EGAD Project

Evaluation of Software Supporting Outcomes-based continuous program improvement processes

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Setting the stage....

"Student performance relative to program expectations"

"How the indicators will be assessed."

"Evaluation of data collected"

"How results will develop the program"

"Description of the process"

Some back of the napkin calculations...

Hand-wavy number	Granularity
12 graduate attributes	12 data points
5 indicators per attribute	60 data points
4 years	240 data points
3000 students	720,000 data points
Triangulation (x3)	2.1 million data points
Multiple measures (x2)	4.2 million data points


Data
You

BIG data

Need something to manage the process...


Technology
Learning
Educational
Education
Instructional
Classroom
Computer
Design
Teaching
Curriculum
Research
Leadership
Online
Media
Multimedia
Technologies
Instruction
Experience
Environments
World
Schools
Advanced
Assistive
Digital
Ethical
Production
Systems
Social
Video
Web
Issues
Applications
Action
Foundations
Development
Information
School
Evaluation
Fundamentals
Tools
Internet
Integrating
Strategies
Delivery
Emerging
Managed
Wide
Assessment
Effective
Capstone
Applied
Implementing
Literacy
Using
Methods
Special
Critical
Trends
Hardware
Builders
Assisted
Seminar
Survey
Improvement
Graphics
Communities
Software
Topics
Apply
Legal
Studies
Decision-Making
Interactive
E-Learning
Selected
Distance
Professional
Designing
Teachers
Theory
Change
Authoring

Specifically...

Learning Management Systems

Course Management Systems

Hybrid Systems

Assessment Systems

Continuous Improvement

Integration technologies

Monday, 15 July, 13

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Duality of this paper...

- Review of educational technology started as a goal for the EGAD Project to offer assistance to the engineering education community.

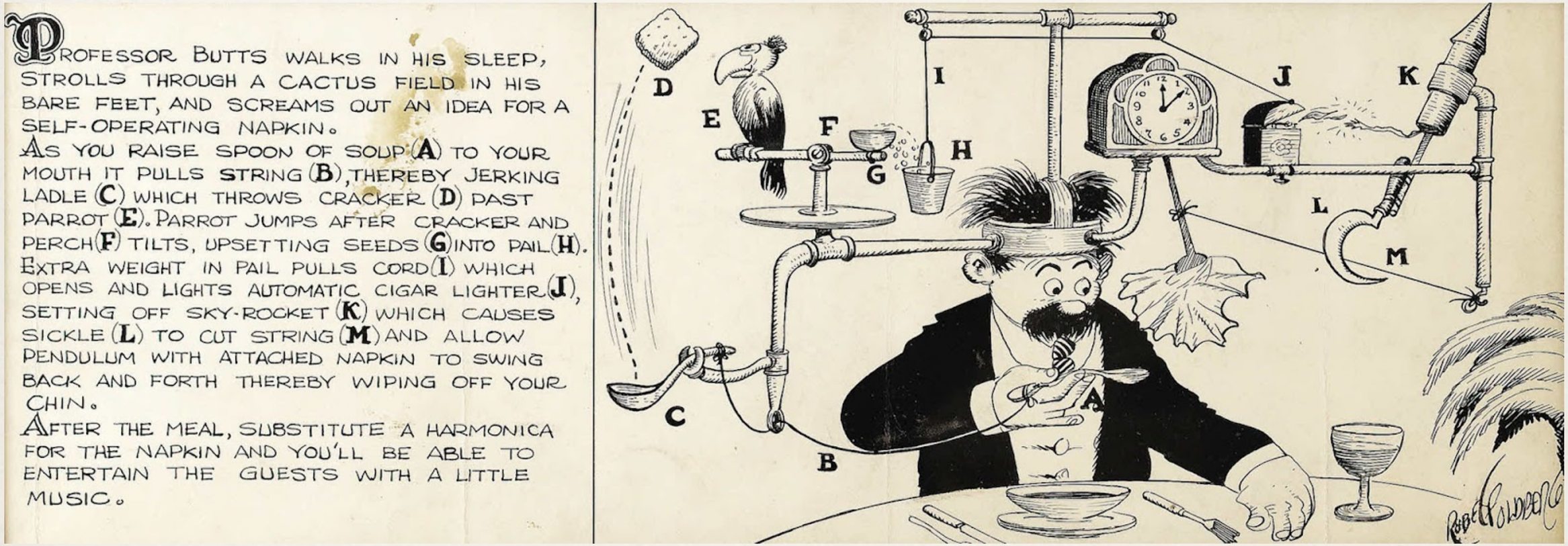
- Queen's engineering was looking for a solution for managing data resulting from the graduate attribute process and a tool for continuous program improvement.

Meanwhile @ Queen's...

