1. Introduction

The Student as Researcher programme delivers a joined-up, ‘step-by-step’ approach to developing the information fluency of undergraduate students (alongside other academic skills) throughout their time at Warwick.

In February 2011, the Library successfully bid to the Institute for Advanced Teaching and Learning (IATL) Strategic Projects fund to employ a Student as Researcher Project Officer. In September 2011 we employed Cate Mackay to work with Library colleagues, other support agencies and academic partners to develop, test, refine and promote the Student as Researcher programme over 2011/12. As proposed in our original bid document, over the year Cate has focused on the following:

1. the validation (and development) of the Student as Researcher framework (September 2011);
2. a review of current activities to identify good practice in Warwick’s offering/gaps in coverage (September);
3. the development of modules (September and onwards);
4. the trial of the Student as Researcher framework in seven pilot areas (September 2011 – June 2012);
5. evaluation of the programme and a report of lessons learnt (on-going but focused on June/July 2012);
6. modifications of the framework and the development of new elements as appropriate (July onwards);
7. the development of plans to roll the framework out into other areas, using the pilots for dissemination/advocacy work (planned for July/August but in effect on-going).

This report gives an overview of the first year of this project, providing details of outcomes for the pilot projects, a review of lessons learnt, plus details of how the Library plans to take the project forwards.

2. Activities

This section covers the background to the project (‘why?’ there was the need for the Student as Researcher approach), the development of the programme framework (‘how?’), the development of the programme’s online presence and learning resources (‘where?’) and – the main focus of the year – the development of the programme with seven pilot departments (‘who?’; ‘what?’; ‘how?’ and ‘with what result?’).

2.1 Background: Why?

Undergraduate information skills provision at Warwick has often been concentrated at the beginning of the academic programme, rather than throughout the undergraduate’s course. Although more structured approaches (which place skills development more at point of need) do exist, coverage is not consistent across all academic disciplines. The Student as Researcher programme addresses this by delivering a joined-up, ‘step-by-step’ approach to developing the information fluency of students (alongside other academic skills) which can be adapted for all courses across the University. Undergraduates are given the opportunity to experience research first-hand, conducting their own investigations and using primary sources, ultimately becoming producers with outputs ranging from additions to the secondary literature to poster presentations or conference papers, depending on what is most appropriate for their academic discipline. This approach helps students to develop skills around information retrieval and information management (including referencing) and supports research-led teaching. It offers a richer and more distinctive undergraduate experience which enables students to fulfil their potential and helps prepare for postgraduate study at Warwick. For those not embarking on an academic career, it offers transferrable skills that support employability. As part of the programme, academic colleagues, Library staff and other support agencies work in partnership to offer students ‘the opportunity to work on an extended project or piece of research’ as pledged in the University Strategy.

2.2 The Programme: How?

As outlined in our bid for funding, it was planned that the full Student as Researcher programme would cover the student journey from initial information finding via academic skills to more in-depth research skills. The
programme (as illustrated below in Figure 1) would build upon existing pockets of good practice to provide a coherent and joined-up student journey and – ultimately – a more consistent student experience. The programme would enable students to develop their research skills and information literacy across the whole of the undergraduate course, based on experiential learning.

A key element of the programme is the opportunity for the ‘student as researcher’ to move beyond passive learning to active research, and then for the ‘student as producer’ to enter the wider academic world with their own outputs, by publishing in a Warwick journal or repository, or alternatively presenting at a student conference.

**Figure 1: The full Student as Researcher programme**

The full programme would cover:
- a welcome to the Library and the Student as Researcher programme;
- an introduction to the University Library;
- ‘Finding information for yourself’ – moving beyond the reading list;
- preparing for effective information sharing (in the physical and virtual environment);
- developing ‘academic skills’ (including referencing and avoiding plagiarism);
- preparing for research and developing your topic;
- support with researching the literature and using primary sources (MRC or external collections);
- help with data collection and management;
- preparation for producing outputs: poster presentations, conference papers or student publications, via Warwick student journals, UNWRAP (an undergraduate WRAP-type repository, to be developed) or external publications (including practical issues around writing for publication, raising your profile and managing a journal);
- using your researcher skills.

