyzing the cost of online courses:

Let us now identify and categorize the costs associated with online courses using cost accounting principles. Typically a breakdown of costs of products and services offered by an organization are Material, Labor, and Overhead Costs.

Material costs include two types-direct and indirect materials. Labor costs can be divided into direct and indirect labor. The categories are defined below:

Direct Material cost is the cost of material found in the finished service or product

Indirect Material cost is the cost of material necessary for the creation of the service or product but is not in the finished product or service.

Direct Labor cost is the money paid to someone that produces or delivers the finished service or product.

Indirect Labor cost is the cost of labor that is not directly producing the product or service.

Overhead costs are those other, non-labor and non-material cost necessary for the creation, production and delivery of the service and product.

Examples of Cost Categories

Direct Materials(DM)--Handout materials, exam papers, textbook.

Indirect Materials(IM)—Instructor’s notes, computer disks, software

Direct Labor(DL)--Instructor and teaching assistants wages and salaries.

Indirect Labor(IL)--Wages of computer and secretarial personnel.

Overhead(OH)-Also called fixed cost. Utilities, network, computer, programming, space costs, depreciation.

Mathematically:

$$\mathbf{DM + IM + DL + IL + OH = Total Costs}$$

For some cost analysis and estimating, direct and indirect categories may be combined into a single category leaving the following:

Material + Labor + Overhead = Total Cost

For breakeven analysis, the material and labor costs are combined and labeled “variable costs.” These costs increase or decrease depending on the number of students in the course. For breakeven analysis, overhead is labeled a fixed cost and includes all "brick and mortar" costs, any computer hardware or software and any start-up costs for an on-line course.

Comparing Costs of Traditional versus Online Classes

In many situations, the material and labor costs of traditional offerings may be similar to the material and labor costs of online offerings. If additional handout materials and /or extra labor is used for online offerings, the material and labor costs of the online version will be higher. This difference in material and labor costs, however, is likely to be small when comparing the differences between the overhead costs of the two types of classes.

There are two approaches to using the overhead costs to determine the costs in both types of offerings. One approach is to include the overhead costs in detail and the second is to assume that overhead costs are already in place and "paid for" and to exclude them from the cost estimate or analysis. A good reason for taking the latter approach is that it is difficult to properly estimate and calculate the overhead costs for each class offering, especially when the online system is new and being developed.

Another reason for excluding the overhead cost is that it is a "different budget." Some university financial systems for materials and labor costs are contained in the so-called "operating budget," while computer installation, web costs, buildings, and other cost of facilities are in the "capital equipment budget."

A third reason is that the overhead costs of the online courses are neglected for analysis is that the computer facilities, web, backbone, network, etc were the result of a special grant or funding from outside the normal operating financial system and are taken as a "given" or gift.

Start-up, Mature, and Maximum Capacity Systems

Online course offerings evolve from start-up to mature to maximum capacity systems. Each of the three can be described as below:

Start-up: There are few if any efforts to develop online courses by faculty. There is no backbone, hardware or software to support online teaching. No investment has been made into course development, information systems, or faculty support personnel.

Mature: Investment has been made into software, hardware, and support personnel. The technology is in place and functioning. Faculty have developed their courses for online delivery and many courses have been delivered multiple times.

Maximum Capacity: The mature system is operating at its maximum level. System breakdowns are occurring frequently, support personnel is working at full or overtime basis, time delays in the system are increasing and they discourage system use by the students and faculty, cost of downtime and maintenance are increasing disproportionately compared to past costs.

Professor Twigg is operating in a mature system. Although he has approximately 300 hours of preparation time to get his class online, the hardware and software systems are available to him. His university has made the high fixed cost investments. However, he can consider his personal development time of 300 hours as a fixed cost for his course.

Revenues

The fees charged for online and traditional classes may be different. The justification for different and usually higher fees for the online offerings is that there is higher instructor costs in preparation and more time spent in online questions/chat and in the overhead or fixed costs of the online system. Usually there are different fees for laboratories than non-laboratory courses, so the precedent for different and higher fees is established.

