BLASTER
The Best Liberal Arts & Sciences Teaching Expanded and Reinforced

CURLAS:2017

Companion to Undergraduate Research in

the Liberal Arts and Sciences

First Edition

Professor Cathia Jenainati, Dr Rebecca Fisher, Victoria Jelicic, Dr Nick Monk (University of Warwick) [1]

Introduction

> *While there may be no general agreement about its nature, it is clear that what constitutes the core activity of the university is teaching and research. The relationship between these two aspects of higher education is not straightforward; indeed higher education is characterized by the severe imbalance between teaching and research, leading to what has been called an "apartheid" between student and teacher (Brew 2006)[2].*

The task of the **BLASTER (The Best in Liberal Arts and Sciences Teaching Expanded and Reinforced)** project is to help overcome the 'apartheid' Mike Neary mentions in the extract above from his article, 'Student as Producer: Reinventing the Student Experience in Higher Education' (127)[3]. Neary argues that teaching and research have become artificially separated in the modern European university, yet the idea of the student as researcher is actually a foundational one in which, historically, teacher and taught worked together in a community of knowledge creation. This position, although sometimes idealised and oversimplified in hindsight, was broadly what prevailed until the 20th century. In recent years the pace of change has increased. This has happened for a number of reasons, some of which include the highly disciplinary nature of the modern university, the link between research outputs and profit, and the measurement and grading of research. It is interesting that some of these changes are represented in the attitudes of a number of academics in the research findings that we detail below. It is notable in particular that a proportion of academics see little value in undergraduate research unless it produces an output – either in the form of an undergraduate publication, or as information that might quickly be adapted

---

[2] Brew, A. *Research and Teaching: Beyond the Divide*. Palgrave Macmillan, 2006.

[3] Bell, Les, Mike Neary, Howard Stevenson, eds. *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum, 2009.

for commercial or other external uses. But another group of academics frames undergraduate research as a pedagogic methodology designed to promote more effective learning. The process, rather than the output, becomes the key element. These ideas tend, also, to have differing disciplinary nuances. Definitions of undergraduate research vary greatly between disciplines and faculties. Anecdotally it is clear, at the University of Warwick, for example, that those working in STEM subjects regard research as something to be conducted only at the leading edge of a discipline by those with years of expertise.

The Arts and Humanities have a somewhat different approach, whilst the Social Sciences seem to draw from both positions, often depending on the subject: Economics and Sociology, for example, appear to approach undergraduate research from different positions, with Economics seeing itself more closely allied to the Sciences. Broadly, however, the focus remains more on allowing students to discover ideas for themselves. Students may research topics that have been thoroughly examined by scholars, but the process of data collection, analysis, the development of ideas, and collaboration, tends to be regarded as more important than breaking new ground. And in the Arts and Humanities in particular, a new angle on a well-researched subject may be as easily available to an undergraduate working with the appropriate academic tools as it might be to an established academic.

In terms of output, *Reinvention: an International Journal of Undergraduate Research*, Warwick's interdisciplinary undergraduate research journal[4] offers an insight into the range of recently published undergraduate papers. In the 9 years since its inception there have been 27 publications in the Arts and Humanities, 10 in Medical and Healthcare Sciences, 21 in Science, and 42 in Social Sciences. The discrepancy between Science and Social Sciences is

---

[4] *Reinvention* was founded through the Reinvention Centre jointly by Warwick and Oxford Brookes University in 2007. The journal was created in order to embrace the notion of academia as a community, with students playing a strong and active role in that community, and aims to support undergraduate students in their first foray into academic publishing. In 2012 Monash University became partners in the journal which is now produced, edited and managed by students and staff at the University of Warwick in the UK and Monash University in Australia.

notable and gestures towards the notion that the Social Sciences show a greater readiness to take their work to publishable levels. The growing success of the International Conference of Undergraduate Research (ICUR), run by Warwick, along with the increasing number of undergraduate research conferences across the sector internationally, provide further support for the idea that undergraduates are becoming increasingly willing to place their work in public forums. The evidence from *Reinvention*, ICUR, and the research detailed below indicate a shift in attitudes towards accepting and encouraging undergraduate research as an important component of the students' academic development. Suggestions, perhaps, that support the anecdotal evidence, for a move away from the apartheid of teacher and taught, and a move towards a space in which university educators become facilitators in the co-creation of knowledge with students.