Funding for the Student as Researcher Project Officer has allowed us to move from the planning to the piloting, reviewing and promotion of a successful programme. Delivery has been via seven pilot projects (see 2.4) which have allowed us to trial different elements of the above framework.

### 2.3 Blended Delivery: Where?

Working in partnership with academic colleagues and other service agencies, we have taken a blended approach to delivering the programme. Some elements have been delivered in a lecture setting, some elements have been made available online. Classroom activities have been used to promote technologies new to the students (eg. wikis). Traditional tools (such as lecture slides) have been made available electronically for revision purposes. Online support has been augmented by face-to-face assistance. This way we have been able to successfully meet the different learning needs of a diverse student population.
Having said this, there is a growing awareness amongst the programme team that an e-learning approach is essential to both meet student demands and to aid scalability, and this is increasingly becoming the focus of delivery.

One of Cate’s early priorities was the development of the Student as Researcher Web presence. This provides:

i. an outline of the component modules, with details of learning outcomes and modes of delivery;
ii. case studies of the seven pilot projects and links to module pages/learning tools;
iii. a shop window for student work and reflections.

The website (www.warwick.ac.uk/lib-studentasresearcher) has been used to explain the programme to staff and students new to the Student as Researcher, and as an advocacy tool as we roll the programme out beyond the pilot departments.

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**Figure 2: The Student as Researcher Web site**

We have learnt many lessons from developing this form of delivery and (as a result) have also started to develop re-usable e-learning tools (see 4.1.3 below).

2.4 The Seven Pilots: Who? What? How? And with what result?

In 2011/12, the Library worked with academic departments to test and develop this programme in seven pilot projects for:

1. Warwick Business School (WBS)
2. French
3. Psychology
4. German Studies
5. Law
6. Film & Television Studies
7. Early Childhood Studies
Rather than tackle all seven pilots concurrently, we took a staged approach. This has been informed by the elements of the programme undertaken for each discipline: for example, WBS focused on induction, so the emphasis was on Term 1; for Film & Television Studies we are working with colleagues around dissertation skills and the production of outputs, so this was introduced in Term 3.

Experience gained with the earlier projects has helped inform the development of modules for the later pilots.

Below we will outline progress to date against each pilot.

### 2.4.1 The Pilots

#### 2.4.1.1 WBS

For Term 1, Cate worked with Grier Palmer (Principal Teaching Fellow and Academic Director, Teaching & Learning) and Emma Cragg (Academic Support Librarian (ASL) for Business) to develop an embedded information skills tutorial for the *Markets, Marketing and Strategy* module which covered c.300 students, half of the first year undergraduate cohort for WBS. The purpose of the programme was to direct students to the most appropriate sources of information for the topics covered in lectures, and to teach them how to search for quality information, evaluate sources and reference them correctly.

The programme was delivered in weekly instalments from Week 2 of Term 1. Each week, new Web content was released, connected to that week’s lecture theme. The students were given an activity to find a relevant resource to discuss at the following week’s seminar.

**Figure 3: One of the WBS Module Web pages incorporating e-learning tools (right-hand column)**

Delivery was via a blended approach (see 2.3), with introductory lectures backed up with PowerPoint slides available via *SlideShare*, plus the weekly online tutorial comprising printable instructions and brief video guides to using relevant databases ([http://go.warwick.ac.uk/lib-ib1170](http://go.warwick.ac.uk/lib-ib1170)) (see Figure 3 above). The videos could also be accessed through the Library’s *YouTube* Channel.
Formative assessment was carried out in three ways:

- a multiple choice examination covering the concepts behind searching and referencing;
- the production of an annotated reference list, assessed on:
  - correct referencing of resources (including a book, journal article, report and data set);
  - the quality of justification for including resources.

Summative assessment via an essay was carried out in Term 2.

We found that student engagement with e-learning was impressive (see 3.1 for details). Over 80% passed the assessments first time, and student feedback results showed that over 90% of the students reported increased confidence in finding and referencing materials as a result of undertaking the programme (see also 3.1). After successes with the Markets, Marketing and Strategy module we also ran the programme out into other elements of the undergraduate course (the Global Integrative Project and the Accounting and Finance module).

