Embedded Librarians in the Classroom: a Case Study @ HKUST Library

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Reference & Research Services
Agenda

• Information Literacy Program @ HKUST
• Higher Education Reform
• Embedded Librarians in ENGG1110
• Benefits & Challenges
• Future Development
• Conclusion
HKUST

• Hong Kong University of Science & Technology

• Aka Hong Kong University of the Smart and Talented

• Opened in Oct 1991, only sci-tech research university in Hong Kong
  
  o No. 1, World's Top 200 Asian Universities (2012)
    (QS Asian University Rankings)

  o No. 40, World's Top 200 Universities (2011)
    (QS World University Rankings)

  o No. 62, World's Top 200 Universities (2011)
    (Times Higher Education World University Rankings)
Information Literacy (IL) Instruction

• **NO** formal IL requirements at HKUST

• Types of IL Programs Offered by the Library
  o New Student Orientation: tour + short hands-on
  o Course Specific Classes: one-shot, target for course assignment/project
  o Open Workshops
  o 1-Credit General Education Course (2006-2011): will be replaced by Common Core Course, which can be only be offered by academic departments
  o Online tutorial
Summary of Instruction Statistics

No. of Attendees

<table>
<thead>
<tr>
<th>Year</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004/05</td>
<td>5,417</td>
</tr>
<tr>
<td>2005/06</td>
<td>4,759</td>
</tr>
<tr>
<td>2006/07</td>
<td>5,677</td>
</tr>
<tr>
<td>2007/08</td>
<td>5,921</td>
</tr>
<tr>
<td>2008/09</td>
<td>5,464</td>
</tr>
<tr>
<td>2009/10</td>
<td>6,076</td>
</tr>
<tr>
<td>2010/11</td>
<td>4,924</td>
</tr>
<tr>
<td>2011/12</td>
<td>7,903</td>
</tr>
</tbody>
</table>
### Summary of Instruction Statistics

<table>
<thead>
<tr>
<th>Class Type</th>
<th>Sessions</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG</td>
<td>248</td>
<td>5,902</td>
</tr>
<tr>
<td>PG</td>
<td>39</td>
<td>1,041</td>
</tr>
<tr>
<td>Open Workshops</td>
<td>43</td>
<td>960</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>330</strong></td>
<td><strong>7,903</strong></td>
</tr>
</tbody>
</table>

2011-2012

- **UG**: 75%
- **PG**: 13%
- **Open**: 12%
## Higher Education Reform

New academic structure (334) started at September 2006: 3-yr junior secondary, 3-yr senior secondary & 4-yr university

Double cohorts in Fall 2012  (2000 more new UGs)

<table>
<thead>
<tr>
<th>Student Population as at Jan 2011</th>
<th>UG</th>
<th>PG</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>1,462</td>
<td>501</td>
<td>1,963</td>
</tr>
<tr>
<td>Engineering</td>
<td>2,363</td>
<td>1,502</td>
<td>3,865</td>
</tr>
<tr>
<td>Business &amp; Management</td>
<td>2,142</td>
<td>1,317</td>
<td>3,459</td>
</tr>
<tr>
<td>Humanities &amp; Social Science</td>
<td>N/A</td>
<td>309</td>
<td>309</td>
</tr>
<tr>
<td>HKUST Fok Ying Tung Graduate School</td>
<td>N/A</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Interdisciplinary Programs</td>
<td>205</td>
<td>71</td>
<td>276</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6,172</td>
<td>3,709</td>
<td>9,881</td>
</tr>
</tbody>
</table>
Common Core Program

• New academic structure (334) started at September 2006: 3-yr junior secondary, 3-yr senior secondary, 4-yr university

• One of the distinctive features of the new 4-year undergraduate curriculum

• Broaden students’ horizons beyond their chosen specialist disciplines

• Foundation for intellectual growth and whole person development
Common Core Program

- **University Core Curriculum**
  - Free Elective
  - Major
  - School Foundation Courses

