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OMDE 0606
Section 9040
Assignment \#3
May 10, 2001
Design scenario: on-line teacher education program

## Introduction

The local shortage of K-12 teachers is a well-documented problem. This paper is an investigation into one solution: the development of an on-line combined degree and certification program. This program will be proposed to a local CBU. The CBU currently offers isolated courses on-line and is a participant in an on-line regional consortium.

The institution has in-house design capabilities, a license for WebCT, and offers extensive faculty enhancement programs covering pedagogical issues for faculty and staff teaching f2f and on-line. Many of its f2f offerings include web-based or multimedia components. The institution has seven separate computer labs that offer specialized tutorial assistance and computers for students; two of those labs offer wireless laptops that the students can borrow. One building on campus is a state-of-the-art multi-media classroom facility, and a requirement for teaching there is that the faculty member use technology in his/her class work.

There are seven independent school districts within the metropolitan area or the county. The school districts have an annual need of 1,400 new teachers; the local university graduates 600 annually. The other positions are filled with graduates from other universities outside the area or are taught by non-certified teachers.

While there are no other four-year institutions offering teaching degrees within the county, there are three regional competing institutions, one across the state line and two other in-state institutions. All three are offering campus-based "weekend" degree plans, and all three are able to offer courses at tuition lower than the local institution's legislature-set rate. On-line provision of these courses by the local institution would eliminate the travel costs and the cost of providing substitute teachers two Fridays a month. When those additional costs are factored in, the cost to the students of this proposed program would be less.

This program is intended to expand the available pool of students to include people who have completed at least 100 hours of approved course work with a GPA of 3.0 or better. This pool of candidates is adults who must work full time while completing their degrees at night or on weekends. Students enrolled in this program would be placed in the area schools at salaries approximately $75 \%$ of what a newly certified teacher would earn.

## Scenario

This scenario is a preliminary step to identify the costs of developing this program. The courses in this program would be those required by the state to prepare the student to take and pass the certification exam. All course offerings would be "classes" because the students would be fulfilling their practice teaching requirements through their daytime employment.

One course will be evaluated for this scenario. The development of the other courses would be along the same line as the one presented, although each course developed will be analyzed for unique characteristics. The course will be developed as a team effort. The team will include the content expert (faculty member); the instructional designer; a staff member, who will obtain the necessary copyright clearances; a librarian; a student support professional; a member of the faculty enhancement center; and a marketing professional. To expedite development and to maintain a balance between development cost and maximum features, WebCT will be the course platform. All required course work will be done on-line; participation in the class discussions will be evaluated and factored into the final grades; and group projects will be assigned and graded. Texts will be purchased by the students, and additional resources will be available on-line. There is not a plan to develop a CD-ROM as a part of the student resources. Because the identified audience will be employed by the local school districts, each will have access to a computer and to the Internet. The school districts will provide laptops and subsidized Internet.

Interaction will be primarily asynchronous, through the class discussion area and through email contact, although the "chat" feature will be available and students will be encouraged to use it, whether for peer tutoring or for group assignments. Use of chat will be monitored but it will not be factored into the final grade. The faculty member will be available for "virtual office hours" and will also respond to e-mails sent at other times. A syllabus will be provided in advance of the start of the class, and the "virtual office hours" will be identified. Because the anticipated audience is local, f2f meetings between faculty and students can be scheduled as needed.

Students are able to register on-line, and they can order books through a secure web site. Advisors have e-mail accounts and will be able to counsel students by telephone during regular office hours. Every effort will be made to process exceptions and to release holds by e-mail or by fax; however, it is acknowledged that there may be situations where a f2f meeting is required. The university has a tutoring and learning center that offers synchronous on-line tutoring during stated hours; those hours will be included in the course syllabus. The library has many published resources on-line, and its card catalog is completely on-line. Librarians will respond to e-mail requests for assistance, and they will hold requested books for 24 hours to allow students time to pick them up. Tutoring services are included within the "Staff (student support)" line item as are functions such as enrollment and advising. Grading will be done by the faculty member.

