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Embedding Student Research Publication Opportunities: Strategies for Widening Engagement with Undergraduate Research Journals

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From the International Desk

Strategies for Widening Students' Engagement with Undergraduate Research Journals

Indonesia's education ministry released a policy statement in August 2012 that immediately made research publication a graduation requirement for all undergraduate, graduate, and post-graduate students (Rochmyaningsih 2012; Abbas 2012). Indonesia is now turning to electronic journals to provide a forum for this increased volume of published work. While this politically motivated policy is designed to ensure that Indonesia can compete with neighboring countries, it begs an important question: Should research publication be required for all students and can this mandate really include *all* undergraduates?

Since the publication of the Boyer Commission's "blueprint" for reinventing undergraduate education in 1988, the case for undergraduate research (Hunter et al. 2007) and its dissemination (for example Kinkead 2003, 2011; Hensel 2012) has been clearly made. Making this a reality has taken a multitude of forms, from the creation of national and institutional journals of undergraduate research (Hart 2012), to less formal activities such as oral presentations, blogs and wikis (Tatalovic 2008). Walkington and Jenkins (2008) explored some of the more commonly utilized practices and suggested ten strategies for effectively disseminating undergraduate research in order to "complete the research cycle" (Walkington 2008).

Research dissemination can take many forms, from formal journal articles, public blogs, presentations to research clients, workshops and displays, informal poster sessions, private wikis, and a range of online resources with varying degrees of permanence, editorial control, and exposure to institutional and public audiences. The dissemination format can have significant implications for the legacy of a piece of research, for example whether "you had to be there" to access it (such as an oral conference presentation) or whether it is permanently hosted in a searchable format. Dissemination of undergraduate research can target a range of audiences, from the general public to disciplinary communities to peer groups within a curricular course, allowing varying levels of exposure appropriate to the nature of the research. In his survey of U.S. undergraduate research programs, Lopatto (2009) found that external presentations and publications in peer-reviewed journals were relatively uncommon (only 8 percent of student research was disseminated outside of the authors' own institutions), largely due to academic restrictions arising from the limited research period typical in undergraduate research.

Informal dissemination of undergraduate research is harder to track, but North America has led the way with formal dissemination via organizations that host conferences and journals, such as CUR and the National Undergraduate Research Clearinghouse. In addition, individual institutions have provided infrastructure to support undergraduate research, including significant funding, dedicated offices, and other administrative support (Kinkead 2003). In 2003 it was reported that close to a third of U.S. institutions had at least one campus journal focused on undergraduate research (Katkin 2003). The situation outside North America is quite different. Individual champions of undergraduate research, with seed money from institutions, have started journals that they often run with just voluntary support and goodwill, but these typically suffer from sustainability problems once the original funding has expired. Regardless of the funding situation, the challenge of making undergraduate research more accessible and public in a meaningful way is a task worth pursuing. With specific reference to online journals, Jenkins (2012) noted that despite the costs associated with e-journals, they could be considered worthwhile in terms of:

- a) The support they provide to help students enter and participate in a discipline-based research community;
- b) The intellectual value to students in writing in a public forum;
- c) The benefits to students as they become producers of knowledge; and
- d) The benefits to students, departments, and institutions of making student research public.

Some additional benefits of students' e-journal writing have been noted by Tatalovic (2008), who considered that engaging future scientists (or future educators or journalists) in such forms of dissemination could enhance the students' ability to communicate work to the public after graduation.

Students identify a range of benefits derived from publication of their work, viewing it as a model of good practice for other students to follow, believing it enhances their curriculum vitae, and saying it also boosts self-esteem (Gresty and Edwards-Jones 2012b; Walkington 2008, 2012; Walkington et al. 2011). The benefits of publication therefore extend beyond skills acquisition, providing successful authors with recognition that stimulates the desire for further dialogue

and additional research (Walkington 2011). The challenge therefore is to share these benefits with a wider group of students, to enhance students' experience on a broader scale while still inspiring them to produce high-quality work. In addition, postgraduate students who act as reviewers of undergraduate journal articles have reported gaining a range of skills and increased motivations resulting from engagement with undergraduate journals, including improvement in their own writing, and the desire to provide a forum for learning for undergraduates (Walkington 2008).

