Information Literacy: Past success and future needs for undergraduate health practitioners

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Information Literacy: Past success and future needs

Professional Practice of Health Practitioners
Jarvis, 1987; Gopee, 2001

Lifelong learning

Evidence-Based Practice

Information literacy
Candy, 1991; Kaplan & Whelan, 2002; Brettle & Grant, 2004
RMIT University aims for its graduates to be able to

‘...effectively access, manage and utilize information in their professional and personal capacities, as well as actively engage in lifelong learning’. (RMIT, 2005)
Information Literacy: Past success and future needs

UG and graduate Health Practitioners
MRS practitioners: MITs, NMTs, RTs, Sonographers

Project 1
1st year UG students in SMS
6 programs incl UG MRS

Project 2
2nd year UG students in Discipline of MRS

Project 3
Graduate MRS practitioners
Project 1: Information Literacy Skills Gap Analysis

1st Year SMS students 2007
Wendy Forrest and Dr Jeremy Keens
IL Skills Gap Analysis 2007

- Aim: To identify gaps in IL development and to demonstrate any change in IL development across the semester to use to inform course development.

- Learning activities integrated in Foundation module of Introduction to ... [Discipline] courses across SMS to promote IL skill development.

- First 5 weeks for all First year SMS students to develop tertiary learning skills (or academic literacy)
Foundation Module: Common elements weeks 1-5

Lecture / tutorials
- Introduction to IT @ RMIT
- Library tour & Catalogue searching
- Database searching -1 or 2*
- Learning Styles & team work
- Academic & Reflective Writing
- Reading Research Papers
- Academic Integrity & Referencing
- Peer work and evaluation
- Oral Presentations

Learning Lab Activities
- Referencing
- Plagiarism
- Reading Skills
- Writing Skills
- Oral Presentations
- Journal writing

Assessment tasks
- Foundation Folio (15 %)
- Annotated Bibliography (10%)

Remaining 8 weeks discipline specific
IL Skills Gap Analysis Tool

- Tool adapted with permission from ‘Quebec’ questionnaire (Mittermeyer, 2005)
  - Canadian study explored IL skills at entry to university of first year UG students (n=3003)

- Local adaptation for Australian context (Bernath & Jenkin, 2006)

- This application included minor changes for currency of questions

- Ethics approval from RMIT University
IL Skills Gap Analysis Tool

- Demographic data collected (Age, ESL, Academic History)
- 20 Qs developed in 5 themes (Concept Identification, Search Strategy, Document Types, Search Tools, Use of Results)
- Used Weeks 1 and 13 (Round 1 & 2)
- Round 1: n = 278; Round 2: n = 151
- Matched pair data n = 102 (31%)
  (5 / 6 programs)
IL Skills Gap Analysis Results: Changes in Mean Scores

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Whole Cohort</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Round 1 n = 278 % = 84</td>
<td>9.142</td>
<td>2.863</td>
<td>N/A</td>
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<tr>
<td>Round 2 n = 151 % = 45</td>
<td>11.051</td>
<td>3.204</td>
<td>&lt;.001 *</td>
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<tr>
<td><strong>Matched Pairs</strong></td>
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<td></td>
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<tr>
<td>Round 1 n = 102</td>
<td>10.219</td>
<td>2.537</td>
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<td>Round 2 n = 102</td>
<td>11.719</td>
<td>3.312</td>
<td>&lt;.001 *</td>
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</tbody>
</table>

* Statistically significant difference
## IL Skills Gap Analysis Results: Matched Pair Data: Improved

<table>
<thead>
<tr>
<th>Theme</th>
<th>Q number</th>
<th>Round 1 % of correct answers</th>
<th>Round 2 % of correct answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept Identification</td>
<td>12</td>
<td>55.9</td>
<td>55.9</td>
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<tr>
<td></td>
<td>16</td>
<td>82.8</td>
<td>76.5</td>
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<tr>
<td></td>
<td>21</td>
<td>59.8</td>
<td>52.0</td>
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<tr>
<td>Search Strategy</td>
<td>10</td>
<td>77.5</td>
<td>81.4</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>27.5</td>
<td>52.0</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>95.1</td>
<td>94.1</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>26.5</td>
<td>28.4</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>37.3</td>
<td>40.2</td>
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<tr>
<td>Document Types</td>
<td>11</td>
<td>64.2</td>
<td>70.0</td>
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<td></td>
<td>23</td>
<td>93</td>
<td>91.2</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>26</td>
<td>65.7</td>
</tr>
<tr>
<td>Search Tools</td>
<td>9</td>
<td>38.2</td>
<td>71.7</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>85.3</td>
<td>93.1</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>4.9</td>
<td>8.8</td>
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<td>22</td>
<td>24.5</td>
<td>57.8</td>
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<tr>
<td></td>
<td>25</td>
<td>70.1</td>
<td>79.9</td>
</tr>
<tr>
<td>Use of Results</td>
<td>13</td>
<td>16.7</td>
<td>35.3</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>34.3</td>
<td>47.1</td>
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<tr>
<td></td>
<td>26</td>
<td>51.5</td>
<td>66.4</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>53.2</td>
<td>71.0</td>
</tr>
</tbody>
</table>

Red indicates improvement in IL skill (% of correct answers) in Round 2 evaluation.
Project 2: Providing evidence of information literacy development

2nd year MRS students 2006 & 2007
Madeleine Shanahan
## Supporting IL development