The university will waive enrollment exam requirements for participants in this program based on the minimum 3.0 GPA in their prior course work.

The costs for developing and delivering this course have been projected for five years. The university does not have development or delivery cost information for its f 2 f courses other than the operating costs reflected in the annual university budgets (institutional and grants). The university will be asked for a one-time summer grant for the subject expert (faculty member) who will have some discretion in how the funds are expended. It has not been the university's policy to assign costs for staff members' time to individual projects; therefore, it is likely that marginal costing will be used.

It is anticipated that annual maintenance will be done, beginning with the second year of offering, and that some significant updating will be done in the third year of offering. The subject expert (faculty member) will have a course release, which equals $25 \%$ of his/her
course load. Average f2f class size is 50 students; the on-line course will be limited to 30 students. It is planned that the faculty member will do his/her own grading and respond to the students; there is no provision for a tutor or an assistant.

All courses are currently taught $\mathfrak{f} 2 \mathrm{f}$. Development will involve translating the existing course materials into an on-line format. Faculty members will work with the faculty enhancement staff and the instructional designer to develop the skills needed for teaching on-line, and training will continue throughout the life of the courses. The course materials will be textbased, and links to other sites will be provided when appropriate. Students will be assigned materials to read or research and will discuss their findings and ask questions within the conference area. Assessment will be based on written assignments, with some credit given for class participation. Students will work in groups and individually.

## Scenario Evaluation ${ }^{1}$

The initial scenario is based upon 30 students per class. The cost projections are done two ways - once with the program costing using activity-based costing; and once with marginal costing.

Costs to students are constrained by tuition schedules set by the state legislature. Therefore, all scenarios are evaluated with that constraint. The first scenario, using activity based costing, indicates that breakeven is 515 students, or about $175 \%$ of the projected 300 enrollments.

Activity-based costing clearly demonstrated how upper division courses with small enrollments do not support themselves. Changing that scenario to reflect only marginal costing - in this case, the faculty salary and the administrative materials - makes the course feasible.

## Modified Scenario

The modified scenario projects steady growth throughout the five years of each course life. This second scenario may be more reflective of the program's potential - and it also reflects the impact that such a program could have for the providing institution. Once the class size exceeds 30 students, a teaching assistant (TA) is provided on a per student (contract) basis. The TA will assist the faculty member with teaching and grading and will also provide tutoring services. Moving this provision from the student support personnel is reflected by the less-than-proportional growth on that line.

This projection with growth makes the proposal profitable, whether using activity-based or marginal costing.

## Conclusion

This scenario has been designed to demonstrate the feasibility of a distance education alternative within the available f 2 f degree plans. This scenario is for a new offering and is intended to meet the needs for certified teachers in the local K-12 school districts. This proposal offers a win-win perspective: it expands the pool of teachers and offers an opportunity for working adults to have full-time employment and the ability to complete their degrees.

## Footnotes

1 The spreadsheets in the two attached Excel files are based upon the spreadsheet from Tony Bates' Oldenburg workshop. Bates' spreadsheet provided as an attachment to the assignment posting in Module 3b.


## Costs to students

| Fees | $\$ 400.00$ (set by state legislature) |  |
| :--- | ---: | ---: |
| Materials (books, etc.) | 200.00 |  |
| Internet connection | $\$ 20.00 / \mathrm{mo}$ at full cost | 5.00 |
| Computer equipment | 0.00 |  |
| Computer software | 0.00 |  |
|  |  | $\$ 605.00$ |

## Average cost per student (from institutional perspective) $=$

| total institutional cost $/$ total <br> students $=$ | total students = | 300 cost $/$ student $=\$ 687.03$ |  |
| :--- | :--- | :--- | :--- |
| minimum number of students <br> required at $\$ 400$ per student | development <br> cost $=$ | $\$ 206,107.60$number of <br> students= | 515 |

