Institute on College Futures Online

Rethinking the Design of Faculty Development

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Which GIF best summarizes how you feel when you have to take some type of online compliance or development course?

When poll is active, respond at PollEv.com/edfinn086
Text EDFINN086 to 37607 once to join

Answers to this poll are anonymous
Session Outline

What got us here?
• Brief history
• The collaborative process

The design process
• Backwards design
• Why adaptive learning?

Creating content
• Modules
• Learning outcomes
• Activities

The platform
• Creating a skillmap
• Relationship between skills and outcomes
Let’s Get Started

What got us here?

The design process

Creating the content

The Platform
The Big Idea
College Finances 101

• What is the Institute on College Futures?
  – In person seminar attended by faculty
    • Summer 2013-2017
    • Funded by The Andrew W. Mellon Foundation
  – Selected topics
    • Discount rate
    • Tuition
    • Endowment management
    • Financial literacy
  – Summary video presentations
    • Funded by The Teagle Foundation
Expanding Access

Institute on College Futures Online

- Adaptive professional development mini-course
- Expands access to include staff
- Funded by The Teagle Foundation
- Multi-Institutional Cooperation
The Team

Colorado College
• Dan Johnson
• Jennifer Golightly

Lake Forest College
• Michael Orr
• Connie Corso

Beloit College
• Bob Elder
• Jedidiah Rex

Macalester College
• David Wheaton
• Brad Belbas

ACM
• Ed Finn
• Brian Williams

Acrobatiq
• Rachel Van Campenhout
• Murray Kimball
Collaborative Process

- Competencies
- Learning Outcomes
- Skills

Design

Development
- Content
- Activities
- Peer Review
- Pilot

Sustainability
- Analytics
- 2-year Refresh Cycle
- Participant Evaluations
Let’s Continue

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**Edit Page: Bierman’s Game**

- **Page Title**: Bierman’s Game
- **Page ID**: wbpbierman

**Used in blueprints**: Institute on College Futures Online, Demo: Institute on College Futures Online

**Learning objectives**

- Explain the relationship between net price, student quantity, and competitor behavior.
- Describe the student recruitment dilemma.

**Multiple Choice**

**Skills**

- Using the “Prisoner’s Dilemma,” analyze the incentive to provide merit aid.

**Title**

- If we stand in the shoes of College 2, what would be its best response if College 1 offers merit aid?

**Question**

- [ ] Tag Skills
Module 1 Development Module

Bierman’s Game

Learning Objectives

- Explain the relationship between net price, student quantity, and competitor behavior.
- Describe the student recruitment dilemma.

To paraphrase Prince Hamlet, to offer merit-based aid or not to offer merit-based aid, that is the question.

Getting Started
This question can be modeled using game theory, as Scott Bierman did during his talks at the ICF. Bierman’s game proceeds from the following assumptions:

- Without merit-based aid and without need, a good student pays tuition in the amount $40,000.
- With merit-based aid and without need, the same good student pays tuition in the amount $30,000.
- An average student who doesn’t qualify for merit-based aid, but who does have need, pays tuition in the amount $25,000.
Correct. These real endowment values provide not just the Year 1 value of the endowment in Year 1 dollars, but also the Year 2 value of the endowment in Year 1 dollars, the Year 3 value of the endowment in Year 1 dollars, etc. Thus, as we look across this row of real measures of the endowment, we can monitor the purchasing power of the endowment across time by holding prices constant at their Year 1 levels. These real measures of the endowment are obtained simply by dividing the nominal measures of the endowment in each year by the corresponding price index from the CPI line of the table.

(Note: Actual CPI data are multiplied by the scalar 100 when reported by the government. To deflate a nominal value into a real value, we use the price index prior to this scaling by 100. For simplicity, the price indexes on the CPI line of Tables 2 and 3, therefore, have not been multiplied by the scalar 100, and, thus, are immediately ready to deflate nominal measures into real measures via simple division.)

Incorrect. The values on this line are nominal values. They provide the Year 1 value of the endowment in Year 1 dollars, the Year 2 value of the endowment in Year 2 dollars, the Year 3 value of the endowment in Year 3 dollars, etc. These nominal measures of the endowment do not address the purchasing power of the endowment across time because they make no adjustment for inflation.

Incorrect. The draw from the endowment is the rate of draw times the endowment. Technically, the rate of draw is a decision variable that can be increased or decreased at the discretion of presidents and boards of trustees, and therefore...
Challenges and Solutions

In the next 5 minutes, please list a challenge you have experienced on a faculty development or curriculum development project and the solution that you arrived at to address that challenge.

Let’s Continue

What Got us here?

