The Matrix Transformed: Achieving Better Focus and Insight in Learning Management System Selection

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Outline

• Why should you stay for this presentation?
• Our LMS selection process: Plan A
• “Hmmm, something’s wrong.”
• Moving to Plan B
• How can you use this?
Why should you stay?

We will demonstrate real changes that can make a difference in your LMS selection process.

You will gain transferable lessons to other selection processes.
# Canadian-isms

## Definition of terms
- color → colour
- behavior → behaviour
- Huh? → Eh?
- Texas → Alberta
- *US News* rankings → *Macleans* rankings
- School/College → Faculty
- Spring Term → Winter Term
McGill University

• Chartered in 1821 - Montréal, Quebec
• Tier 1 research institution
• 21 Faculties / Schools
• Public university
• Full time students (not for calculation of site licenses ☺)
  – 19,500 undergraduate and 6,500 graduate
• Academic staff
  – 1,400 tenure / tenure track faculty and 4,000 research, part-time, visiting staff
History of LMS at McGill

- WebCT 1.3, Lotus Learning Space & individual course websites
  - Fully manual (course creation, users, etc.)
  - No terms, therefore no history
  - Small number of courses
  - Little support available
History of LMS at McGill

- New unit for central support for WebCT
  - Accounted for all administration, technical and pedagogical help for faculty
  - Beginning of support for only WebCT
History of LMS at McGill

- WebCT v3.1
  - Manual course creation
  - No time dimension
  - First batch SIS integration
  - Class list manually synched by instructor
History of LMS at McGill

• New vision for online learning
  – Every course would get a WebCT area by default.
  – WebCT participation should require as little user intervention as possible.
  – All enrollments would be done automatically, in real time.

History of LMS at McGill

- **Event**: massive integration failure
  - Technical
  - Organizational

- **Result**:
  - LMS recognized as an Enterprise system
  - Internal reorganization
LMS an enterprise system

• Not just administrative system for record keeping
• WebCT traffic dwarfed all other systems
• Teaching faculty and student body dependent on WebCT
  – Became part of the daily learning process
• 20,000 students with a problem is not a pretty sight
LMS an enterprise system

• The new vision informed all decisions
• We outgrew our LMS
  – 14,000,000+ files, 24hr backup, ~12 days restore
  – 45% of courses use WebCT
  – 75% of students have at least 1 course in WebCT
  – Usage almost doubling each year
  – Need for more robust and scalable system
The search begins...

- Internal research: Fall 2002
- Paid attention to community and peers
  - CREPUQ Nov. 2002
  - “SARS meeting” Apr. 2003

Result: 2 players left standing
Plan A: Classic features matrix

- Key Rules
  - Only compare released versions
  - Piggyback off peers
Select features below that are important to your decision:

### Learner Tools
- Communication Tools
  - Discussion Forums
  - File Exchange
  - Internal Email
  - Online Journal/Notes
  - Real-time Chat
  - Video Services
  - Whiteboard
- Productivity Tools
  - Bookmarks
  - Calendar/Progress Review
  - Orientation/Help
  - Searching Within Course
  - Work Offline/Synchronize
- Student Involvement Tools
  - Groupwork
  - Self-assessment
  - Student Community Building
  - Student Portfolios

### Support Tools
- Administration Tools
  - Authentication
  - Course Authorization
  - Hosted Services
  - Registration Integration
- Course Delivery Tools
  - Automated Testing and Scoring
  - Course Management
  - Instructor Helpdesk
  - Online Grading Tools
  - Student Tracking
- Curriculum Design
  - Accessibility Compliance
  - Content Sharing/Reuse
  - Course Templates
  - Curriculum Management
  - Customized Look and Feel
  - Instructional Design Tools
  - Instructional Standards Compliance

### Technical Specifications
- Hardware/Software
  - Client Browser Required
  - Database Requirements
  - Server Software
  - UNIX Server
  - Windows Server
- Pricing/Licensing
  - Company Profile
  - Costs
  - Open Source
  - Optional Extras
  - Software Version
Why a matrix?

- Appears objective and “rigorous”
- Easy to compare results

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<th>Communication Tools</th>
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“Hmmm, something’s wrong.”

- Shortcomings appear
- We sensed a disconnect

Three key problem areas

1. Arithmetic
2. Qualitative differences
3. Meaningful conclusions
Shortcomings:
1. Arithmetic

Which one is better?

http://www.stats-consult.com/tutorial-02/figure2-5.gif
Shortcomings:

1. Arithmetic

- Matrix arithmetic is inadequate
- Measurement of central tendency, not shape, distribution, skew
- Outliers are important
- Deal breakers are buried
Shortcomings:
2. Qualitative differences

- When differences in quantitative value mask differences in qualitative kind
- Are apples *better* than oranges?
- Some features implemented are very different, not strictly *better*
Shortcomings:
3. Meaningful conclusions

• Statistical vs. meaningful
  – Was a difference of “3 points” really an indication of which system we would enjoy more?
  – Was that kind of precision really meaningful?