**Scaffolded group project**

*(Shanahan, 2007)*

### Process of Learning

*(Biggs, 1999; Ramsden, 2003)*

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey 1</strong></td>
<td>IL behaviour at beginning of 2nd year</td>
<td><strong>IL behaviour at end of 2nd year</strong></td>
</tr>
<tr>
<td><strong>Group project topic</strong></td>
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<tr>
<td><strong>Online task 1</strong></td>
<td>Getting used to online learning platform</td>
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<tr>
<td><strong>Online task 2</strong></td>
<td>Search terms and construction search statements</td>
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<tr>
<td><strong>Library activity</strong></td>
<td>Searching databases</td>
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<td><strong>Online task 3</strong></td>
<td>Evaluating internet sources</td>
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<tr>
<td><strong>Online task 4</strong></td>
<td>Annotated bibliography for key information sources for project</td>
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<tr>
<td><strong>Online task 5</strong></td>
<td>Preparing for oral presentation</td>
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<tr>
<td><strong>Survey 2</strong></td>
<td>Oral and written presentation of discipline content</td>
<td></td>
</tr>
</tbody>
</table>

### Oral and written presentation of discipline content

**Products of learning**
Method

Survey

Closed questions
- When looking for information for university assignments and projects: How often do you search eg [www / databases]?
- 4-point response (Catts, 2003)
  - usually, often (>½ time) sometimes (<½ time) or rarely

Open questions
- When looking for information for university assignments and projects: What [search engines / databases] do you use?
- When looking for information for university assignments and projects on the internet, how do you evaluate the information you find? what criteria if any do you use

Data analysis SPSS15.0®
- Descriptive (%) & inferential (Fisher’s Exact test) analysis
- Ethics approval from RMIT University
Results

- Two years data (2006 and 2007)
- Pre-intervention  n=71, % = 77%
- Post-intervention  n=41, % = 44%
Information Search Behaviour: Databases

Fisher's Exact Test = 25.738, p = 0.000

Callinan, 2005

Not a natural progression

Callinan, 2005
Information Search Behaviour: Databases

+ 34% Pre- “I am not sure that I have used any databases”; “I have not chosen any in particular”; “don’t know”
Literature searching should occur across several databases (Snowball, 2005; Bettle & Grant, 2003)
Information Search Behaviour: Internet

Fisher’s Exact Test = 1.284, p = 0.763

Increase use of Google Scholar post-int (40%)
Multiple criteria should be used to evaluate internet information (Brophy & Bawden, 2005; Liu & Huang, 2005)

Fisher’s Exact Test =33.608, p=0.000
Project 3: Accessibility to information resources in workplaces

Graduate MRS Practitioners 2007
Madeleine Shanahan
Method

- 2007: Questionnaire mailed to a random sample of 1142 MRS practitioners
- Questionnaire: Developed after reviewing the literature and interviews with 28 MRS practitioners
- Trialled before use
- Data analysis SPSS15.0®
  - Descriptive (%) & inferential (chi-square and Fisher’s Exact test) analysis
- Ethics approval from University of Wollongong
Results

- Response rate of 32.8%
- Sample comparable with population of MRS practitioners (AIHW, 2003) area of specialisation; gender
- Respondent characteristics:
  - Healthcare Sector: Public 53.1%, Private 46.9%
  - Work environment: Teaching Hospital 54.6%, Clinics 28%
  - Geographic Location: Metropolitan: 58.3%, R & R 15%
Accessibility to information resources

- Access to the Internet in the workplace
- Number of journals practitioners have access to
- Skill level of practitioners
### Access to the Internet: 96.4%

<table>
<thead>
<tr>
<th>Metropolitan / non-metropolitan</th>
<th>Fisher's Exact Test</th>
<th>P value</th>
<th>Access in the workplace</th>
</tr>
</thead>
<tbody>
<tr>
<td>On all computers</td>
<td>11.005</td>
<td>.025</td>
<td><strong>On all computers</strong></td>
</tr>
<tr>
<td>Metro 42.3%; Non-metro 36.8%</td>
<td></td>
<td></td>
<td><strong>No access</strong></td>
</tr>
<tr>
<td>Metro 0.6%; Non-metro 7.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Teaching / non-teaching        | 19.623              | .000    | **Access offices only** |
| On all computers               |                      |         | **On all computers**    |
| Teaching 48.2%; Non-teaching 28.1% |                    |         | **Access offices only** |
| Teaching 15.5%; Non-teaching 31.7% |                    |         |                         |
Access to the Internet: 96.4%

Access restrictions included:

“All computers have internet access but need password with staff rads [radiographers] are not given”

“do not have access to the web only government [health] site”

“we don’t tend to get on that often, it’s kept for the office mainly”
Access to professionally relevant journals

no access to any listed journals

• 10% of practitioners
• 17% rural and remote practitioners

19% of practitioners had access to only one of the listed journals
Skill level of practitioners

- Internet searching
- Evaluating quality
- Database searching

+ 14% never searched a database
Information Literacy: Past success and future needs

Past successes:
Projects 1 and 2
UG students
- Positive IL development

Current needs:
UG students
- Continued IL development

Graduate practitioners
- Skill development

Current and future needs:
- UG students (future) & current practitioners
  improved access to professionally relevant quality information resources in clinical workplaces or Lifelong learning, EBP and research (AIR, 2004; SOR, 2007) will be compromised

- Better understanding of the information environment of clinical workplaces
Acknowledgements

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- Wendy Hazzler and Savita Hazari, Faculty Liaison Librarians, RMIT University
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- RMIT Learning and Teaching Investment Fund

References


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