The design process

Creating the content

The Platform
Table of Contents

**Unit 1: The Economics of Higher Education**

- Welcome
- **Module 1: The Economics of Higher Education**
- **Module 2: The Tuition Driven Schools' Dilemma**
- **Module 3: The Liberal Arts College Financial Model**
- **Module 4: Financial Challenges for the Future**

↑ 5 Modules

Glossary
So here is the moral to the story: by using reputation, a dimension of non-price competition, College B reduces the amount of financial aid it has to offer to attract students, thereby becoming able to engage in less price competition. In so doing, College B becomes able to finance the same $100 million budget at College A, thereby paying its faculty and staff the same salaries as College B, etc.

The big headline is that College B achieves this financial parity with College A with an endowment whose market value is $390 million-$190 million = $200 million less that College A’s endowment. In other words, College B’s reputation turns out to be worth $200 million of stocks and bonds.

Before concluding, let us pause to highlight some additional features of Table 2 and 3 above. First, you’ll notice the discount rate in both tables.

\[
\text{Discount rate} = \frac{\text{Financial Aid}}{\text{Tuition}} \times 100\%
\]

Notice that College B’s greater reputation permits it to achieve a lower discount rate. You’ll also observe reference to surplus(+) or deficit(-) in both tables.

\[
\text{Surplus(+) or Deficit(-) = Total Revenue - Total Cost}
\]

In the spread sheets used to construct Table 2 and Table 3, a surplus is a positive flow that adds to the endowment stock, while a deficit is a negative flow that subtracts from the endowment stock.

The Excel file that contains the modified version of David Wheaton’s financial model that Bob Elder used to create Table 2 and Table 3 provides an additional resource that is available to the online student. This Excel file is entitled “Modified Wheaton Model.” In this Excel file, the online student is welcome to perform experiments either by changing any of the annual percentage rates of change in the growth column or by changing any of the revenue or cost components in the Year 1 column.
### College B

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>112.9</td>
<td>116.3</td>
<td>119.8</td>
<td>123.4</td>
<td>127.1</td>
<td>130.9</td>
<td>134.8</td>
<td>138.9</td>
</tr>
<tr>
<td>Financial aid</td>
<td>44.0</td>
<td>45.8</td>
<td>47.6</td>
<td>49.5</td>
<td>51.5</td>
<td>53.5</td>
<td>55.7</td>
<td>57.9</td>
</tr>
<tr>
<td>Discount rate</td>
<td>59.0%</td>
<td>59.4%</td>
<td>59.7%</td>
<td>60.1%</td>
<td>60.5%</td>
<td>60.9%</td>
<td>61.3%</td>
<td>61.7%</td>
</tr>
<tr>
<td>Net tuition</td>
<td>65.9</td>
<td>70.5</td>
<td>72.2</td>
<td>73.9</td>
<td>75.8</td>
<td>77.3</td>
<td>79.1</td>
<td>81.0</td>
</tr>
<tr>
<td>Room and board</td>
<td>13.2</td>
<td>13.7</td>
<td>14.3</td>
<td>14.8</td>
<td>15.4</td>
<td>16.1</td>
<td>16.7</td>
<td>17.4</td>
</tr>
<tr>
<td>Endowment</td>
<td>190.0</td>
<td>193.8</td>
<td>198.1</td>
<td>203.0</td>
<td>208.7</td>
<td>215.2</td>
<td>222.6</td>
<td>231.0</td>
</tr>
<tr>
<td>Rate of return</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Rate of draw</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Draw from endowment</td>
<td>9.5</td>
<td>9.5</td>
<td>9.7</td>
<td>9.9</td>
<td>10.2</td>
<td>10.4</td>
<td>10.8</td>
<td>11.1</td>
</tr>
<tr>
<td>Annual fund gifts</td>
<td>4.0%</td>
<td>8.4%</td>
<td>8.7%</td>
<td>9.1%</td>
<td>9.4%</td>
<td>9.8%</td>
<td>10.2%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Total Revenues</td>
<td>100.0</td>
<td>102.5</td>
<td>105.2</td>
<td>108.1</td>
<td>111.0</td>
<td>114.1</td>
<td>117.2</td>
<td>120.5</td>
</tr>
<tr>
<td>Compensation</td>
<td>2.0%</td>
<td>6.0%</td>
<td>6.2%</td>
<td>6.4%</td>
<td>6.4%</td>
<td>6.6%</td>
<td>6.7%</td>
<td>6.8%</td>
</tr>
</tbody>
</table>
Non-price Competition

There are many dimensions of non-price competition. For example, colleges devote parts of their budgets to expenditures on buildings and grounds in order to maintain an aesthetic “curb appeal” that can attract students. Many colleges spend the majority of their budgets on the salaries of the people (both faculty and staff) from whom students will learn during their college years. And increasingly non-price competition takes the form of de facto on-site health clubs in the form of exercise and recreation centers, and these can be expensive first to build and then to maintain.