Not all academics are convinced of the merits of dedicated undergraduate research journals, and some have been reluctant to embrace the concept and promote student engagement with such journals (Corbyn and Rooney 2008; Gilbert 2004). Nevertheless, the benefits to students who engage with journals are significant, and therefore strategies to extend these advantages to a greater proportion of the student body should be seriously considered.

We will cite two institutional case studies from the U.K. that may help readers reflect on the question of whether it is possible, or even desirable, to disseminate all students' research through electronic journals. Our discussion takes as its starting point the position that engaging in undergraduate research should be appropriate and achievable for all students, and that dissemination of their research should be an integral part of the process. However, the form of that dissemination and the nature of the audience need to be carefully related to the merit and quality of the work. If the chosen form of dissemination is via a journal, the journal should have clearly stated aims to this effect.

Some journals simply publish student work carried out within the curriculum as a "showcase," providing no reformatting. The work might include posters and video material, as well as essays, trail guides (e.g. for environmental activities) and material from other assignments. In such cases, the journal is oriented toward putting student work into the public domain, rather than being oriented toward developing a readership. At the other end of the spectrum are journals with author guidelines and quality thresholds similar to standard peer-reviewed academic journals. Such journals may even be disseminated through a publishing house, for example *Bioscience Horizons* is published by Oxford University Press (<http://biohorizons.oxfordjournals.org>). The latter type of journals tends to have a disciplinary focus or orientation toward a particular readership. This type of journal relies upon students to invest time outside the curriculum, and sometimes even after the students have graduated, to rework articles in response to critical review. Generally the work presented in such journals derives from final year, independent research projects and research-based capstone projects (Healey et al. 2013).

As noted earlier, Walkington and Jenkins (2008) suggested ten strategies for broadening the dissemination of research conducted by undergraduates. These strategies focus on involving students (at all levels) with the journal publication process, the embedding of journals into the curriculum in a variety of ways, and the broadening of definitions of research and the way it is communicated. This article explores the desirability and approaches used to promote inclusion of a wider network of students in publication in five e-journals. It reflects on the experiences of student e-journals at two U.K. institutions that use different approaches, and extends the range of strategies that can be successfully employed to encourage wider student engagement

Each e-journal we describe has its own ethos and therefore the strategies to disseminate student research vary significantly. It is important to note that the e-journals do not aspire to encourage *all* students to publish; rather they provide a supportive opportunity that allows *more* students to publish. All of the journals employ quality controls, and although the standards are as transparent as possible, it is not realistic for every student to publish his or her work or even desirable in cases in which the work has been reviewed and found to be lacking in rigor. The success of each journal hinges upon student work being of a suitable quality for public dissemination and peer consumption, as well as on the creation of a readership through a disciplinary focus.

A Case Study of Two Geography Journals

Geoversity (<http://www.brookes.ac.uk/schools/social/geoversity/>) is an online journal dedicated to showcasing the research work of undergraduate geography students at the U.K.'s Oxford Brookes University. It was created to "complete the research cycle" (Walkington 2008) for students and to provide a venue for the dissemination (via online publication) of student work from any of the geography courses e.g. the final (honors) project and dissertation. In the U.K., undergraduate dissertations are rarely read by anyone other than the grader of the submission and the student's academic supervisor. Therefore, *Geoversity* was created to allow undergraduate students to disseminate their work. Any student in the department can submit his or her work for critical but supportive review, with a view toward publication.

To increase the number of students seeking to disseminate their work, the format of the work submitted is open ended—that is, in addition to traditional geography papers, non-standard formats can be included, such as trail-guides, posters, videos, etc. The journal accepts written articles including a "rapid communication" style format for work that is in progress or work that can be reported in shorter form than standard articles. The point of accepting a variety

of submissions is to be as inclusive as possible as this is a departmental showcase, not a highly selective journal.

The initial submissions to *Geoversity* were traditional in format and from students whose work had received a high grade. However, following a departmental poster conference (Walkington and Rushton 2008), students were directly approached by the editor of the journal, Elizabeth Rushton, who asked them to submit their work. Thus, the range of students whose work was eventually published (after several drafts), as well as the formats in which this work was presented, were expanded.