In general, there is reluctance by educational systems to accurately charge the true costs of each course in the fee structure. To completely reflect the differences in low cost and high cost classes in the fees charged is avoided. This thinking and philosophy often carries over into the fee structure for online classes. Comparing this approach to business and manufacturing firms would be to charge the same price for a Buick as for a Chevrolet or the same price for the hamburger as for the chicken salad sandwich. Non-variable fees, identical automobile prices, and sandwich prices do make the bookkeeping and fee structure simpler to implement. Variable fees for courses might prove necessary when based on a complete cost analysis of the class whether delivered online or in the classroom.

Philosophically, a different fee structure may be seen as "undemocratic", but a more practical excuse is that the detailed cost analysis is not made. Why bother with analyzing online costs then? Can they be ignored, as have the different costs of traditional courses?

The primary concern is that although the labor and material cost of either online or traditional offerings are simple to estimate and similar in magnitude, the overhead costs of online offerings are significantly greater than for traditional classes. The backbone, hardware, and software costs of online courses are much higher. The individual faculty preparation costs for online are higher. In so far as overhead costs are higher and more complex, we need an approach that can throw light on the task. Breakeven analysis may help.

Breakeven Analysis

If a common form of cost analysis is adopted from business and industry and applied to cost of online courses, some insight can be obtained.

The material and labor costs can be combined into a cost category called Variable Costs. These costs are dependent on the number of student participants in the class. As the number of students increase, for example, the number of sets of materials (exams copies, handout materials, etc) increase. And, as the number of students increase, the labor cost increases (more e-mail time, more class sections, more teaching assistants, etc). The overhead or non-material and non-labor costs are now called Fixed Costs. Same costs, different name to emphasize the lack of variability in the overhead cost as the number of students increase or decrease. The cost of the network, computer server, building, administrative costs, etc are a fixed value whether one student is being served or many. By increasing the number of students, these costs do not increase, as do the variable costs.

Below is shown a general graph of these costs. Costs (\$) are plotted on the vertical axis and the numbers of students per class (Q) are plotted on the horizontal axis. Fixed costs (FC) are a horizontal line at a level of the fixed costs. The variable costs (VC) are shown as a line with increasing values as the number of students increase. Revenue or fees collected is shown on the graph as a line from the origin. This implies that as more students pay for the class, total revenue (TR) increases. Finally, the total cost (TC) which is the sum of FC and VC ($VC + FC = TC$) is shown on the graph.

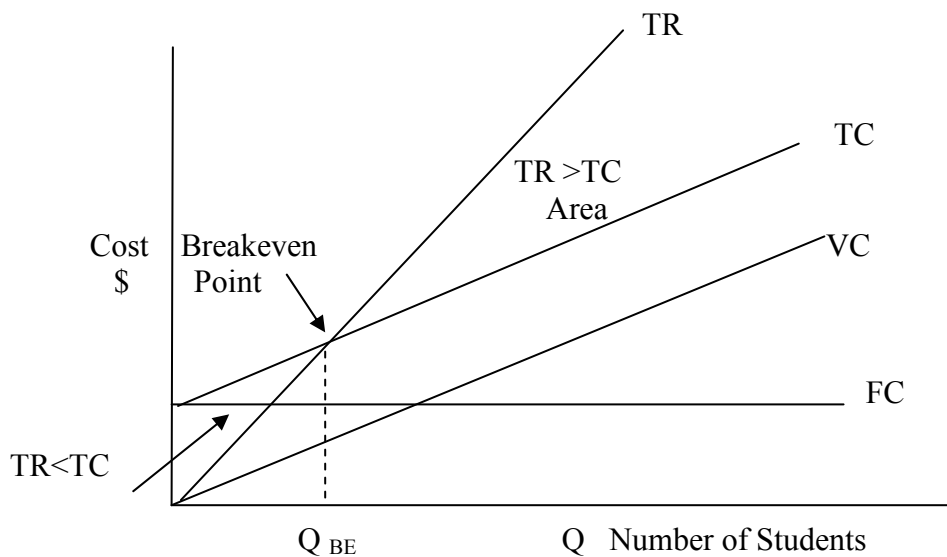


Figure 1

The graph of Fig.1 shows the VC, FC, TC, and TR. Also shown is the intersection of the total cost and the total revenue (TC and TR). This intersection is called the breakeven point (BE). To the right of this point is the triangle bounded by TR and TC. In this area, total revenue (TR) is greater than total costs (TC). When $TR > TC$ there is profit.