An important intangible variable through which non-price competition occurs is reputation. As Beloit College President Scott Bierman points out in his speeches to the ICF, reputation is inherently a relative phenomenon. Some schools benefit from the powerful inertia of history to maintain seemingly immutable reputations for attracting good students. Other schools must work to carve out niches in the marketplace for higher education by conceiving, adopting, and publicizing distinctive programs or emphases. In turn, the reputational dimension of non-price competition can affect the aggressiveness with which schools pursue price competition, as we will see next.

Price Competition

Harvard’s tuition of $57,200 per student, just like any college’s official tuition, is a sticker price. When we subtract financial aid from this sticker price, we obtain the net price that consumers of higher education pay for the privilege of attending classes at any given school. With regard to financial aid, we must distinguish between need-based aid, which is awarded in accordance with guidelines established by the federal government, and merit-based aid, which is determined and offered at the discretion of the college. Since it is merit-based aid that the college is free to determine on its own, it is along the avenue of merit-based aid where price competition occurs.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Related Concepts</th>
</tr>
</thead>
<tbody>
<tr>
<td>merit-based aid</td>
<td>Financial aid that is based on some criteria other than family financial need. The term 'merit aid' is something of a misnomer because it can difficult to consistently define what meritorious behavior leads to the computation of these awards. As often as not, the awards are used to help maximize net tuition revenue by lowering the net price for a particular student to a point where that student enrolls at a particular institution. This can be a way to capture most of the net tuition available from a family with significant ability to pay; the award entices that student to enroll at a specific institution, that institution receives most of the tuition dollars available from that family. In some cases, the award is based on some objective criteria such as success in competitions based on standardized test scores such as the National Merit Scholarship program.</td>
<td>Non-price Competition &amp; Price Competition, Bierman’s Game Digression: Some Antitrust Law, Substituting Non-price Competition for Price Competition, Reputation Revisited</td>
</tr>
<tr>
<td>nash equilibrium</td>
<td>An equilibrium is a state of rest. Nash Equilibrium occurs when all players make their best responses to each other. If all players make their best responses to each other, there is no response that is better than best, and therefore no player perceives any incentive to change behavior. When a state of rest exists because all players are making their best responses to each other, this is a Nash Equilibrium. This is named for Nobel laureate John Nash, whose life was described in the book “A Beautiful Mind” by Sylvia Nasar and the movie of the same name by Ron Howard.</td>
<td>Non-price Competition &amp; Price Competition</td>
</tr>
<tr>
<td>need-based aid</td>
<td>Financial aid awards that are computed strictly on the basis of the family’s ability to pay as judged by the enrolling institution. These awards will be larger for families with lower annual incomes and/or low levels of savings or other financial assets. This type of aid is used to ensure access to the institution’s programs for students from a wide range of socioeconomic backgrounds.</td>
<td>Non-price Competition &amp; Price Competition</td>
</tr>
<tr>
<td>net student revenue</td>
<td>Net student revenue is the total revenue attributable to student enrollments (i.e., gross tuition charge, room, board, other fees) less institutional gift aid (i.e., the financial aid award offered and funded by the college).</td>
<td>The Primary Sources of Revenue</td>
</tr>
<tr>
<td>net tuition</td>
<td>This is the amount of tuition that is collected by the institution. It’s computed by reducing the sticker price by financial aid grants (not loans or work study awards) because the grants will never be repaid. Those grants lead to a computation of the amount of tuition that’s available for paying all other costs of the institution. Net tuition is sometimes expressed in terms of an individual student - the net tuition for a specific after his/her financial aid grant is deducted from the sticker price - or in the aggregate - total tuition revenue computed at the sticker price minus all financial aid grants whether need or merit based.</td>
<td>Substituting Non-price Competition for Price Competition, Reputation Revisited, Financial Equilibrium</td>
</tr>
<tr>
<td>net tuition per student</td>
<td>The average amount of tuition after financial aid awards divided by the number of students. The metric shows the average amount of spendable tuition revenue for each student. Because this is an average, almost no individual student will actually yield this amount of net tuition revenue.</td>
<td>Non-price Competition &amp; Price Competition, Substituting Non-price Competition for Price Competition, Reputation Revisited</td>
</tr>
<tr>
<td>non-price competition</td>
<td>This occurs when colleges compete for students through reputation, distinctive programs, distinguished faculty, aesthetics of landscape and buildings, and amenities such as exercise and recreation facilities.</td>
<td>Non-price Competition &amp; Price Competition, Substituting Non-price Competition for Price Competition, Reputation Revisited</td>
</tr>
</tbody>
</table>
## Sample College - pro forma standard size income statement (2015/16 = 100)