Context and Purpose

BLASTER (The Best in Liberal Arts and Sciences Teaching Expanded and Reinforced) is a collaborative research group of 5 universities who have secured Erasmus+ funding to undertake a major project on Liberal Arts and Science education in Europe. Along with the University of Warwick (UK), the partners are University College Roosevelt (Netherlands), Leuphana University Lüneburg (Germany), Vytautas Magnus University (Lithuania), ECOLAS (represented by BISLA —Bratislava International School of Liberal Arts—and Bard College Berlin), and Leiden University (The Netherlands). Warwick is leading on the Undergraduate Research strand. A series of outputs arise from this research:

- **CURLAS:2017**, which summarises the current state of undergraduate research in Europe and contains guidelines to support undergraduate students and their academic supervisors;

- A **special issue of** *Reinvention: An International Journal of Undergraduate Research*, which will showcase research undertaken by undergraduate students at each of the partner universities;

- An opportunity for partners to **share best practice** and to review the first edition of CURLAS will also generate a series of small, defined research projects, carried out by staff-student research teams embedded in each partner, which will create **institution-specific recommendations** for undergraduate research;

- A final Symposium that allows the partners to disseminate their work to a wide audience.

This document is the first edition of CURLAS:2017, and as such represents the findings of series of focus groups that took place in Spring 2016 combined with initial responses to the findings. The focus groups asked undergraduate students from institutions across Europe how, when, and why they undertake research, and invited staff to consider how, when, and why they supervise and support this research.

The second edition of CURLAS will be publicly available via the ECOLAS website, for the use of undergraduates considering or already engaged in undergraduate research, and for academic and professional staff who support or are considering creating undergraduate research programmes in their institutions.

Methodology

The nature of this research is qualitative. Focus groups were coordinated and facilitated by members of the BLASTER team comprising of one academic, and/or one project manager, and/or a doctoral researcher. The student groups focused on the students' experience of undertaking undergraduate research at their institution, while the staff groups focused on the support systems available for undergraduate research across academic and professional services. Thematic analysis is used to identify the key findings.

Two standardised interview guides were used to structure each focus group; one for the student focus groups, the other for staff[5]. All participants were introduced to the purpose of the research and assured confidentiality. To confirm their understanding, each participant read and signed a consent form which will be held securely in the BLASTER electronic archive at the University of Warwick[6]. All participants were asked a set of open-ended structured questions. Some facilitators asked the participants to complete the Focus Group Task Cards supplied with the interview guide[7], whereas other facilitators – particularly those working with small groups – elected to use the questions on the cards as pointers for verbal discussions.

Ethical approval was granted by the Humanities and Social Sciences Research Ethics Sub-Committee at the University of Warwick. The data analysed herein were collected through audio recordings and transcribed anonymously: these records will be held securely in the BLASTER electronic archive at the University of Warwick.

---

[5] cf. Appendix A

[6] cf. Appendix B

[7] cf. Appendix C

Scope

In total, 7 staff focus groups and 8 student focus groups representing universities in the UK, The Netherlands, and Germany took place from March to May 2016.

Four of the participating institutions are partners in the BLASTER project and deliver either Liberal Arts and Sciences undergraduate degree programmes which offer students the opportunity to undertake research, or they offer undergraduate students the opportunity to carry out inter- or transdisciplinary research projects as part of a traditional disciplinary degree programme. Three other institutions were invited to participate as they host undergraduate research programmes in Liberal Arts and Sciences.

