From Project Proposal to Published Paper: Disseminating Students’ Research Findings

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Why?

Hazel Hall
Students are required to disseminate research results locally.

When is it appropriate for the results to be disseminated further?
Track record of publishing Honours work:


Hall, H. & **Smith, N.** (1997). You'll wish it was all over: the bibliographic control of grey literature with reference to print football fanzines. *Serials, 10*(2), 189-194.


Publications on our personal lists is good for:
- Individual
- Research group
- University

Satisfaction of supervision job well done

- Boost for students
- Job applications
- Research career
Less Obvious Reasons

- The “good” tutor
- Entry to academic publishing
- Promotion of Napier
- Deeper student reflection on learning
Matching Learning Outcomes

Towards the SQA framework
| Level 1 | SCQF | |  |  |  |
|--------|-----| |  |  |  |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |

| Level 2 | SCQF 8 | |  |  |  |
|--------|--------| |  |  |  |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |

| Level 3 | SCQF 9 | |  |  |  |
|--------|--------| |  |  |  |
| Module | (15 credits) | Module | (15 credits) | Group Project | (30 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |

| Level 4 | SCQF 10 | |  |  |  |
|--------|---------| |  |  |  |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |

| Level 7 | SCQF 11 | |  |  |  |
|--------|---------| |  |  |  |
| Module | (15 credits) | Module | (15 credits) | Project | (30 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |
| Module | (15 credits) | Module | (15 credits) | Module | (15 credits) |

Typical Scottish Programme

Dr H. Hall/Dr W. Buchanan
**Possible areas to publish student work**

Dr H.Hall/Dr W.Buchanan (9)
Demonstrate and/or work with:

- knowledge that covers and integrates most of the principal areas, features, **boundaries**, terminology and conventions of a subject/discipline.
- a **critical** understanding of the principal theories, concepts and principles.
- detailed knowledge and understanding in one or more specialisms some of which is informed by or at the **forefront of a subject/discipline**.
- knowledge and understanding of the ways in which the subject/discipline is developed, including a range of established techniques of enquiry or **research methodologies**.

Ref: SQA Framework document
Demonstrate and/or work with:

- Use a range of the principal skills, practices and/or materials associated with a subject/discipline.
- Use a few skills, practices and/or materials which are specialised, advanced, or at the forefront of a subject/discipline.
- Execute a defined project of research, development or investigation and identify and implement relevant outcomes.
- Practise in a range of professional level contexts which include a degree of unpredictability and/or specialism.

Ref: SQA Framework document
Demonstrate and/or work with:

- Critically identify, define, conceptualise, and analyse complex/professional level problems and issues.
- Offer professional level insights, interpretations and solutions to problems and issues.
- **Critically review and consolidate knowledge, skills and practices and thinking in a subject/discipline.**
- Demonstrate some originality and creativity in dealing with professional level issues.

Ref: SQA Framework document
Demonstrate and/or work with:

- Take significant responsibility for the work of others and for a range of resources.
- **Work with others to bring about change, development and/or new thinking.**
- Work effectively under guidance in a peer relationship with qualified practitioners.
- Make **formal presentations** about specialised topics to informed audiences.
- Communicate with professional level peers and professionals.

Ref: SQA Framework document
Level 4 – Hons Project:

Over 70% - A mark in this band indicates an excellent level of achievement. A professional piece of software or other deliverable will have been produced and a dissertation **worthy of dissemination**.

Over 85% - … first class technical achievement together with a dissertation containing a contribution **worthy of publication**.
Often the process of creating a paper is one which students find beneficial, especially one those who are at the top end of a 2:1, or as a 1st class classification. This is typically a new skill for the student, who is unused to taking a large document, and distilling it down to a few papers, without losing the key elements. This can often lead to a strong sense of teamwork where the student feeds drafts to the supervisor, who then rigorously edits and tries to focus the paper. Unfortunately few undergraduate students go through this amount of rigor in their work, and many struggle, initially, to know how to write a research paper.
Abstract. A summary of the paper, identifying its key aims, the methods used, and the results.

Introduction. A focused discussion of the main aims and the context of the work.

Background. A discussion of the key underpinning theory/technologies involved in the area.

Model/Design/Methodology. An outline of the key elements of the work. Many students are keen to add too much detail in this section, as they do not see that the actual implementation is of less interest than the methodology used.

Results. A key area of the paper, which should summarise the main results from the work, especially focused on proving delivery on the aims of the work.

Conclusions. A reflective statement on how well the work has matched the aims.
Case Studies

A few examples
The goal of a BSc Software Technology student was to be employed by a computer games company. For his final year project he created a **real-time military strategy computer game**. The work involved a fair amount of engineering. For example: when one squad attached another, each squad's formation would break up into individual one-to-one fights; if a soldier won one fight it would go and help another; and after an enemy squad was destroyed the winning squad would re-form and be commandable as a squad again. The unique selling point of the system was **that it learnt continually as the user played**: its strategy changed in response to that of the user. This greatly extended the game's playability. With his supervisor, the student had a paper accepted, and published, in a big **international conference**. Subsequently the student found a **job with a well-known games company** on the strength of this paper. The fact that the ideas had been externally reviewed and accepted were probably a lot more persuasive than the student simply talking about his project work at an interview - games companies receive a very large number of employment enquiries.

