Numeracy at Guelph

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What is Numeracy?

- Can be described as the knowledge, skills and appreciations needed for students to understand and utilize mathematical ideas, techniques and applications
What is Numeracy?

- Other commonly used terms:
  - Statistical Literacy
  - Quantitative Reasoning
  - Quantitative Literacy
Why is Numeracy important?

“...the ability to use mathematics at a level and in a manner appropriate to good citizenship and to vocational fitness. Mathematics deals with quantity and form, with measurement, structures, and relations, and encompasses a richer intellectual domain than just the utilitarian skills of numerical computation. It is as a mode of thinking, no less than as a collection of useful techniques, that it justifies its place in any well-rounded curriculum.”

University of Guelph’s Learning Objectives 1987
Why is Numeracy important?

“...numeracy and the ability to communicate are essential to intellectual development, and lack of those skills hampers efforts in all directions.”

_The Lighting of a Fire: Re-imagining the Undergraduate Learning Experience_
UG Provosts’ White Paper 2006
Why is Numeracy important?

- Recent International Survey on Literacy (IALSS), Statistics Canada reported that when measuring numerical literacy, 12 of 13 Canadian provinces/territories fall below the minimum for successful day to day functioning in society.
New funding initiatives at Guelph

- Learning Enhancement Fund (LEF)

“The LEF has been created to support initiatives arising from the Integrated Planning process and the White Paper consultation and curriculum renewal process that are designed to strengthen undergraduates’ intellectual engagement and academic success.”
Learning Enhancement Funding

- Administered and awarded through the Provost’s Office

- Awards are available in 2 categories:
  - $1,000 - $10,000
  - $10,000 - $75,000

What are we doing in Guelph?

- Successful project entitled:

  Numeracy and Quantitative Reasoning Repository
Who is involved?

- Multidisciplinary group

  Computing and Communications Services
  Data Resource Centre*
  Learning Commons
  Library
  Mathematics and Statistics Department
  Teaching Support Services
Purpose of NumQR Initiative

- Build new opportunities for students to improve their numeracy and quantitative reasoning skills, and overcome their insecurities over dealing with numbers
Enrich programs with high competencies in numeric and quantitative reasoning skills as well as reach out to those programs that are traditionally weak.
How are we going to accomplish this?

1. Develop a repository
   - to collect learning objects
   - disseminate learning objects

2. Create learning objects

3. Bring together various initiatives on campus
1. Repository

- Build a framework – based on current learning object repositories
  - Using CLOE and Merlot as guidelines

- Include a variety of learning object types – range from streaming video, Flash objects, flat text files, etc…

- Dynamic to match growing needs on campus
1. Repository

- Dissemination will be restricted to University of Guelph students only to start with.

- Dissemination will be open across disciplines – module on fractions – accessible to Social Sciences, Math, Biology…
2. Create Learning Objects

- Project divided into 3 main components
  
  - **Component 1**: Basic Math – fractions, ratios, algebra
  
  - **Component 2**: Quantitative Reasoning – how to read tables, graphs in public press as an example
  
  - **Component 3**: Statistical procedures – how to interpret the standard statistical test.
3. Initiatives on Campus

- Goal is to develop a repository to be used by all faculty members on campus.

- Departments currently incorporating data into their courses – bring them on board

- Investigate other initiatives on campus and collaborate in future
Who’s working on this?

- True collaborative venture

- Using a combination of faculty, staff, GSA, GRA and Coop students from across all collaborating departments
Who’s working on this?

- Fall 2006 – 0.2 FTE Staff and GSA
- Winter 2007 – 1 faculty, 0.20 FTE Staff and GSA
- Spring 2007 – 0.20 Staff, GSA, 2 GRAs, and 2 Co-op students
Where are we now?

- Now working on learning object creation for Component 1
  - Faculty from Math and Stats department providing content -> GSA developing a prototype learning object for Committee peer review

- Looking at starting to develop content development for Component 2 this semester and into the Summer semester
Where are we now?

- **Framework**
  - Developing metadata structure for learning object deposit – based on CLOE

- Developing web presence for Initiative – will eventually house the repository as well
Initiatives around the Room?

- What initiatives is your institution involved with?
- Opportunities for collaboration?