### Base case

<table>
<thead>
<tr>
<th></th>
<th>2016 Base</th>
<th>2017 Growth</th>
<th>2018 Year 2</th>
<th>2019 Year 3</th>
<th>2020 Year 4</th>
<th>2021 Year 5</th>
<th>2022 Year 6</th>
<th>2023 Year 7</th>
<th>2024 Year 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>tuition</td>
<td>112.9</td>
<td>3.5%</td>
<td>116.9</td>
<td>120.9</td>
<td>125.2</td>
<td>129.6</td>
<td>134.1</td>
<td>138.8</td>
<td>143.6</td>
</tr>
<tr>
<td>fin aid</td>
<td>(54.0)</td>
<td>4.5%</td>
<td>(56.4)</td>
<td>(59.0)</td>
<td>(61.6)</td>
<td>(64.4)</td>
<td>(67.3)</td>
<td>(70.3)</td>
<td>(73.5)</td>
</tr>
<tr>
<td>net tuition</td>
<td>58.9</td>
<td>4.0%</td>
<td>60.4</td>
<td>62.0</td>
<td>63.6</td>
<td>65.2</td>
<td>66.8</td>
<td>68.5</td>
<td>70.2</td>
</tr>
<tr>
<td>room and board</td>
<td>13.2</td>
<td>1.0%</td>
<td>13.7</td>
<td>14.3</td>
<td>14.8</td>
<td>15.4</td>
<td>16.1</td>
<td>16.7</td>
<td>17.4</td>
</tr>
<tr>
<td>endowment</td>
<td>19.5</td>
<td>1.0%</td>
<td>19.7</td>
<td>19.9</td>
<td>20.1</td>
<td>20.3</td>
<td>20.5</td>
<td>20.7</td>
<td>20.9</td>
</tr>
<tr>
<td>new program [net]</td>
<td>0.0</td>
<td>0.0%</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>gifts and other</td>
<td>8.4</td>
<td>4.0%</td>
<td>8.7</td>
<td>9.1</td>
<td>9.4</td>
<td>9.8</td>
<td>10.2</td>
<td>10.6</td>
<td>11.1</td>
</tr>
<tr>
<td>revenues</td>
<td>100.0</td>
<td>2.6%</td>
<td>102.6</td>
<td>105.2</td>
<td>107.9</td>
<td>110.7</td>
<td>113.6</td>
<td>116.5</td>
<td>119.5</td>
</tr>
<tr>
<td>growth rate from prev yr</td>
<td></td>
<td></td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>compensation</td>
<td>60.0</td>
<td>4.0%</td>
<td>62.4</td>
<td>64.9</td>
<td>67.5</td>
<td>70.2</td>
<td>73.0</td>
<td>75.9</td>
<td>79.0</td>
</tr>
<tr>
<td>program</td>
<td>30.0</td>
<td>3.0%</td>
<td>30.9</td>
<td>31.8</td>
<td>32.8</td>
<td>33.8</td>
<td>34.8</td>
<td>35.8</td>
<td>36.9</td>
</tr>
<tr>
<td>debt/capital</td>
<td>10.0</td>
<td>4.0%</td>
<td>10.4</td>
<td>10.8</td>
<td>11.2</td>
<td>11.7</td>
<td>12.2</td>
<td>12.7</td>
<td>13.2</td>
</tr>
<tr>
<td>expenses</td>
<td>100.0</td>
<td>3.7%</td>
<td>103.7</td>
<td>107.5</td>
<td>111.5</td>
<td>115.7</td>
<td>119.9</td>
<td>124.4</td>
<td>129.0</td>
</tr>
<tr>
<td>growth rate from prev yr</td>
<td></td>
<td></td>
<td>3.7%</td>
<td>3.7%</td>
<td>3.7%</td>
<td>3.7%</td>
<td>3.7%</td>
<td>3.7%</td>
<td>3.7%</td>
</tr>
<tr>
<td>difference between inc and exp growth</td>
<td></td>
<td></td>
<td>-1.1%</td>
<td>-1.1%</td>
<td>-1.1%</td>
<td>-1.1%</td>
<td>-1.1%</td>
<td>-1.1%</td>
<td>-1.1%</td>
</tr>
<tr>
<td>Net</td>
<td>0.0</td>
<td>(1.1)</td>
<td>(2.3)</td>
<td>(3.6)</td>
<td>(4.9)</td>
<td>(6.4)</td>
<td>(7.9)</td>
<td>(9.5)</td>
<td></td>
</tr>
<tr>
<td>Discount rate</td>
<td>47.8%</td>
<td>48.3%</td>
<td>48.8%</td>
<td>49.2%</td>
<td>49.7%</td>
<td>50.2%</td>
<td>50.7%</td>
<td>51.2%</td>
<td></td>
</tr>
<tr>
<td>Net tuition/FTE growth</td>
<td></td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>
Important Strategies