2.4.1.2 French

Cate and Peter Larkin (ASL for French) worked with Dr Cathy Hampton (Teaching Fellow) on the second year In the Family Way module (of c.20 students) during Term 1. Following lectures on the use of relevant databases, students were given a project to develop a collaborative bibliography. They were not given a reading list but used an online wiki which enabled them to:

- collaborate on developing the bibliography, with students giving the rationale for including selected items;
- access a ‘research toolkit’, a collection of links to support for undergraduate research (Library pages, Learning Grid services, etc.);
- discuss ideas online – facilitating discussion outside lecture slots and extending the amount of time spent on creative activity;
- access group pages – to facilitate group work, share files, etc.;
- get support – for example, online interventions provided by Library staff on how to find resources when students faced difficulties.

A student symposium around the project took place in Term 3 in the Teaching Grid. Students presented papers or posters and had the opportunity to reflect on their topics and the research process with departmental and Library staff as well as their peers. One group received support from a student adviser from the Learning Grid on preparing their poster, and presented this very effectively, using Prezi.

Students were encouraged to reflect on their experience, and these reflections were captured at the symposium. The footage is available at: www.warwick.ac.uk/lib-studentasresearcher/outcomes/presentations/symposiumreflections/ (see also 4.1.6 below).

2.4.1.3 Psychology

Cate and ASL Sam Johnson delivered a programme in Term 2 for all first year Psychology students (128 in total), working with Dr James Adelman (Assistant Professor). The structure of this programme was informed by our experience with WBS, with the module tutorial (Figure 4) including a step-by-step approach and instructional videos. A new departure, though, was the development of EndNote Web bibliographic software support to help students develop more in-depth skills around referencing, something specifically requested by the department.

Again, a blended approach has been taken. The programme was introduced by Cate and academic colleagues in lectures. PhD tutors subsequently led tutorials and referred students to drop-in sessions run by Library staff. An online self-assessment test offered students the opportunity to evaluate their own progress in developing their skills. Engagement was encouraging but we feel this could be increased and plan to build on this in 2012/13.
2.4.1.4 German Studies
Informed by developments with French, Cate worked with Dr Seán Allan (Associate Professor) to develop a wiki approach to support collaboration around translation classes. Students (c. 30) worked individually and in groups to translate sections of text, which they then posted on the wiki space. They then had the opportunity to comment on linguistic or factual points, interacting with their peers and teaching staff. Whilst developing their collaboration skills, this also enhanced their experience in class, as they had more time to develop an in-depth understanding of the texts and the translation process.

2.4.1.5 Law
Building on detailed information skills sessions delivered in Term 1, Cate and Helen Riley (ASL for Law) worked with Dr Jane Bryan (Teaching Fellow) on the first year Property Law module. Students were encouraged to complete a team or individual project to develop information and collaboration skills and revise key property law topics. This was supported by an online information skills tutorial and a wiki for group collaboration and the submission of projects. A creative approach to outputs was encouraged, giving students the opportunity to produce reports, posters or even poems. It was planned that the wiki could also act as a showcase for the finished products and students’ reflections.

Engagement with the project was limited (see 3.1), but it is hoped that we can build on our experience with further Law modules in 2012/13.

2.4.1.6 Film & Television Studies
The Library is working with Dr Rachel Moseley (Associate Professor) and colleagues to provide dissertation support for around 20 second year students. Richard Perkins (ASL for the subject) and Cate have taken a blended approach once more, using face-to-face sessions to introduce students to key resources and skills. This has been supplemented with an online information skills tutorial and an especially created Facebook group (see Figure 5).
Students have contributed well to the space, taking the opportunity to elaborate on their dissertation topics more widely for the first time, and seek ideas on materials to support each other in their research. Departmental and Library staff, as well as students, have been highlighting useful resources and research techniques to support this initial literature review stage.

2.4.1.7 Early Childhood Studies (ECS)
Chris Bradford (ASL for Education) and Cate are currently developing an online resource bank for ECS which combines access to selected resources with value-added elements promoting information skills development to students. Work is at an early stage but will be progressed further in the coming academic year. It will include video and interactive elements, and, by approaching both high order and basic skills, will encourage students of all levels of ability to develop their skills sets.