The student focus groups consisted of undergraduates who were undertaking a supervised research project (such as a dissertation, research internship, or capstone project). They were invited to participate by a contact within their institution.

A range of staff members were invited to participate in the staff focus groups, including academic supervisors, mentors, subject librarians, skills advisors, and any other interested parties who directly or indirectly support undergraduate research. The majority of these groups were attended by academic supervisors, but a proportion of the groups included professional staff as well.

The student and staff focus groups were held separately to permit participants to speak openly. Each group typically included 4 – 6 participants, and lasted for one hour. In total 39 students and 33 support staff were interviewed across all institutions.[8]

---

[8] NB.: One UK institution's data were lost and therefore not included in this document. The insights the facilitators of those groups gained in interviewing the participants has been folded into the observations where relevant and helpful.

Limitations

The size of the sample of students and staff is small in relation to the student/staff body as a whole. However the findings are considered reliable as individual experiences have produced generalisable findings based on the interviews. Four limitations should be noted:

- Firstly, the timing of the research was not ideally placed in the academic calendar. Many students were away conducting research or preparing for exams and other coursework. Perhaps if the research was conducted earlier in the term, the sample could have been increased;

- Secondly, the questions provided in the interview guide were offered without much context or explanation. Definitions were not provided for key terms which may have influenced how interviewees interpreted particular questions. For example, participants debated what it means to guide or be guided, and disputed what it meant to be an expert in a broad sense. Some brief definitions would have facilitated a more efficient discussion;

- Thirdly, not all interviewers adhered to the interview guide, which may have influenced the richness of some data obtained from particular institutions;

- Finally, UK and European institutions have vastly different structures and requirements, which makes direct comparison of the experiences of staff and students challenging.

Data Analysis and Preliminary Findings

In this section key themes that have emerged from the focus group discussions are identified. Quantitative measures are provided where appropriate, and qualitative analyses are supplied where needed. Areas of good practice are highlighted, along with areas that have been identified as needing improvement and/or development.

Students undertook undergraduate research through three main streams:

- required research projects or a dissertation;
- as an extension of an internship or pre-existing research project (i.e. individual or research group); or
- for personal research interest, skill development, and 'hands-on' experience outside of any academic requirements.

Three major themes arise from the data, which coalesce around

- what undergraduate research currently offers and what it could offer to students in future;
- the strengths and weaknesses perceived by staff and students in the structures that surround undergraduate research; and
- broader concerns about how undergraduate research can and should be defined:

Definitions of undergraduate research, success, and the importance of failure

The expectations of undergraduate research among students and support staff varied. In their discussions, staff often asked "what do we mean by undergraduate research?" and "what is the purpose of undergraduate research?"; they did not settle on a satisfactory definition. For students, the term 'undergraduate research' can

denote a range of things: the opportunity to work on something they are interested in; a process by which they would gain relevant experience that complements but is separate to their main degree programme; or an extended piece of work that is a required part of their degree programme. The students' expectations of undergraduate research were varied: they hoped to learn more about the research process; to contribute to knowledge in their field; to be published; or to simply complete and pass the compulsory project.

Although it is difficult to measure success and failure objectively, a majority of students felt that having ownership of their project, learning by writing, editing, re-working and contributing to something new challenged them and made them view their progress positively. All students interviewed mentioned time as a significant factor impeding the 'success' of their project, commenting that conflicting demands and deadlines and too little time meant that they could not produce a 'successful' project, with 'success' often being defined as a piece of work which produces new knowledge of publishable quality.

The staff participants generally equated 'undergraduate research' with methods course work or an undergraduate research project, not always of publishable quality. The determinants of a 'successful' research project weren't explicitly stated by staff, but many of the respondents identified skills development as an outcome of a successful undergraduate research experience. The specific skills the respondents identified included: being able to developing ideas, writing a research proposal, data collection and analysis, report/paper/thesis writing, working with peers, and collaboration with faculty and external members. One staff participant commented that "I didn't define success as a publication or high level, I defined it as the project being finished and being graded a good grade", echoing the students' concerns with completion and marking. Some students observed that (generally due to some failure in the external partner that was hosting their research) their research didn't

generate the results they were hoping for, which was a cause for concern. In contrast, one of the staff respondents commented that "the quality of the research is independent of whether you get significant results or not".

