



The Teaching-Research Nexus

A guide for academics and policy-makers
in higher education

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Examples from Australian universities

Undergraduate Student Online Journal

Professor Russell Boyce
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Broad discipline area:

Engineering and Related Technologies

- Mechanical Engineering: Hypersonics

Year level:

- Fourth year undergraduate

TRN strategy:

- Involving students in departmental research projects
- Infusing teaching with the values of researchers

Teaching and learning context:

- Blended/online learning
- Assessment item

Brief description of the initiative:

An online peer-reviewed student e-journal, the *Journal of Undergraduate Hypersonics*, has been established in *Hypersonics*, a Bachelor of Engineering final year elective course with typical enrolment numbers of 16. The journal is published using the open journal system, an electronic publishing system that can be installed and managed locally to publish e-journals. It assists with every stage of the refereed publishing process from submission through to online publication and indexing. The system has an embedded email capability with modifiable templates that provide the mechanism for editors to give authors feedback from reviewers. The use of online journaling technology as a vehicle for student learning is an example of a blended approach to learning. The course also includes face-to-face lectures, tutorial discussion and hands-on research (as described in Mechanical Engineering 2).

Students experience the peer-review process researchers undertake to disseminate their work and to assess the quality of others' work in an online context. While the lecturer acts as the editor, the students undertake all the other roles and are involved in the process of scholarly publication from the perspectives of both author and of a reviewer including:

- preparing their work to publishable standard;
- completing online submission;
- responding to the editors' correspondence concerning their submission;
- conducting peer-reviews of other students' manuscripts; providing honest, succinct, logical and cohesive feedback addressing specified criteria.

The activities involved in producing the online journal are integrated into the overall course assessment. Each edition of the journal contains literature reviews and technical reports, the course's two main assessment items (See Mechanical Engineering 2). In addition, 10% of students' course mark is comprised of peer-review of their fellow-students' literature review assignments.

The submissions in a given course become one issue of the journal. Each issue is available on-line to future student cohorts, and has the potential to grow into a sizeable archive.

Evidence of effectiveness and impact:

- This academic considers that mirroring the research process in this way is motivating for students and that peer reviewing promotes higher order critical thinking. He believes the student peer reviews are often of comparable standard to those provided by academics.
- Students' reported benefits:
 - Skill development through engaging in the process of conducting (initially intimidating) peer reviews.
 - Motivation to perform to a high standard because they knew their work would be reviewed and published on-line.
 - Pride and satisfaction in seeing the final result published in a scholarly journal.

For further details:

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The Journal of UNSW@ADFA Undergraduate Hypersonics (JUH) can be accessed at: <http://nemesis.its.adfa.edu.au/ojs/index.php/Hypersonics>

Information about the open journal system which originated from the Public Knowledge Project at the University of British Columbia is available at <http://pkp.sfu.ca/?q=ojs>

ⁱ Professor Boyce was in the School of Aerospace, Civil and Mechanical Engineering at the University of New South Wales at the Australian Defence Academy (UNSW@ADFA) when undertaking the activities described in this example. He will be implementing an e-journal at UQ later in 2008.