To the left of the breakeven point (BE), The triangular area bounded by TC and TR represents total revenue less than total cost ($TR < TC$). This is a loss. The breakeven point (BE), then, is a point at which neither a profit or a loss occurs.

Breakeven Applies to All Classes

This general graph applies to all classes offered in the system. But, each class has different costs, different revenues, and number of students. In order to know if the class is operating above or below its breakeven point, the revenues, costs and numbers must be accurately known. Revenues are simple to calculate, they are number of students multiplied by the individual course fees. Variable costs can be calculated for each course by adding the material costs added to the labor cost per class. The difficulty is in determining the fixed cost per class. This is even more difficult when the costs of networks, web, servers, computers, etc are added for online courses.

Why the Concern About Online vs. Traditional?

Concern with the quality level of online learning versus traditional course offerings has been debated for some time now. Now, the costs of the two different systems are a current concern for many education systems.

In a system that has many traditional classes meeting in a building over many hours of the day, the fixed costs are distributed over many classes and as a result, the individual class does not have very high fixed cost associated with it. However, when online courses are introduced into the system, the fixed cost picture becomes more complex. If very few online courses are offered compared to the traditional classes offered, all the fixed costs of computers, servers, web, network, etc must be applied and absorbed by the few online courses. This makes the breakeven point move to the right on the graph and the number of students required to "breakeven" is larger. This increase in fixed costs can be seen in fig. 2. When the fixed costs (FC) increase, the total cost (TC) also increases. If fees and variable costs remain the same, the breakeven point (BE) and quantity (Q_{BE}) increase to the right.

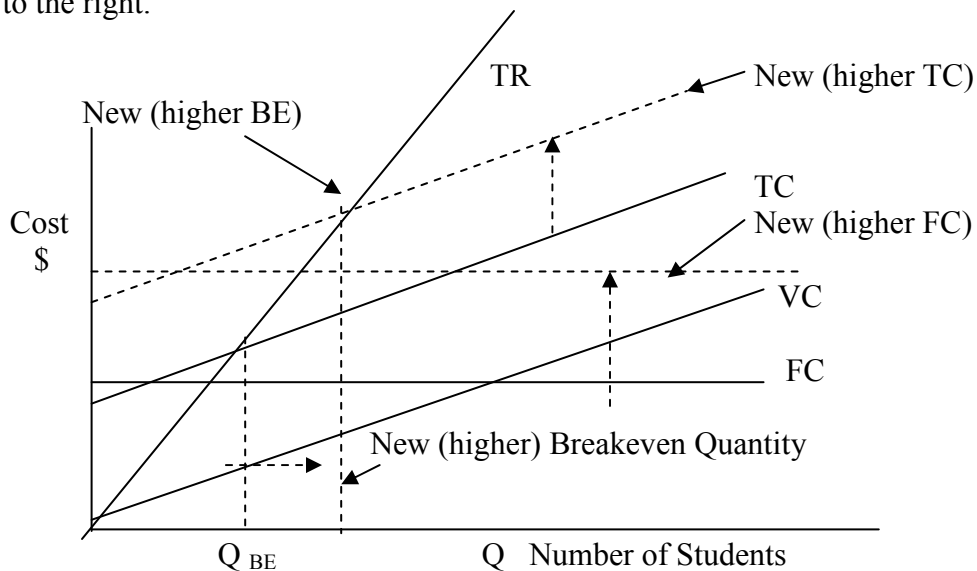


Figure 2

As can be seen in Fig 2, higher FC causes higher TC which results in a higher BE point. This is the concern when comparing the traditional courses with online courses. Two ways to compensate or correct for this higher BE Point is to charge a higher course fee for the online course or increase the number of students in the online course at the old fee.