2.4.2 Beyond the pilots
The Student as Researcher approach has also given us opportunities to make links with departments outside the pilot areas and further develop activities around different elements of the programme framework.

2.4.2.1 Economics
In collaboration with Professor Mark Harrison, and the ASL for Economics, Helen Riley, the Modern Records Centre selected and digitised materials to support Mark’s second year module War and Economy in the Twentieth Century. Students were encouraged to view these sources online, access secondary literature, and then engage in online discussion. Students have interacted well, developing their skills around primary sources, and contributing in-depth analysis in the module forum. Mark and Helen were also able to encourage and direct discussion, as well as suggest possible useful sources relating to the topics covered.
Figure 6: Web pages for Mark Harrison’s War and Economy in the Twentieth Century Module

The Library has also had the opportunity to collaborate with Dr Gianna Boero in supporting students in the department to develop skills in finding and managing information during their URSS (Undergraduate Research Scholarship Scheme) project work. Helen Riley and Cate have created an online tutorial to highlight these skills and key resources. It is hoped that this project can be extended to support dissertation students in Economics in the coming academic year.

3. Outcomes

By employing a pilot project approach we were able to test our ideas, evaluate the effectiveness of the programme (including engagement and impact on student skills) (see 3.1) and employ lessons learnt to inform the long-term development of the Student as Researcher approach (see also 4.1). Successes from this initial period could then be used for advocacy (as indeed they have been) to move the programme beyond the pilots (see 3.2 and section 5 below).

3.1 Evaluation and Outcomes

Assessment of students formed part of the pilots. For WBS this included both formative assessment (multiple choice questionnaires, annotated bibliographies and seminar activities) and summative assessment (a marked essay). For the Psychology students a ‘test yourself’ tutorial was offered. For the French module the student symposium gave the cohort the opportunity to consider how to structure outputs as well as revise the content of their course. Results of assessment were especially encouraging for WBS where over three quarters of students achieved a mark of 80% or above in the multiple choice examinations.

The programme itself was evaluated via direct questioning and observation. For WBS this included a student survey and focus groups. Over 90% of the students reported increased confidence in finding and referencing materials as a result of undertaking the programme. More informal evaluation included observation of usage. As noted above, the 300 WBS students undertaking the Markets, Marketing and Strategy module made impressive use of e-learning tools with over 12,000 hits on the tutorial pages, over 1,000 hits on an introductory Slideshare presentation and with each YouTube video receiving between 300 and 400 hits. Despite some initial
reservations, French students engaged well with wiki technologies, some continuing to use this approach to facilitate team working post-module. Their feedback at the end of the module (see 4.1.6) was also positive. Likewise, Film & Television Studies students made consistent use of their Facebook presence to support each other over the summer (see, for example, Figure 5).

Beyond the pilots, Professor Mark Harrison in Economics made the following observations:

‘The students were enthusiastic about the format [of the module]. I required them to read the documentation, engage in online discussion, and attend a seminar on each case study. Almost all did so to some extent, and most did so fully. At the final seminar I took a straw poll as to whether they liked the format. Overwhelmingly they did. Thus, I plan to use the cases again next year.’

Despite several examples of good practice such as this, level of engagement/usage of e-learning tools has (as one would expect) varied from pilot to pilot. Possible reasons for this are given in section 4.1.

3.2 Implementation

From the outset, the Website has been our primary tool for dissemination. When meeting with academic colleagues we have used this (and examples of work to date) to explain how the programme could be adapted for them.