• 38 vs 42?
Could we fix the matrix?

The obvious adjustments …

1. Magnify the scale
2. Split the criteria
3. Weight the criteria
Fix the matrix:
1. Magnify the scale
   - 0-10 → 0-100

Why not?
- Do decimal point differences give you a level of comfort in decision-making?
- Decimal place difference are not necessarily more meaningful
- Missing the point between precision and meaning
Fix the matrix:

2. Split the criteria

• Discussion tool ➔ posting, reply, groups, threads, etc.

• Why not?
  – Should you enforce a uniform “depth” across all criteria?
  – Not every area is rich enough to support the same depth
  – Whole more than sum of its parts
Fix the matrix:

3. Weight the criteria

• Discussion = 10n
• Quizzes = 5n

• Why not?
  – Are discussions more important than quizzes?
  – Instructional strategies are largely value neutral
  – Not simply one pattern of use
What now?

- We were paralyzed!
- How can we choose *the* right system?
Our Epiphany: “McGill’s Law”

Anything that we chose would be better than what we have now.

Anything that we chose would give us massive headaches.
Moving to Plan B

- Develop a framework without these inherent structural weaknesses
- Data driven decisions
- Respect differences in approach and "cultural" preferences
McGill’s Plan B

- Establish the deal breakers
- Transform the matrix
  1. Use cases vs. feature list
  2. New rating scale
Deal breakers

- Would pre-empt decision process
- Truly mission critical areas only
- Our deal breakers were:
  - Student Information System integration:
    - Robust, proven, IMS-compliant (and Banner-specific) data connection
    - Operate in real time (no change in service)
  - Confidence in the partnership at all levels
Deal breakers

• Our deal breakers were not:
  – Competence – our expertise
  – Comfort – dealing with the familiar

• Our technical team recognizes the primacy of the University mission
  – It trumps comfort and competence
  – They are the enablers
Transform the matrix: Use cases

• Scenarios of what users want to do
  – Empirically derived from our LMS analysis
  – Theoretically driven from our pedagogical knowledge and vision

• Best practices collected from vendors and existing clients
Transform the matrix: Use cases

• Not realistic for everything
  – Pick key areas
• Three types
  – Technical
  – Pedagogical
  – Business
# Use cases - technical

<table>
<thead>
<tr>
<th>Matrix criterion</th>
<th>Use Cases</th>
</tr>
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<tbody>
<tr>
<td>Section archive/restore tool</td>
<td>Migrate course content from term to term</td>
</tr>
<tr>
<td></td>
<td>Share course materials with a colleague</td>
</tr>
<tr>
<td></td>
<td>Manage course archives</td>
</tr>
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- The Matrix approach asks, “Does the function exist, and how does it rate?”
- The Use Case approach asks, “What will be the quality of my experience?”
## Use cases - pedagogical

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<tr>
<td>Group management</td>
<td>Conduct discussions with different groups of students</td>
</tr>
<tr>
<td></td>
<td>Create group assignments</td>
</tr>
<tr>
<td></td>
<td>Evaluate group work</td>
</tr>
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- The Matrix approach asks, “Does the function exist, and how does it rate?”
- The Use Case approach asks, “What will be the quality of my experience?”
Use cases - business

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<td>Support</td>
<td>Emergency response scenario</td>
</tr>
<tr>
<td></td>
<td>Routine question process</td>
</tr>
<tr>
<td></td>
<td>Sharing with user community</td>
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- The Matrix approach asks, “Does the function exist, and how does it rate?”
- The Use Case approach asks, “What will be the quality of my experience?”
Transform the matrix:
New rating scale

- 1-10 \(\rightarrow\) Unacceptable, acceptable, recommended
- Can you live with it or not?
- Accept variation in ratings
Sub-categories: Pedagogical

- Content
- Communications
- Assessment
- Administration
- Functionality
Sub-categories: Technical

- Site Administration
- Product Architecture
- System and Hardware
- Development approach
Sub-categories: Business

- Upgrades
- Support
- Cost
- Financial Stability & References
- Business practices
- User Community
How can you use this?

- The classic matrix is flawed
- “Fixing” the matrix doesn’t solve the problem
  - Magnify the scale
  - Split the criteria
  - Weight the criteria
How can you use this?

• Start with Plan B
  – Develop your deal breakers
  – Develop your use cases
  – Select your rating scale and categories
How can you use this?

• Remember:
  – Matrix giving static image of a dynamic system
  – Beware the illusion of precision

• You are selecting a process, not a product
So, how did it go?

- Currently in phase 2 of our implementation

While we can’t know if we made the “right” decision, we feel that we made the most “defensible” decision.
Questions?

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Please fill out your evaluations!