Prof. Peter Ross
A key element of integrating research with undergraduate projects is to find the best students. Often these types of students will actively find their supervisors, as someone who they respect for their knowledge and skills. This was the case with a Software Engineering student who created a system which could test mobile devices for their fitness in creating networks which do not have any fixed infrastructure. The student was identified as a first-class Honours student at the start of his project, and his work was integrated closely with PhD students in the School of Computing. This is a key link as the supervisor can guide and advise, but it is typically the PhD students who can discuss the fine-detail of the project, and help with the experimental part. At the end of the project the creation of a research paper was discussed and the PhD student and supervisor discussed the merit of each experiment, and in the results that it showed. The appraisal was that it did show many new things, and it was decided to try and publish it at the highest level (Journal of Ad-hoc Networks – the most respected journal in the field of ad-hoc networks), rather than reducing the quality and going for a lower-level conference. The viva then went ahead with the knowledge of the paper, which made it easier for the marking team to justify the mark of over 70%. The only regret was that the paper had not been accepted at that point, and that the other examiner had to take the word of the supervisor and the PhD student that they thought that it merited publication. This problem has been overcome this year by getting a student to submit to a conference in June 2004 (International Conference in Information Warfare and Security), thus the examiners were well aware that the paper had been peer-reviewed.
A number of School of Computing undergraduate and **MSc students** completed projects in association with the **Royal Observatory**. Some of the MSc work reached a high level, and this resulted in a couple of the students getting their names on a publication, one of whom was then employed by the Observatory. The **job** involved a lot of travel between the two main observatories - in the Canary Islands and Hawaii.

**Dr A.Armitage**
The high profile work of their predecessors has helped Information Management students and graduates at their first conferences and professional events integrate at **networking** sessions. A short story illustrates this. A set of new graduates working in the financial services sector in London attended an evening meeting of the City Information Group. Initially shy, the ice was broken for them when it soon became clear that the networking track had been prepared for them, not least because the quality of the output from their course was known through the **earlier publications** of their peers.

*Dr H.Hall*
The organisers of the 2003 *International Conference on Virtual Communities* knew of the reputation of University staff in this area of research and so **made an approach** with a request for a paper. In the event student work on a world-wide virtual community of over 2,500 code breaking enthusiasts was prepared for the event. The paper was also subsequently published in an **international refereed journal**.

**Dr H. Hall**
A final year Information Management student completed his project on the theme of the bibliographic control of grey literature, i.e. how ephemeral publications such as leaflets and reports with low circulation numbers are identified and recorded as per the terms of the 1911 Copyright Act. His field work was completed with editors of print football fanzines. The work had publication potential because it used an interesting set of data subjects, and because the results provided entertaining insight into the alternative practices of underground publishers. It was presented as the last paper at a (serious) conference on serial publications by the student and tutor, dressed in football shirts. In the published version of the paper an editorial note advised that like all sporting events, the material reported was seen live. (A further interesting point about the live presentation of this paper is that it was witnessed by some influential people from the serial publishing and information management industries. The ramifications of this have included further invitations to present, and invited membership of two high profile industry committees.)

Dr H.Hall
A postgraduate project required a group of students to create a web site for a talking newspaper organisation. The opportunity to publish an account of the work completed – the adaptation of what was learnt and the wider appreciation of the field through reading in the context of practical constraints encountered when working with a client organisation – formalised and captured the experience. The students thus reflected more deeply on their learning than they might have done otherwise.

Tom McEwan
Caution

It’s not all perfect
• What is worth publishing?
• How can we handle students in cases where, for example, what is produced is not worth publishing, or a paper is rejected?
• Why bother with students collaborators in favour of research-active colleagues?
• Doesn’t this practice risk flooding the domain with low quality trivia?
• What about information risk, for example, IPR, plagiarism?
Identification of Work and Channels

How to Identify?
Project Proposal to Published Paper:

How to Identify?

- The “best” work?
- Interesting, novel work
- Work may be commissioned
- Usual channels
- Careful consideration of level
- Targeted student outlets
Output from Modules

Using research papers for assessments

Software Security
Advanced Security and Mobile Network Module (Level 4)

Learning Outcomes:

**L3** To be evaluate mobile and ad-hoc networks, in terms of infrastructure, topology, routing, computation, security and their associated communications.

**L4** To critically evaluate current research in the area of security and mobile networks, and assess current technological boundaries in the implementation of these technologies.

This is the home site for the 1st Conference on Mobile Applications. Mobile networks offer an excellent opportunity for increased mobility in network access, and may lead to new network models and applications of networks. The objective of this coursework is to write a research paper which is submitted to the following conference:

**1st International Conference on the Application of Mobile Networks**

The aim of this conference is to present applications of mobile networks, and provide reviews of current technology in the key areas of **RFID, Ad-hoc Networking, Location-finding in GSM networks, GSM/3G technology** and **Location-based services**.
Correlation between marks for the two courseworks

- Reasonable papers
- Good papers
- Strong papers produced

Mark for the research paper (%)

Grade from first assignment

C  C+  B-  B  B+  A-

Dr H. Hall/Dr W. Buchanan (31)
I think that after the two courseworks we submitted, we feel that an exam would be easy, because the courseworks requires us to master the content of the lectures and even deeper.

This type of comment shows that many students struggle to summarise material

I did not like the four-page limit as it forced me to cut a lot of information out ...
Conclusions

The Ups and the Downs
Published work can help justify a good mark for a project.
Students who wish to publish normally require some analytical work to fully justify their methods.
It is possible to create assignments at Level 4 which allow a paper to be produced.
Each student who has published has found that the process has been rewarding, especially with the rigor involved.

It should be remembered that the student should actively want to publish.
The review process can be difficult to take, especially if it is a rejection.

Scholarship, innovation and research.