Other dissemination has also been undertaken:

a. a Window on Teaching event (22 February 2012), aimed at colleagues interested in innovations in teaching, explained the programme and described work undertaken in the pilot projects (see www2.warwick.ac.uk/services/library/teachinggrid/exchange/recent_events/studentasresearcher);

b. a presentation to the Academic Quality and Standards Committee (AQSC) (2 February) outlined progress to date and advocated the programme to senior faculty colleagues;

c. a presentation to the Academic Sub-Group of the Employability Working Group (10 February) looked at the project from an employability perspective;

d. the potential of the Student as Researcher model was highlighted at the Teaching and Learning Review 2011 Faculty Engagements (16, 19 and 22 March) and in allied documentation;

e. presentations and discussion at the Faculty of Science Lunch (23 May) enabled us to start conversations with colleagues in the sciences;

f. a Strategy Bites session (18 June) promoted the programme to potential academic partners and other service agencies;

g. academic colleagues from pilot projects also (independently) promoted the programme at the Teaching and Learning Showcase (19 June).

We also produced an interim video report for IATL (March) which has subsequently been used for advocacy and have just started to produce marketing tools (for example, bookmarks – see Figure 7).

![Figure 7: Promotional bookmark](image-url)

As a result of all these outreach activities we have started negotiations with colleagues keen to be involved with the programme next year (see section 5 below).
4. Implications

So what are the overarching lessons learnt? Some points were specific to the programme (see 4.1) but our experience also highlights wider issues around student services (4.2).

4.1 Specific lessons learnt

As well as subject-specific outcomes (see 2.4 above) some generic themes have emerged. Some of the following is unsurprising but these are clear lessons learnt that we need to use to inform future practice.

4.1.1 Engagement of colleagues

The pilots have been most successful where we have worked closest in partnership with colleagues. Academic, Library and other colleagues need to have a shared understanding of what the team is trying to achieve. There also needs to be a willingness to experiment and (ideally) an ability to be forgiving if some experiments do not work out. On-going communication is essential. In some pilots a lack of continuity of staff members proved challenging. Academic staff interaction with students and on-going advocacy of the programme also helped to guarantee successful student engagement.

4.1.2 Mandatory v Optional and Assessed v Not Assessed

Perhaps unsurprisingly, where Student as Researcher activities were made mandatory and learning outcomes were assessed, student engagement was better than where it was optional and not assessed.

The course was mandatory for French and German and some WBS modules, whereas it was optional in Psychology and Law. This may help to explain levels of engagement and some of the outcomes noted in 2.4.1 and 3.1.

Various degrees of assessment were carried out. WBS again provides an illustrative case study. In one module the Student as Researcher element was mandatory and assessed: the tutorial pages received over 28,000 hits. In a second, the module as a whole was assessed but the Student as Researcher element was optional: the result was 5,500 hits. In a third, it was optional and not assessed: the module pages received fewer than 300 hits.

4.1.3 E-learning

Our experience has informed the development of our e-learning approach. The structure initially developed for WBS (a module divided into weekly elements, each with their own collection of tools) proved successful and is being adapted to roll out in other areas. Early lessons learnt about videos (they need to be short!) and other e-learning tools (we need to provide a combination of different tools to support different learning preferences) has informed later production. We are now also looking at which tools need to be subject-specific and which can be more generic (for example, videos on bibliographic referencing). Where a generic approach works, re-usable learning tools are being developed. These will aid in the efficient expansion of the project and can assist the University as it moves to providing courses through Moodle.

4.1.4 Face-to-face delivery

Having said this, face-to-face elements remain important. We found this essential for advocacy to ensure adoption of new e-learning approaches (eg. the wiki for French). It was also useful to promote our ‘human’ side for follow-up enquiries, even if these were handled virtually. A classroom setting is useful when testing new ideas. It is an efficient way to get quick feedback (including body language) from students which can inform further development of our offering.

As noted, the pilots have worked most effectively where partnership working has been strongest. Relationships are best forged face-to-face: this has been invaluable for both developing the pilots and extending the project, with both academic colleagues and other support agencies.

4.1.5 Timing

Any successful teaching programme obviously requires good planning, with sufficient preparation time essential. This is especially important where several agencies are involved and e-learning platforms need to be developed. In some cases (notably WBS and French) we were able to give considerable time to developing and adapting the programme. In other areas, time was more pressurised, students may not have felt they had enough time to become comfortable with new approaches, and engagement was less impressive.
4.1.6 What students value
From survey responses to specific questions (see 3.1) students stated that the programme helped them to feel more confident in finding and referencing materials (WBS). More general comments were also sought. Video interviews with the French cohort highlighted that the Student as Researcher programme had helped them get more out of the Library and make more use of the services offered, develop transferable skills around technology and information, and enhance presentation skills which are important for ‘employability’. This was an issue raised specifically by the students and something we will focus on in future marketing/advocacy and planning.