It is important to contextualise these responses within the undergraduate research programmes available at the participating institutions, and within the constitution of the sample. The majority of respondents were engaged in research required by their degree programme, as a capstone or dissertation project, whereas some (the European, rather than UK respondents) had elected to engage in research as an addition to their programme requirements. Some respondents – from the European, rather than UK institutions – were engaged in research internship placements in businesses or laboratories that were not part of their home institution.

It is evident that staff and students would welcome a general definition of 'undergraduate research' which sets out what students should expect to gain from the experience, and how one can define 'success' beyond achieving a satisfactory grade.

Definitions of supervision, supervisor/supervisee relationships, and academic freedom

All student participants identified their supervisor as their main source of support and very often referred to the term 'guidance' when identifying and reflecting on their supervisor's role. Students identified several key actions of a supervisor:

- Supports the students in identifying their research topic, which can be closely connected to the supervisors' own interests, or new to both student and supervisor;

- Highlights key existing literature and data to help the student situate their research in the relevant field;

➕ Provides practical support (e.g. setting and enforcing deadlines) throughout the research process.

All of the student participants agreed that it would be very difficult for them be effective with limited or no supervisor guidance.

Although the students credited the supervisory relationship as a key factor in their progress, there was a lot of variance in terms of the frequency and types of interaction a student experiences and expects. These can be categorised in the following ways:

➕ Self-guided: an initial meeting, followed by some email correspondence;

➕ Infrequent/moderate: an initial meeting, followed by a set amount of face-to-face meetings (e.g. 1 a term or 4 in the academic year), combined with some email feedback;

➕ Frequent: an initial meeting, followed by monthly meetings or as needed, supplemented by frequent email feedback.

The type and frequency of contact between student and supervisor was sometimes purposefully designed by students according to their accustomed way of working, or was imposed upon them by the supervisor's chosen way of working, or larger systems governing the structure of the particular research project/programme. When asked to describe their interaction with their supervisor, one student said they were "left to their own devices". When another student was asked how many meetings they can have they responded with "…as many as we like". Both were from the same institution, undertaking the same research project scheme but were from different departments. This is one example highlights the variance in frequency and

quality of interactions among departments reported among participants interviewed.

An important finding relates to the notion of academic freedom. The way in which research topics are set differed significantly among the participating institutions. Some permitted students to choose their own topic in discussion with the supervisor, with greater or lesser intervention from the supervisor, whereas some students chose their topic and/or supervisor from a list, or were assigned a topic by a member of staff. A few students felt that they were limited in terms of the direction in which they could take their work, while others appreciated the guidance provided due to the supervisor's experience and knowledge. The students' most positive interactions and relationships with their supervisors came about when there was trust between supervisor and student (e.g. the supervisor allowing the student to pursue a new and unfamiliar area of research); when the supervisor demonstrated interest in and a "passion" for the students' research; when the student felt that their ideas were new both to them and their supervisor (this was also identified by one of the academic participants, who expressed pleasure at being "surprised" by their student's research); and when the supervisor observes that the research will have some kind of outcome (e.g. publication or a concrete effect on a field or other people). For example, one supervisor commented that undergraduate research should "have some deliverables at the end besides just doing a good thesis"; another staff participant observed that

> *One thing I'm missing a lot in research, in our academic world, is not only the effort of researching something but also it's very important to translate that onto an actual outcome. So far as I know there is no merit whatsoever in our policy for undergraduate research to encourage students to publish their outcomes.*