In the next 5 minutes, please list a strategy you have used in the development of a faculty development or curriculum development project and share why that strategy is important.

Let’s Continue

What Got us here?

The design process

Creating the content

The Platform
Why Acrobatiq?

- Backward Design
  - Competencies
  - Learning Objectives
  - Skills
- Skill map
- Formative Feedback
- Based on Cognitive Science Modeling
Competency: The learner can explain the broad factors affecting the economics of higher education within the context of the last 10-15 years.

LO-1: Explain the sources of demand for higher education.
- Summarize the extent of the cumulative wage premium that college graduates experience over time.
- Describe the recession proof employment experienced by most college graduates.
- Explain the relationship between sticker price and perceptions of quality.

LO-2: Explain the costs that drive the supply of higher education.
- Describe the importance of highly skilled labor.
- Explain the limitations on increasing productivity.
- Assess the importance of upkeep to the capital stock.

LO-3: Explain how changes in specific financial indicators can impact the real net price of attending college.
- Explain why the higher education price index grows faster than the consumer price index.
- Identify what the discount rate is and explain why it is trending up over time.
- Summarize why tuition charged at public institutions has risen faster than those in private institutions.

Competency: The learner can explain interactions between the recruitment/admissions process and the small college student revenue model.

LO-1: Describe the student recruitment dilemma.
- Explain how schools try to establish niches in the marketplace.
- Analyze the difference between student admissions and student recruitment.
- Explain how students' extreme price sensitivity impacts recruitment.

LO-2: Explain the relationship between net price, student quantity, and competitor behavior.
- Explain the difference between need based and merit aid.
- Using the "Prisoner's Dilemma," analyze the incentive to provide merit aid.
- Describe why colleges can't collaborate to avoid the Prisoner's Dilemma.

LO-3: Explain the relationship between the student recruitment dilemma and the operating budget of a small college.
- Explain how an institution's ability to maintain its reputation and recruit students limits budget flexibility.

Competency: The learner can effectively describe the dynamics of the liberal arts college financial model and can use that knowledge to analyze and explain different scenarios.

LO-1: Describe the four major sources of revenue and the factors that influence them.
- Identify and explain the factors that impact student revenue.
- Explain the concepts of net tuition revenue and the discount rate.
- Describe the different components that influence the distribution of revenue from the endowment.
- Explain the difference between annual revenues from fundraising and other gift revenues.

LO-2: Describe the three principal expense categories and the factors that influence them.
- Identify the variables that affect the total compensation expense for an institution.
- Describe the typical components of the part of the budget that is not devoted to the remuneration of employees.
- Differentiate between debt service and capital expenses.

LO-3: Explain the factors contributing to financial equilibrium.
- Define the concept of intergenerational equity as it applies to the endowment.
- Explain the significance of differentiating between one-time expenditures and recurring expenses.
- Describe what factors (other than achieving a balanced budget) contribute to an institution's financial equilibrium.

Competency: The learner can evaluate the impact of changes to core expense and/or revenue drivers on the short and long term financial health of liberal arts colleges.

LO-1: Demonstrate an understanding of the importance of the relative size of each expense and revenue category.
- Describe the typical size of each category.
- Compare the relative size of different expense categories with variations in the relative size of revenue categories.
- Explain why the relative sizes matter.

LO-2: Explain the impact over time of changes in levels and growth rates of both expense and revenues.
- Describe how the multi-year numerical model can be used to illustrate changes in revenues and expenses over time.
- Analyze the effect of making changes in individual model items.

LO-3: Create possible solution sets based on modifications to the numerical model
- Demonstrate an ability to modify assumptions to offer alternative outcomes.
- Explain the operating impact of alternative scenarios.
- Demonstrate an ability to make a recommendation regarding the best alternative.
After participating in this session, are you more or less likely to consider this approach to faculty development or curriculum design?

When poll is active, respond at PolleV.com/edfinn086  📞 Text EDFINN086 to 37607 once to join

Answers to this poll are anonymous

More Likely

Less Likely

Still Mulling it Over
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