- Graduate attribute data and reporting done by a mostly manual process, supported by the dynamic duo: Moodle & Excel

Scaling-up!

For a single course it's manageable, but for program wide collection and reporting it feels like a Rube Goldberg machine. A lot of extraneous work for what should be a simple task.



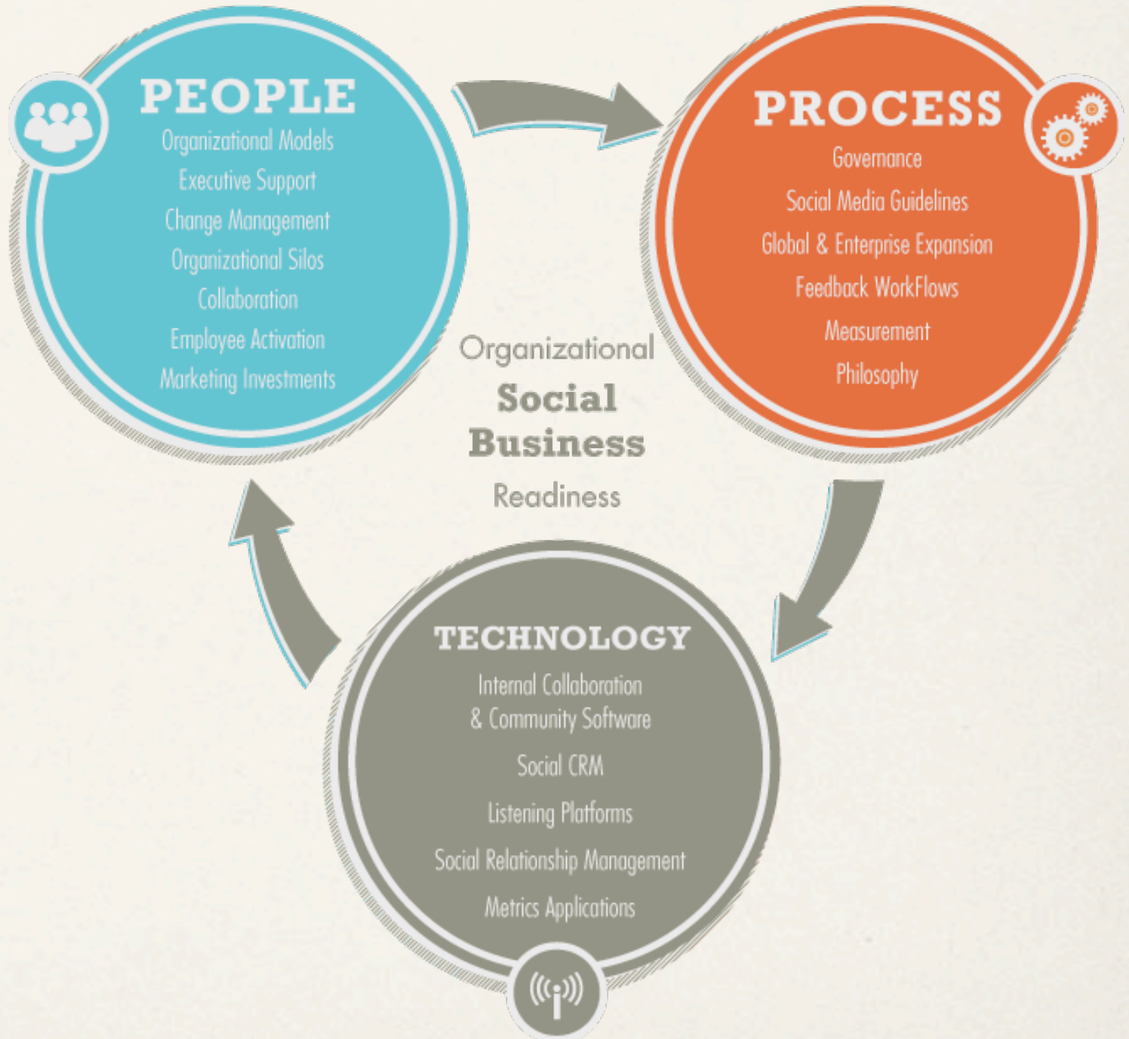
Underlying issue

Outcomes-based, data-informed curriculum

improvement is a **change management** process

comprised of:

Faculty + Graduate Attribute Assessment + Educational Technology



And now we return to your regularly scheduled programming already in progress.....

canvas
BY INSTRUCTURE

WAYPOINT
OUTCOMES

Desire2Learn

LiveText

elumen®

moodle

Evaluation Categories

- Classification of Tools
- Integration with other tools
- Rubric based assessment
- Learning outcomes
- Assessment options
- Analytics & Reporting
- Pricing & Subscription

Tools evaluated by a 3 tiered rubric. Specific rubric criteria outlined in the paper

Summary

- CPI Tool with a focus on comprehensive assessment, analytics and reporting of learning outcomes.