Staff agreed that their role was to guide the student in the research process but that the student's effort was ultimately responsible for their success or failure. Some supervisors noted that they would feel more comfortable standing back from a student who was "brilliant", but that ideally "the tutor signposts; the student designs". Staff agreed that ideally supervisors should be able to provide "broad" subject expertise (e.g. being able to provide an overview of the field and signpost students to significant works); they agreed that supervisors who are experts in the specific field of research can create projects that are too rigid. Indeed, students agreed that "expert" supervisors were too didactic, limiting their research. An interesting distinction between the UK and European institutions arose, particularly where the students were discussing the ideal supervisor. The European students were more likely to comment that they needed to learn for themselves, to fail, and to pick themselves back up again. One student commented that undergraduate research is the student "trying and failing and figuring out a better way"; another said that "I think just doing what you want and falling on your face is what shaped me as a student and academically"; a third student agreed that "research is struggling". However, some students acknowledged that learning in this way can be painful: "I would figure it out myself because you learn more from that, but it was a very chaotic time". The UK students were much more concerned with getting it right the first time, and with getting a good mark in the end.

Staff also recognised that the experience of undergraduate research can be intimidating for the students, commenting that

> *It's the difference between teaching and learning. The entire school model is to be taught, and they come to university and suddenly we're telling them to be learners … It frightens the hell out of them.*

Supervisors also used the term 'monitoring' (i.e. checking in, providing feedback, having meetings and directing students to appropriate sources or extra support) instead of 'guiding': the distinction appears to be between "empowering the student to be responsible" and ensuring that they benefit from the subject expertise of the supervisor. Therefore it is important to define what is meant by supervision, and what the student and supervisor can expect of each other.

Staff respondents also raised issues relating to collaboration and co-supervising. All the European institutions that participated worked within a co-supervision structure: each student has two supervisors, from related or similar fields, or drawn from the external partner that is hosting the student. In contrast, the UK institutions used a single supervisor model. Students and staff noted that these collaborations can be difficult: for example, supervisors can disagree on the content or management of the student's project, and there is not necessarily an infrastructure in place to deal with these differences (unless they relate to the confirmation of a final mark). One staff participant commented that "collaboration is not constructive, it's destructive, and extends the whole process". Students noted that external supervisors can be harder to contact. The positive result of co-supervision was that it can provide balance in terms of the intellectual content of the research.

The number of students the participating academics supervise over a year or project term varies from 1 – 4. The staff participants noted that the number of students they are expected to supervise can affect the quality of supervision they can provide. This was also noted by the students: for example, students from one UK institution expressed concern for part-time members of staff who seemed to dedicate more time and hard work to their supervision than full-time members of staff. Three of the

participating institutions explained that a non-academic coordinator is responsible for project-managing the research with the student, so the supervisor can focus on supervision. These multi-disciplinary teams – which draw on professional and academic staff as direct supporters of the student – were welcomed by the students.

Systems and processes

In terms of alternate forms of support, all students from the institutions highlighted the following as useful:

- Their institution's library (though in some cases the library was seen as inadequate);

- Writing and skills learning centres;

- 'How to' workshops (i.e. Write a Research Proposal, Write a Literature Review, etc.);

- Research methods courses (qualitative and quantitative);

- Subject specialist from departments;

- Personal tutor (separate from their academic supervisor).

Some of the students mentioned their department's Undergraduate Research Coordinator (who may be a professional staff member or an academic with an administrative role) and student research groups (made of students on the same research programme) as useful as well. For example, one of the UK institutions interviewed require students to form research groups around given themes, from which their research topics arise; the students found this opportunity to work through ideas with their peers to be supportive and productive. When the facilitators mentioned this structure to other student groups, the students agreed

that they could benefit from having a designated programme coordinator and other students to share information with and discuss the research process.