<table>
<thead>
<tr>
<th>Common Core Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>School-Sponsored Courses (SSC)</td>
<td>9 *</td>
</tr>
<tr>
<td>Humanities (H)</td>
<td>3</td>
</tr>
<tr>
<td>Social Analysis (SA)</td>
<td>3</td>
</tr>
<tr>
<td>Science and Technology (S&amp;T)</td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning (QR)</td>
<td>3</td>
</tr>
<tr>
<td>English Communication</td>
<td>6 **</td>
</tr>
<tr>
<td>Chinese Communication</td>
<td>3</td>
</tr>
<tr>
<td>Healthy Lifestyle</td>
<td>Non-credit</td>
</tr>
<tr>
<td>Core Electives</td>
<td>6 ***</td>
</tr>
</tbody>
</table>

Total credits required: **36**

* 3 credits each from S&T SSCs, SA SSCs, and H SSCs
** Must be taken in the first year of study
*** To be selected from S&T, SA, H, QR, or Arts common core courses

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY
ENGG1110

- ENGG 1110 Engineering Solutions to Grand Challenges of the 21st Century
- 3-credit School Sponsored Common Core course started in Spring 2011
- National Academy of Engineering identified 14 global grand challenges faced by mankind
- Engineers: to meet these challenges, “make the world not only a more technologically advanced and connected place, but also a more sustainable, safe, healthy, and better place”.
ENGG1110

• Focused on Collaborative, Problem-Based learning
  – Learning is driven by challenging, open-ended "real life" engineering problems
  – Students work in small collaborative groups
  – Self-directed research, explore & evaluate alternatives from multiple dimensions, formulate the best possible solutions
  – Traditional teaching is replaced by facilitation of learning
Embedded Librarian – ENGG1110

• 2011 Spring library instruction session on information search skills
  1. Short (multiple choice) survey on research skill
  2. Group exercise to compare journal article & handbook chapter
  3. Introduction to types of engineering literature
  4. Introduction to engineering databases and search strategies
  5. Avoid plagiarism with proper citation
  6. Review survey summary
• Student teams required guidance & feedback in the process of formulating feasible solutions
• Two reference librarians attended regular classes & participated in group discussion – embedded into the course
• Library Learning Commons manager taught a session on presentation skills
Feedback from faculty

I think it is also valuable that the students have a point of contact in the library, making them feel at home to use the vast resources we have.

I would like to register a vote of thanks to the dedicated and helpful library staff for their contributions to the course. Look forward to continuing this model of collaboration in the future.

I would like to invite you both, if possible and convenient to be embedded as previously in the course.

The model of collaboration we used in ENGG1110 is a successful one and we certainly look forward to continuing it in the future. Many thanks to you and your colleagues for enriching students' learning experience.
ENGG1110 – Fall 2011

• Information skills
  o Compare and evaluate scholarly article & webpage
• IEEE style citation guide
• Facebook group
• Evaluate student presentation with an assessment rubric
Feedback from student (LibQual November 2011)

由於我曾修讀了一科名為ENGG1110的課，在課上與圖書館館員合作無間，有不明白的地方都能得到他們的幫助，所以覺得服務很好!

A simple translation:
I had taken a course titled ENGG1110, as I worked closely with librarians in class and could get assistance from them when clarifications were needed, I appreciated their services very much.
ENGG1110 – Spring 2012

• Analyze students’ references for quality, relevancy and completeness
• Summarize common mistakes: recall criteria on evaluating & citing sources, using information responsibly
• Involve in leading end-of-semester focus group discussion, collect feedback on
  o Learning experience
  o Library support
  o Collaborative platform (Dropbox, Facebook, Google doc, etc.)
Mutual Benefits

- Establish connections
- Increase Library’s visibility
- Learn different teaching pedagogies

- Seamless guidance of Librarian
- Understand how to use Library Resources & Services
- Build up IL Competencies

- Information literacy expertise from Librarians
- Reduces instructor’s workload related to IL
Challenges

- Time commitment & sustainability
- Return on Investment – hard to measure how much more IL skills students gained
- How to enrich student learning experience?
- Better utilization of Web 2.0 tools
- How to expand to other School Sponsored Courses?
Facebook
Future Development

1. Library
   - Share experience with other librarians
   - Encourage other librarians to participate in the similar embedded program

2. Course
   - Information literacy rubrics
   - Develop a source table to aid evaluation of sources & citation analysis
## Implementing Information Literacy Assessment at Course Level

