Search Less, Learn More
Empowering students with digital research skills
Jon Chamberlain & Tony Russell-Rose, University of Essex
The Team

Jon Chamberlain  
Academic Champion  
University of Essex

Tony Russell-Rose  
RAE Visiting Professor  
Uxlabs Ltd & 2dSearch

Lecturer in UX/HCI and web development  
Supervisor for UG and PG projects

Specialist in UX/HCI and  
information retrieval
The story so far...

**Year 1 (2018/19 academic year)**

Enhance student learning by embedding Tony’s industry knowledge into lectures.

We did this for 4 modules covering HCI, information retrieval, databases and natural language engineering (approx. 100 students enrolled in each module).

In addition we co-supervised several student projects on information retrieval.
What we hadn’t planned for:

Side benefit of regular contact has increased our research output (several conference papers written together and an EPSRC proposal submitted).

Thinking about our research strengths in an educational setting enabled us to identify student needs.

Also enabled us to develop a wider network of collaborators to help us develop these ideas.
Digital Research Skills in CS and HS

Health sciences (HS)

Students typically receive research skills training to perform literature reviews and synthesise evidence.

For medical students they may go on to perform systematic reviews, rapid evidence reviews or scoping searches.

These involve the understanding and manipulation of Boolean search strings.

![Figure 1: An example Boolean search strategy](image)
Computer Science (CS)

Students typically receive almost no research skills training.

All UG students need to do a literature review at the end of 2\textsuperscript{nd} year.

Students told how to cite research but not how to find it, assess it for relevance, synthesise it nor report their search technique to make it reproducible and transparent.

\begin{verbatim}
Java AND (Design OR develop OR code OR Program) AND
("* Engineer" OR MTS OR "+* Develop*" OR Scientist OR
technologist) AND (J2EE OR Struts OR Spring) AND
(Algorithm OR "Data Structure" OR PS OR Problem
Solving)
\end{verbatim}
Digital Research Skills in CS and HS

Year 2: Develop an adaptable module for research skills

Initially aimed at MSc/PhD in 2 Spring term workshops:

1) How to write Boolean search queries beyond single keyword searches and find relevant documents.

2) How to analyse search results, how to assess literature quickly for relevance and when to stop.

Teaching foundational skills based on a research-driven approach using state-of-the-art tools. We’re excited!
Digital Research Skills in CS and HS

Year 2: Develop an adaptable module for research skills

Adapt the course to fit the 3rd year UG final year project.

Students must perform a literature review over summer (outside of term time), so we aim to deliver an adapted course in the Summer term before the exams.

Use of online materials for distance learning and make use of Moodle for student self-evaluation of knowledge.

We hope to reach 150 3rd year UG and 50 MSc/PhD PG.
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