In contrast, *GEOverse* (<http://geoverse.brookes.ac.uk/>) is a national-level journal based at Oxford Brookes that emphasizes the highest-quality publications in the discipline from a range of institutions (Walkington 2008). It does not support alternative formats and relies on article submissions. The two journals share some features, however. They both have teams of postgraduate students who act as the editorial advisory boards and collaboratively review submissions. In addition, the journals share the same guidelines for authors (regarding formatting, article length and referencing requirements) so that students from Oxford Brookes University whose work which is not suited for publication in *GEOverse* can have it considered for *Geoversity*. Very high quality work submitted to *Geoversity* could be considered for *GEOverse*. In this sense, the journals are “scaffolded” or linked to allow students to publish at the level most appropriate to them.

GEOverse is now “embedded” at Oxford Brookes through a course module in which students are assigned to prepare an article following the journal’s guidelines for authors. Initially, however, students rarely actually submitted articles for the journal since their work was not always of sufficient quality; students did not have the confidence to submit their work for consideration; and undergraduate students completing dissertations were just about to graduate. The timing of the module at the start of the final year means that students have time to consider a submission to the journal after they have received feedback and a grade several months before they leave the university.

In a further attempt to “embed” student writing of journal articles into the curriculum, the four institutions at which the journal was initially piloted (Oxford Brookes University; Queen Mary, University of London; the University of Gloucestershire; and the University of Reading) made curriculum modifications. Examinations were replaced with coursework that required the writing of a journal article at two of the institutions; the form of a coursework assignment was altered to allow the submission of a group based research article at another institution; and at the fourth university, team-based fieldwork opportunities were created to allow groups of students to collaboratively write a journal article.

A Case Study of University of Plymouth’s Student E-Journals

The Plymouth Student Scientist (TPSS, <https://studentjournals.plymouth.ac.uk/index.php/pss/index>) is an e-journal designed to promote and disseminate research done in students’ final year to a wide audience both within and beyond Plymouth University. In particular, it aims to highlight examples of good research practice in honors projects (dissertations) in science disciplines by encouraging both staff and student involvement in the journal. *TPSS* showcases research from undergraduates, as well as collaborative projects done by staff and students (Gresty and Edwards-Jones 2012a).

The journal offers a simple message to potential student authors: “get a first, get published” (a “first class” mark for a piece of work is only achieved by perhaps the top five to 10 percent of students) - thus making the publication requirements transparent. Work is accepted in the format in which the work was originally assessed, which has ensured plentiful submissions to date. Articles are typically published “warts and all” to show other students examples of real work.

To build on the success of *TPSS* and to expand the publication opportunities for students at the university, two further e-journals were created to enable students in health and education disciplines to celebrate their research skills and disseminate their findings (especially those related to professional practice). *The Plymouth Student Educator (TPSE, <https://studentjournals.plymouth.ac.uk/index.php/educator/index.php/educator>)* became a peer-reviewed journal with education faculty and postgraduate students reviewing undergraduates’ submissions, thus facilitating multiple levels of professional development. Conversely, *TPSS* had intentionally avoided this route to minimize the staff time required to produce the journal, a desire expressed in earlier staff consultations in the planning stages of the journal. *The Plymouth Student Journal of Health & Social Work (HSW, <https://studentjournals.plymouth.ac.uk/index.php/hsw/index.php/hsw>)* later followed the *TPSS* model.

Despite the individuality of the journals, they were collectively branded as “The Plymouth Student E-Journals” enabling more effective promotion of the initiative and ultimately providing publication opportunities for a greater number of undergraduates—more than 200 to date. Because the journals are based in faculties, practical issues arise in working across disciplines. Cultural differences among the disciplines influence staff views of the benefit of publishing undergraduate work within a “local” (albeit externally accessible) journal. Some staff feel that, “If it’s good enough to publish, it’s good enough for a mainstream academic journal” and not an undergraduate version, a point enunciated by Gilbert (2004). However, some journal “champions” have been developed who promote the view that there is plenty

of scope for publishing student work (Lopatto 2009). It was noticed that previously unsupportive tutors have started to participate over time, possibly due to students' expectations of seeing their excellent work published; thus recent issues of the journals now feature articles from previously under-represented fields. Initially, calls for student submissions were directed to project supervisors, but more recently these requests have been sent directly to all final-year students too. Undoubtedly this has led to students taking the initiative and approaching tutors to support their submissions.