### 4. Mapping Course Assignment Assessment to Information Literacy Competency Levels

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Low</th>
<th>Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define information needs (may not be applicable if students do not keep a research log or list the research steps)</td>
<td>Has difficulties articulating the information needs. Limited or no attempt to seek help from instructors or peers.</td>
<td>If necessary, seeks help from instructors and peers to clarify the scope of the assignment tasks and determine the information needs. Able to formulate research questions based on the information needs.</td>
<td>Has a clear understanding of the information needs. Formulates questions based on the information need and develop a thesis statement accordingly. Identifies key concepts and terms that describe the information need.</td>
</tr>
<tr>
<td>Information collection (may not be applicable)</td>
<td>Demonstrates little knowledge on how to find information for the assignment task. Solely relies on course readings or resources recommended by instructors and popular search engines (such as Google and Yahoo!) for quick and convenient results. Uses very simple search strategy such as entering the whole assignment topic.</td>
<td>Mostly relies on course readings, resources recommended by instructors and popular search engines. Some evidences of exploring potential resources in different formats or subject areas. Simple search strategies: entering the whole assignment topic or a single term/phrase.</td>
<td>Able to identify major electronic and print resources in their disciplines. Selects appropriate tools (Reuters for financial data, EBSCOhost for country and company reports, etc.) based on coverage, audience and limitations of various resources. Devises search strategies using appropriate key concepts and terms.</td>
</tr>
<tr>
<td>Evaluation of information sources</td>
<td>Many of the sources used, such as those cited in the bibliography, are not clearly related to the task. Limited evaluation skills: sources inaccurate; out-dated; or too basic.</td>
<td>Most of the sources used are relevant. Demonstrates some evaluation skills: Most sources are accurate, timely, authority and relevant. Body of works shows attempt to examine and compare sources for inconsistencies.</td>
<td>Sources used are relevant. Shows effective and critical evaluation of sources: besides accuracy, currency and authority, also try to examine if sources contradict or complement each other and the suitability for their needs. Body of work identifies limitations of the research methodologies and/or theories, flaw in the reasoning logic, etc. of the sources.</td>
</tr>
<tr>
<td>Use information effectively to accomplish the assignment objectives</td>
<td>Has difficulties synthesizing information from multiple sources. Tends to quote directly from sources and restate the opinions and conclusions from various sources.</td>
<td>Able to recognize appropriate concepts, models or theories from retrieved sources. Explains relevant concepts, models or theories from the source in his/her own words to formulate arguments. Attempts to derive own opinions or conclusion.</td>
<td>Recognizes interrelationships between different concepts, models or theories from the sources with those taught in the course. Able to synthesize different findings to construct own logical arguments and derive a new and sound conclusion.</td>
</tr>
<tr>
<td>Ethical use of information</td>
<td>Shows lack of understanding of the needs and principles of legal and ethical use of information, hence No or poor documentation of sources, e.g., bibliography tends to be disorganized, incomplete or inconsistent. Shows no attempt to identify if sources used are obtained or disseminated legally.</td>
<td>Documents sources properly, e.g., in a bibliography, to avoid plagiarism. Attempts to observe appropriate laws and regulations to obtain and disseminate text, data, or multimedia files for research &amp; study, e.g., photocopied limited amount covered by “fair dealing”, obtain permission of use from copyright holder or available under Creative Commons license.</td>
<td>Good documentation of sources, e.g., bibliography in correct and consistent style. In-text reference, footnote or endnote to support arguments and give credits to original ideas. Observes appropriate laws and regulations to legally obtain and disseminate all text, data, or multimedia files for research &amp; study.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Document # / References #</th>
<th>Source Type</th>
<th>Any Supporting References in the Source</th>
<th>Does author exist?</th>
<th>Is it a Reliable &amp; Relevant Source, why?</th>
<th>Feedback on Citation Style</th>
<th>Other Comment</th>
</tr>
</thead>
</table>
Success Factors

- Commitment of the librarians
- Continuous support from faculty and the Library
- Ongoing communication
- Establish trust. Get to know our strengths & expertise. Appreciate our contributions to the class and willingness to increase our involvement
Thank You