Twigg’s Cost for his Online course within a Mature System

Using data collected by the authors and applying them to Professor Twigg’s online course, we calculated the fixed costs for his online MET 111 course.

Twigg’s Start-up Costs (Fixed cost)	Hours
Course Development	\$8,000
One course reduction	<u>3,000</u>
	\$11,000
Instructor’s Home	
Computer Upgrades	\$1,000
	<hr/>
Total...	\$12,000

These start-up costs are the fixed or one-time costs for Twigg to begin to offer his course online. This assumes a Mature System for online course delivery with the backbone, computers, software, support staff, etc. in place and functioning. He is using his personal home office, as well as the university facilities to deliver his course. In other words all the bricks and mortar and computer system costs (Fixed Costs) are in place and available to Twigg. He must add the one time costs for his particular course and then deliver the course to students. Twigg has calculated that he has spent 300 hours creating the course, and 40 hours in training to learn the course management software.

Delivery of the course by Twigg increases the Variable Costs. The authors found that the additional time to deliver the online course was approximately 20%. This increase is due to increased time of online questions from students, assistance given by technical personnel to the students, and related costs. Twigg may be given a reduced load for teaching online courses initially, but may or may not be given a reduced load for future offerings of his course. If he is given future reduced load, this would also increase the Variable costs of the online course over the traditional course.

Twigg’s Breakeven Chart

Although Twigg is developing his course in a Mature System (bricks and mortar and computer system in place), he still adds his own Fixed Costs for course development and his Variable Costs increase due to increased time spent by him and the technical staff each time the online class is offered. These increased costs cause the BE Point to shift to the right on the BE Graph as shown in Figure 3.

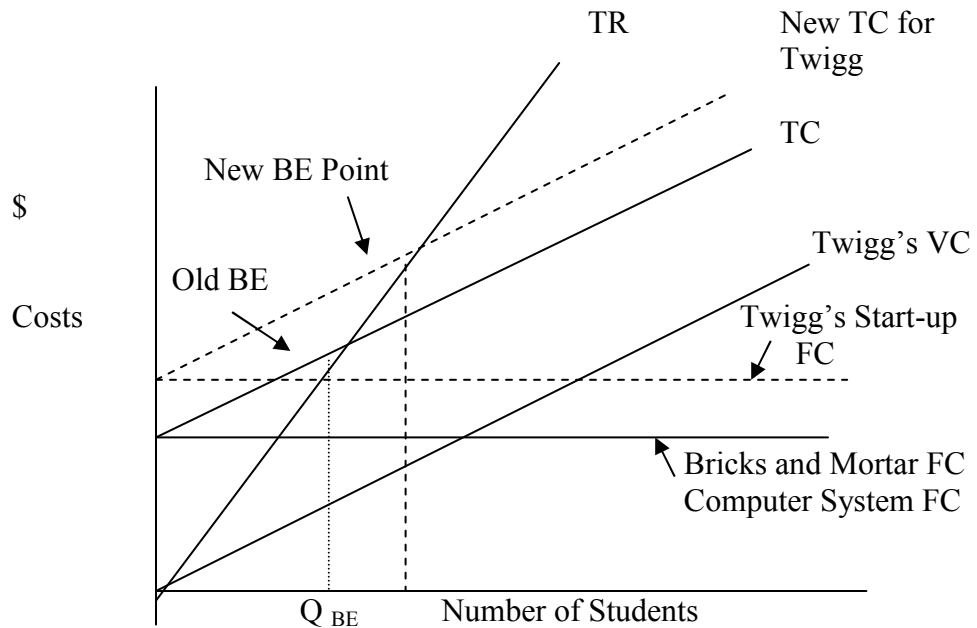


Figure 3

Twigg's breakeven chart is shown in Figure 3. The original Fixed Costs are shown. These include the Fixed Costs for traditional course offerings -the bricks and mortar and the non-traditional computer systems and support. Adding these to the normal Variable Costs gives a Total Cost and the original Breakeven point.

