ALICE @ DUKE

Pragmatism and Production
Introductory Computing
in an
Undergraduate Business Curriculum

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Welcome...
Business Programs
Student Attitudes

• Pragmatic
  – Students expect a direction connection between the course and their employment goals

• Production
  – Students are expecting a “product” from the class demonstrating their achievement.
Contrasts with CS

• Business computing has a less theoretical approach.
• CS more engaged with the “thing” itself.
• Business more engaged with the effects of the “thing”.
# Business Computing – Walking it back

<table>
<thead>
<tr>
<th>Year</th>
<th>Hardware</th>
<th>Programming Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-1990</td>
<td>Mainframe/Mini</td>
<td>COBOL</td>
</tr>
<tr>
<td>90s</td>
<td>Desktop</td>
<td>Visual Basic (variants)</td>
</tr>
<tr>
<td>2000s</td>
<td>Web/Internet Device Independence desktop/phone/tablet</td>
<td>Web Front End (HTML/CSS) Server Back End (PHP)</td>
</tr>
</tbody>
</table>
SocioComputing Environment

- 1994
  - Commercial internet arrives
  - First graphical browser
- 1999
  - Ratification of 802.11 Wifi
  - GameBoy Portable
- 2001
  - Smartphone
  - 6th Generation Gaming Consoles
- 2007
  - Multitouch interface
Digital Natives

• Class of 2012
  – Marker
    • Not known schooling without computers
    • Not known computing without interaction
    • Not know computing as separate from entertainment
Academic Value

• Traditional
  – Comparative grading
• Current (post NCLB)
  – Outcomes based
• College environment
  – Washington Accord
Instructional Environment

- Business programming changes
- Students computing models and expectations (rich media)
- Academic Value
  - Portfolios
Implementation

- Fall 2010 major program change
  - No longer taught desktop application development
  - Implemented web studio course
    - Real client
    - Mixed enrollment
      - Computing
      - Graphic Design
      - Business Majors
# RWU Program

<table>
<thead>
<tr>
<th>Academic Program</th>
<th>Business</th>
<th>Engineering</th>
<th>Criminal Justice</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>CIS/Web Dev</td>
<td>CS</td>
<td>Networking &amp; Security</td>
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<thead>
<tr>
<th>Programming Focus</th>
<th>Business Engineering</th>
<th>Criminal Justice</th>
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<tbody>
<tr>
<td>Web Programming</td>
<td>HTML/CSS JavaScript</td>
<td>Shell Scripting</td>
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<tr>
<td></td>
<td>PHP/ASP JQuery</td>
<td>C (Variants)</td>
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<tr>
<td>SQL</td>
<td></td>
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</tbody>
</table>

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<tr>
<th>Introductory Programming</th>
<th>Business</th>
<th>Criminal Justice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alice</td>
<td></td>
<td>Alice</td>
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</tbody>
</table>
Curriculum

- Alice has been a stand-alone introductory course.
- Enrollment is open to all students.
- Primary text: Dann, Cooper, and Pausch.
- Focus – projects
  - First project – animation
  - Second project – interactive
  - Third project – student choice
You’ve some how managed to get your self trapped in a class room. Its a little wierd, Lets get out of here ASAP. Lets look around for a way out.
Limitations

• Models
• Student Experience with Code
• Debugging
Student Built Models
Seeing Code

- 2009 – 2012 extended with Alice3B
- 2013 – MediaComp Integration
Alice3B Model

- Created a world with Accountant Bob
- He reviews loan applications from men and women and approves or disapproves based upon credit score.
Alice3B – text file contents

• This requires processing a text file.

Jerry, m, 600
Elana, f, 700
Carol, f, 640
Matt, m, 650
Alice & Media Comp

- MediaComputation developed by Barbara Ericson at Georgia Tech
- Built on model that uses media, especially sound (one dimensional array) image (two dimensional array)
- Alice and MediaComp uses both systems
  - Alice
  - Java (in Dr. Java)
Experience

• Challenging to use two systems
  – Students segregate by preference
• Text is arranged in a side-by-side model
  – Alice concept
  – Java application
• Students, like water, take the easy path
  – Cut and Paste
Transfer Example

- Connectivity to database

```php
$pdo = new PDO('mysql:host=localhost;dbname=$dbname', '$user', '$password');
$sql = 'SELECT lastname FROM tblPeople';
$result = $pdo->query($sql);
```
Debugging

• Programming is debugging
  – Big issue in 90s

• Absence of formal debugging tools

• Is this really an issue?
Firms call for tech classes
Want computer science taught in all Mass. schools