Throughout all the groups, staff and student participants highlighted the need for clear communication regarding programme guidelines and expectations, as well as information sharing. Students from each institution reported inconsistencies in communication regarding feedback and deadlines, and were unsure when, where, and how to access specific resources (e.g. funding, access to outside institutions for research, labs in which to conduct their work). All respondents agreed that there need to be clear structures in place for students and supervisors, from the development of research topics, to marking the final work, as well as all the stages in between (the assigning of supervisors, the managing of the student's progress, and accessing necessary support and resources).

Staff respondents who supervise students noted that they generally enjoy working with the student to set deadlines and project targets, but that in order to achieve more consistent results across institutions they would need guidelines to be created at an institutional – rather than at a departmental, or even individual project – level. The issue of standardised structures and expectations for undergraduate research was raised in several of the groups. Supervisors also noted that they would welcome their supervisory duties to be defined in addition to their regular duties. Resources for students such as travel grants, experiment budgets, labs, methods courses or workshops, and peer support vary significantly among institutions.

Recommendations
for Liberal Arts and Sciences institutions

- Encourage consistent standards and expectations for undergraduate research – as well as access to support for students – across the institution by using an online learning environment (e.g. Moodle or Blackboard) to store resources and a Handbook which outlines programme expectations, guidelines, the supervisory relationship, grading, feedback and 'How to' guides (such as how to bind the project, where to submit it, etc.);

- Make methods courses (e.g. qualitative and quantitative methods training) available closer to the project being undertaken;

- Define and implement guidelines for supervisors which cover accountability and monitoring of supervisors, quality of feedback and turnaround time of feedback, replying to emails in a timely manner, frequency of meetings; etc.;

- Consider competing deadlines of other coursework and assignments which may impact on supervisors and students. Consider extending the project over 2 terms or summer;

- Encourage and facilitate students undertaking undergraduate research to collaborate and network through research groups or general peer support groups;

- Provide channels for student feedback and address what is reasonable, and communicate this to students and staff;

- Be more clear in the importance of and outputs expected of undergraduate research (i.e. publishing works, Master's enrolment, "real world" outcomes);

- Define what undergraduate research is (e.g. the type of work (internships, dissertation), the length of work expected, activities to undertake (interviews, literature reviews, close reading, experiments);

- Consider creating funding to support undergraduate research with external partners.

for Liberal Arts and Sciences students

- Ensure that you understand what is meant by undergraduate research, in discussion with your supervisor and in reference to any institutional guidelines;

- Discuss project aims and expectations with your supervisor at the outset;

- Negotiate supervisory expectations, preferred method of feedback, and format and frequency of meetings;

- Provide feedback to the programme if you can see an opportunity for improvement or innovation.

for Liberal Arts and Sciences supervisors

- Have an initial meeting to review research proposal and set clear and agreed upon expectations of the project and supervisory relationship;

- Agree a number of meetings, process of meetings, and the expectations of meetings that will take place throughout the project;

- Provide thorough feedback via email or in person in a reasonable time frame;

- Assist with signposting to relevant or outside resources when programme coordinator or other support staff is unable to assist;

- Explain grading criteria;

- Consider co-supervision for interdisciplinary projects;

- Integrate students into academic research as co-authors.

Undergraduate Research : Pillar Timeline

October 2016

The first draft of CURLAS, created by the team at Warwick, is made available to partners.

October 2016 – July 2017

All BLASTER partners invited to **Best Practice in Undergraduate Research** (C3/C4) in Leuphana (20 – 24 October 2016).

At this event, staff and students from each institution had the opportunity to feed back on the first draft of CURLAS. In addition, staff-student teams from each institution developed small research projects, aimed to explore best practice at and recommendations for their institution. Their findings were incorporated into CURLAS, along with a case study written by the academic lead at each institution.

May 2017 – September 2017

A dissemination Event is held at Warwick to share the findings of the research as conveyed in CURLAS:2017

October 2017

The final edition of CURLAS:2017 will be developed by the team at Warwick, and will be hosted on the ECOLAS website.

Appendix A
Interview guides

Appendix B
Consent forms

Appendix C

Focus Group Task Cards (Group A: students; Group B: staff)