4.1.7 What academics value
Academic colleagues have reported appreciating using new technologies (especially Web 2.0 tools), increased opportunities for creativity and the support they have received in making students active researchers. Showcasing student outputs has been viewed very positively and we are keen to do more of this.

Student as Researcher pilots were used as evidence in a successful WATE applications (from Dr Cathy Hampton, French) and presented as a case study in the 2012 Teaching and Learning Showcase by a National Teaching Fellow (Dr Seán Allan, German).

4.2 Providing a seamless student experience
Student surveys and other indicators (as highlighted above) tell us that relevance to the course of study (the primary focus for student attention) is central to student appreciation and engagement with skills development. Where there is dislocation, skills sessions can be viewed as an irrelevant burden by students, not related to need, lacking obvious benefit and hence not fully understood, fully valued or fully exploited by them.

In future, we feel that Warwick should take a holistic approach to skills and knowledge development. Just as students grow in their academic understanding, nurtured by Warwick’s academics throughout their course, so academic, information, employability and other relevant skills can be developed incrementally and at point of need, so their relevance can be fully appreciated, the value grasped and skills fully developed. This approach could be further developed as a ‘package’ that supports the student progression from learner to researcher to producer, spanning all stages of the student lifespan and providing a distinctive Warwick experience.
This is very much the philosophy of the Student as Researcher programme and as we move beyond the pilots the Library is working more closely with Student Careers and Skills, our Learning Grid Advisers and the Reinvention journal to further integrate academic skills development. We are also currently talking to the Registrar and Ann Caesar about developing this approach to further improve the student experience at Warwick.

5. Conclusion

The Library feels this has been a successful project and we are grateful to IATL for its support. Employing a Student as Researcher Project Officer has enabled us to make our plans a reality. Undertaking the pilots has allowed us to trial the programme, learn lessons, enhance our offering and use successes for advocacy.

We are currently planning to roll the programme out again with the seven pilot departments, enhanced by lessons learnt, which will inform the development of support materials, a review of assessment, and so on.

Following advocacy activities, we are starting to plan new modules and programmes for:

- **Arabic Literature, Philosophy and Literature, American Culture, Mediaeval French** - Preliminary work is being undertaken in these areas. We are meeting with academics to establish which parts of the programme would be most relevant to their students. There is a lot of interest in the wiki approach to encourage independent research as well as collaboration, and Cate is also researching new tools to facilitate similar collaborative work in different contexts.

- **Making History** - The Library is supporting Mark Knight in the History department as he develops the new module *Making History*. The module is strongly focused towards skills development for first year undergraduates and will include a large element on using primary sources (through the MRC) as well as developing presentation skills, with assistance from Student Careers and Skills and embedded support from Learning Grid Advisers.

- **Dissertation skills** - We have had further interest in supporting students undertaking dissertations in History and in Economics. We will take into account lessons learnt through the Film & Television pilot but we also hope to trial new approaches to encouraging and supporting further student outputs.

Following the Faculty Engagements, we have started discussions with colleagues across the sciences to see how we can expand the programme much further. The response so far has been enthusiastic, with a lot of interest in the Student as Researcher approach, especially its use to support undergraduates developing their information searching and referencing skills, as well as skills around producing outputs (in particular presentations and posters).

In many ways we have been the victim of our own success and demand could very easily outstrip supply. The Library has been able to extend the Project Officer post for one year and is looking at how further activities could be absorbed but resourcing remains an issue. We will need to manage expectations and may not be able to satisfy all the demand outlined above. We will continue to work to try to address this and identify opportunities for further funding where possible.

To finish, we would once again like to thank IATL for its support in making the Student as Researcher programme such a success. IATL has made a difference for us and we in turn have made a difference for the University. We hope to build on this to further embed and extend the Student as Researcher programme in the coming year and beyond.

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