When Twigg spends his start-up costs of \$12,000 to prepare his online course, this new Fixed Cost is added to the old Fixed Cost. The new Fixed Cost is added to Twigg's Variable Cost and a new Breakeven Point results. The new BE point is to the right of the old, indicated that a higher number of students are required to breakeven. Another option is maintaining the same number as in the traditional course, but increase the fees for the online course.

Twigg's situation is assumed to be a Mature System. The other two cases, Start-up and Maximum Capacity would result in significantly different costs. In the Start-up case, no computer system exists; only traditional facilities (bricks and mortar) and the computer/online start-up costs would increase the fixed costs significantly. In this example of Twigg, the computer system is in place and available. Only his additional fixed costs are added.

In the third case, Maximum Capacity, the computer system and support has been in place for some time. But, the system has aged due to both physical wear and technological obsolescence. The system is handling as much traffic as it can. Response times are slow, breakdowns are frequent, errors are increasing, and the users are becoming seriously discouraged with the system. A return to traditional courses appears to be more attractive. To overcome these faults, new computers, servers, backbone, software, and

retraining of support staff are required. The Fixed Costs in this case are similar to the original start-up case.

Summary and conclusion:

Online learning is a popular initiative for institutions of higher education like Indiana University. To encourage participation in online teaching, professors are given resources and incentives. With any new product, it is wise to calculate its cost. The costs associated with designing and delivering online courses can be calculated quantitatively using accepted principles of cost accounting.

Variable costs, such as those associated with course design are more easily calculated on a per course basis than are infrastructure or backbone costs. In general, there is reluctance by educational systems to accurately charge the true costs of each course in the fee structure. Ironically, many schools charge by the credit hour but do not or cannot provide an exact accounting of how much a credit hour costs to develop and deliver. The cost accounting techniques covered in this paper provides an effective method for completing a cost analysis.

Online course offerings evolve from start-up, to mature, to maximum capacity systems. Professor Twigg is operating in a mature system. Although he has approximately 300 hours of preparation time to get his class online, the hardware and software systems are available to him and are not allocated to his course. His university will absorb the high fixed cost investment.

The fees charged for online and traditional classes may be different. The justification for different and typically higher fees for the online offerings results from increased costs in preparation, time spent in online questions/chat, and in the overhead or fixed costs of creating and operating an online system.

Concern with the quality level of online learning versus traditional course offerings has been debated for some time now. The costs of the two different systems are a current concern for many educational institutions as they try to minimize their expenditures.

Professor Twigg sits at his kitchen table sipping his third cup coffee this morning, still tired, with a dull headache. He had not slept well. He asks himself again: "Is it worth it?"

He reflects on the amount of work he has put into this online course. He runs the figures through his mind yet again; he will end up investing 300 hours on course development and 60 hours in training to learn the course management software. He received \$8,000 from the grant. Using these figures he calculates that he is making approximately \$22.00 per hour designing the course. Sure, he is receiving a one-course reduction in his teaching load but that has long ago ceased to be an incentive. He chokes on his next sip of coffee as he thinks of all the money his administration has invested in creating the capability of online courses. They must surely believe it is worth the investment.

He knows that when he teaches his online course it will be counted as only one course in his teaching load even though he has been told by others that online courses can take up to twice as much time, or more, to deliver than a traditional course. He is hoping that going online will help him get tenure next year, but he is not sure it will. No one seems to know for sure how valued online courses are to promotion and tenure committees.

His wife is really irritated with him because when at home he spends all his time on his computer. She and the kids left early this morning to visit her mother who lives out of town. They will be gone the weekend. He will miss them but is thankful to be able work on his online course without interruptions.

Twigg gulps down the last of his coffee and puts the cup in the sink. His stomach begins to churn. He grabs his book bag and rushes out the back door; he does not want to be late to his class on campus. He forgets to let out the dog.