Revenues $=$

fees $x$ students $\quad$ fee $=\quad \$ \quad 400.00$\begin{tabular}{l}
number of <br>
students $=$

 

total <br>
revenue $=$
\end{tabular}$\$ \quad 120,000.00$

## Profit (Loss) = revenues - costs

| Revenues | $\$ 120,000.00$ |
| :--- | :--- | :--- |
| Costs | $\$ 206,107.60$ |
| Profit (Loss) | $\$(86,107.60)$ |



# Costs to Students -- Steady Demand (Marginal Costing) 

## Costs to students

| Fees | $\$ 400.00$ (set by state legislature) |  |
| :--- | ---: | ---: |
| Materials (books, etc.) | 200.00 |  |
| Internet connection | 5.00 (75\% subsidized by school district) |  |
| Computer equipment | $\$ 20.00 / \mathrm{mo}$ at full cost | 0.00 |
| Computer software | 0.00 |  |
| Total | $\$ 605.00$ |  |

## Average cost per student (from institutional perspective) =

| total institutional cost $/$ total <br> students $=$ | total students $=$ | 300 cost $/$ student $=\$ 408.73$ |  |
| :--- | :--- | :--- | :--- |
| minimum number of students <br> required at $\$ 400$ per student | development <br> cost $=$ | $\$ 122,619.50$number of <br> students= | 307 |

## Revenues $=$

fees $x$ students $\quad$ fee $=\quad \$ \quad 400.00$\begin{tabular}{l}
number of <br>
students $=$

 

total <br>
revenue $=$
\end{tabular}$\$ \quad 120,000.00$

## Profit (Loss) = revenues - costs

| Revenues | $\$ 120,000.00$ |
| :--- | ---: |
| Costs | $\$ 122,619.50$ |
|  | $\$(2,619.50)$ |