- Strengths: Powerful, granular and flexible assessment and on-demand highly customizable reporting on outcomes.

- Weaknesses: Lack of integration with other tools leading to manual importing. Feedback challenging. No in-line assessment. Poor user experience.

Summary

- Web-based, open-source LMS focusing on developing unique content via open-source API & 3rd party tools through LTI integration

- Strengths: Primary strengths are learning outcomes, rubrics & assessment. Grading and feedback are excellent.

- Weaknesses: Outcomes analytics & reporting. Basic course level statistics reporting available, no customization, limited access.

canvas

BY INSTRUCTURE

Summary

- Open source, free to use LCMS. Focus on openly developed modules & community support.

- Strengths: Completely customizable. Users can develop or install community or 3rd party developed modules.

- Weaknesses: Efficient grading, assessment of outcomes, rich feedback, outcomes analytics and reporting. Poor user experience. Development requires skilled professionals.

Summary

- CPI Tool with a focus on student engagement, authentic assessment, and efficient use of faculty time when grading.
- Strengths: Rubrics, learning outcomes, and assessment. grading of student evidence, mark-up of evidence and feedback occurring directly within the system and seamlessly imported to a LMS.
- Weaknesses: Outcomes analytics and reporting is in alpha stages. Requires an LMS. Is used for key assessments pertaining to outcomes assessment only, not in a widespread manner.

Summary

- LCMS offering a wide variety of solutions to enhance student learning and assessment.

- Strengths: Well-rounded, single system, comprehensive solution for all categories.

- Weaknesses: Infancy of analytics tools (beta development). Limited granularity, limited reporting options, limited feedback options.

Summary

- CPI Tool with a focus on strategic planning, outcomes assessment and reporting and institutional effectiveness.

- Strengths: Learning outcomes, assessment and analytics. In-line assessment with direct markup for rich feedback. Student level granular data on-demand reporting.

- Weaknesses: lack of graphical and customizable outcomes reporting and the lack of traditional grading (outcomes only). Requires an LMS for student submission and to administer non-outcomes related assessments.

		eLumen	Canvas	Moodle	Waypoint Outcomes	Desire2Learn	LiveText
1. LMS, L/CMS or CPI		CPI	LMS	L/CMS	CPI	L/CMS & CPI	CPI
2. Integration		Custom	LTI & API	LTI & API	LTI & API	LTI & API	LTI & API
3. Rubric-based assessment							
3a.	Rubric Generation	★★	★★★	★	★★★	★★	★★
3b.	Customizable	★★	★★★	★	★★★	★★	★★
3c	Rubric Repository	★★★	★★★	★	★★★	★★	★★★
4. Learning Outcomes							
4a.	Multi-level capability	★★★	★★	★	★★	★★★	★★★
4b.	Multi-level mapping	★★★	★	★	★★	★★	★★
4c.	Multi-instance mapping	★★★	★★★	★★	★★★	★★★	★★★
4d.	Outcomes Repository	★★★	★★★	★★	★★	★★	★★
5. Assessment							
5a.	Direct & Indirect Evidence	★★★	★★★	★★	★★★	★★★	★★
5b.	Multiple assessors	★★	★★	★★	★★★	★★★	★★★
5c.	In-line grading	★	★★★	★	★★★	★★	★★★
5d.	In-line feedback	★	★★★	★	★★★	★★	★★★
6. Analytics							
6a.	Multi-level reporting	★★★	★★	★	★★	★★	★★★
6b.	Tabular reporting	★★★	★	★	★	★★	★★
6c.	Graphical reporting	★	★	★	★	★	★
6d.	On-demand reporting	★★★	★★	★	★★	★★	★★★
6e.	Longitudinal reporting	★★★	★	★	★★	★★	★★★
6f.	Custom group reporting	★★★	★	★	★	★	★
7. Pricing							
7a.	Hosting Model	Self or SaaS	SaaS	Self	SaaS	Self or SaaS	SaaS
7b.	Subscription	Yearly License	Open-source	Open-source	Yearly License	Yearly License	Yearly License
7c.	Cost	FTE Scaled	FTE Scaled ($28)	Free	FTE Scaled ($12-20)	FTE Scaled	$80-98*

* The cost of LiveText is determined by either Institutional purchase ($80 per FTE) or Student purchase ($98 per student).

Final thoughts...

Change Management

1. Stakeholder needs and requirements
2. Direction and leadership of CPI processes
3. Existing climate regarding new technology
4. Complexity and sustainability of tools

Just the beginning, so stay tuned....

Planning on continuing the evaluation of education technology, and include other elements in the future such as:

- ePortfolios
- Peer review
- Other 3rd party applications