| Direct Costs | Annual Salary | Basis | Per Day | Course Development |  | Year 1 |  |   <br> Year 2 Course Life <br>  Year 3 |  |  |  | Year 4 |  | Year 5 |  | Total Costs |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | Days | Cost | Days | Cost | Days | Cost | Days | Cost | Days | Cost | Days | Cost |  |
| Fixed Costs -- Development \& Delivery |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subject expert (faculty) | 38,000 | 9 month | 190 | 45.0 | 8,550 | 50.0 | 9,500 | 50.0 | 9,500 | 50.0 | 9,500 | 50.0 | 9,500 | 50.0 | 9,500 |  |
| Instructional designer | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (copyright clearance) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Librarian | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (student support) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (faculty enhancement) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (marketing) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Sub-Total -- Development \& Delivery |  |  |  |  | 8,550 |  | 9,500 |  | 9,500 |  | 9,500 |  | 9,500 |  | 9,500 |  |
| Fixed Costs -- Maintenance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subject expert (faculty) | 38,000 | 9 month | 190 | 0.0 | 0 | 0.0 | 0 | 5.0 | 950 | 0.0 | 0 | 5.0 | 950 | 5.0 | 950 |  |
| Instructional designer |  | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (copyright clearance) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Librarian | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (student support) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (faculty enhancement) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (marketing) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Sub-Total -- Maintenance |  |  |  |  | 0 |  | 0 |  | 950 |  | 0 |  | 950 |  | 950 |  |
| Fixed Costs -- Course Update |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Subject expert (faculty) | 38,000 | 9 month | 190 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 15.0 | 2,850 | 0.0 | 0 | 0.0 | 0 |  |
| Instructional designer | 0 | 12 month | - | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (copyright clearance) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Librarian | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (student support) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (faculty enhancement) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Staff (marketing) | 0 | 12 month | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |  |
| Sub-Total -- Course Update |  |  |  |  | 0 |  | 0 |  | 0 |  | 2,850 |  | 0 |  | 0 |  |
| Total - - Fixed Costs |  |  |  | 45.0 | 8,550 | 50.0 | 9,500 | 55.0 | 10,450 | 65.0 | 12,350 | 55.0 | 10,450 | 55.0 | 10,450 |  |
| Allocated Overhead | Amount | Basis | \# Sq Ft |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Payroll taxes | 28\% |  |  |  | 4,788 |  | 5,320 |  | 5,852 |  | 6,118 |  | 5,852 |  | 5,852 |  |
| Payroll benefits | \$ 285 | month |  | 1.5 | 428 | 1.7 | 475 | 1.8 | 523 | 2.2 | 618 | 1.8 | 523 | 1.8 | 523 |  |
| Facilities \& equipment |  | sq foot | 300 | 1.5 | 0 | 1.7 | 0 | 1.8 | 0 | 2.2 | 0 | 1.8 | 0 | 1.8 | 0 |  |
| Webct | \$ | annum |  | 0.05 | 0 | 0.05 | - | 0.05 | 0 | 0.05 | 0 | 0.05 | 0 | 0.05 | 0 |  |
| Sub-Total -- Allocated Overhead |  |  |  |  | 5,216 |  | 5,795 |  | 6,375 |  | 6,736 |  | 6,375 |  | 6,375 |  |
| Sub-Total |  |  |  |  | 13,766 |  | 15,295 |  | 16,825 |  | 19,086 |  | 16,825 |  | 16,825 | 98,620 |
| Variable Costs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Cost |  |  | $30 /$ semester |  | 45 / semester |  | 68 / semester |  | 101 / semester |  | 152 / semester |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Administrative materials / mailings | per student |  | \$ 80.00 |  |  |  | 4,800 |  |  |  | 7,200 |  | 10,800 |  | 16,200 |  | 24,300 |  |
| Teaching Assistant | per student |  | \$ 36.00 |  |  |  | 0 |  | 3,240 |  | 4,860 |  | 7,290 |  | 10,935 |  |
| Total Variable Costs |  |  |  |  |  |  | 4,800 |  | 10,440 |  | 15,660 |  | 23,490 |  | 35,235 | 89,625 |
| Total Direct Costs |  |  |  |  | 13,766 |  | 20,095 |  | 27,265 |  | 34,746 |  | 40,315 |  | 52,060 | 188,245 |
|  |  |  |  |  |  |  |  |  |  |  |  | total students $=$ |  | 792.0 | t/ student $=$ | 237.6974556 |

## Costs to students

## Fees

Materials (books, etc.)
Internet connection
Computer equipment
Computer software
Total
\$ 400.00 (set by state legislature)
200.00
5.00 ( $75 \%$ subsidized by school district)
0.00
0.00
\$ 605.00

## Average cost per student (from institutional perspective) $=$

| total institutional cost $/$ total <br> students $=$ | total students = | 792 cost $/$ student $=\$ 351.02$ |  |
| :--- | :--- | :--- | :--- |
| minimum number of students <br> required at $\$ 400$ per student | development <br> cost $=$ | $\$ 277,989.27$ | number of <br> students= |

## Revenues =

fees $x$ students $\quad$ fee $=\quad \$ \quad 400.00$\begin{tabular}{l}
number of <br>
students $=$

$\quad 792$

total <br>
revenue $=$
\end{tabular}$\$ 316,780.00$

Profit (Loss) = revenues - costs

| Revenues | $\$ 316,780.00$ |
| :--- | :--- |
| Costs | $\$ 277,989.27$ |
| Profit (Loss) | $\$ 38,790.73$ |

## Costs to students



## Profit (Loss) = revenues - costs

| Revenues | $\$ 316,780.00$ |
| :--- | :--- |
| Costs | $\$ 3188,244.50$ |
| Profit (Loss) | $\$ \quad 128,535.50$ |