Submission to the journals is entirely voluntary, and there is no process that explicitly links publication to any curricular assessments. An element of embedding is created when students are advised at the outset that a possible outcome of achieving a mark over 70 percent for key research assignments could result in publication. Pitching the acceptance criteria of the journals at this level typically means there is a good supply of high quality (as judged internally and moderated by course external examiners) copy for each issue. There is a continual stream of first- and second-year students witnessing final-year students having their research work published, so they increasingly have this in mind as they embark on their own research. Student articles have been used as discussion tools in pre-honors tutorials in some disciplines to help develop critical dialogues and academic writing skills. This demonstrates that student articles can indeed become dynamic resources for teaching, learning, and even assessment (Dellinger and Walkington, 2012; Karkowski, Hutchinson and Howell 2012). It is therefore reasonable to note that the Plymouth journals have been embedded in local academic culture, rather than within formal teaching and learning curricula.

Discussion

Publication in the online journals has generated self-reported benefits for our student authors (Gresty and Edwards-Jones 2012b; Walkington 2008, 2012; Walkington et al. 2011) and for this reason the journals have been embedded institutionally after the external funding used to establish them has ended. The journals have helped to create genuine reading communities. More than 40,000 requests for full-text access have been recorded for the PDFs of articles in the Plymouth e-journals, and some recent graduates have had their articles accessed more than a thousand times. Unpublished interview and survey data from college staff and students affiliated with Plymouth indicate that the research expectations of students at partner colleges who subsequently transfer to Plymouth have been influenced by reading the journals. In addition, international academic collaborations among students have also developed after external students have contacted the journal editor for supervisor details (as the super-

visor is typically still researching the field of interest at the institution after the student author has graduated and left).

Nevertheless *GEOverse*, *Geoversity* and the suite of Plymouth e-journals cannot be thought of as providing an opportunity for *all* students to publish, and it would be disingenuous to suggest this. Each journal has its own selection policies. Quality control is largely addressed through standard assessment processes embedded in the curriculum, resulting in a greatly reduced rejection rate in comparison with standard academic journals, a feature more appropriate for novice student authors. The relatively rapid turnaround in the online publication process also allows graduates to demonstrate key research skills at the same time they are seeking employment or post-graduate study.

Having described the ways in which these journals operate, we now turn to the ten strategies for embedding research publication suggested by Walkington and Jenkins (2008), reflecting on those adopted for each journal (see Table 1) and discussing possible additional strategies.

For strategies 1 and 2, *writing* an article for *GEOverse* is built into an optional curricular module, but *publication* of an article is not a course requirement. The scale of a degree program can affect the ease with which a journal can be aligned to modules or courses. A journal like *The Plymouth Student Scientist (TPSS)* spans many schools and would require an institutional-level shift in curricula to align them to publication in the journal, whereas just one module leader's decision to encourage student participation or align assessment criteria to the e-journal format was all that was required in the case of *Geoversity*.

For strategy 3, the inclusion of research proposals and reflective pieces in *The Plymouth Student Educator (TPSE)* and *The Plymouth Student Journal of Health and Social Work (HSW)* broadens the definition of research from work that reports on original data or that reviews existing literature. Under strategy 4, *Geoversity*, *TPSS*, and *HSW* all accept work outside the traditional journal-article format and have the ability to host videos, sound files, and so on. To date, academic posters and trail guides have been the only "alternative" formats submitted for publication. Regarding strategy 5, in both universities students in all years of undergraduate education are directed toward the journal contents informally, but in some cases within formal tutorials lecturers use examples from the journals in discussions.

Strategy 10, linking publication opportunities, is difficult to achieve in the context of journals. *GEOverse* and *Geoversity* are unusual in being hosted in the same department and in sharing author guidelines, making connections between them possible. However, scaffolding the publication of a journal article by linking it to other dissemination activities, for example undergraduate research conferences, may reveal

Table 1. Extent to which ten strategies for embedding student publication (after Walkington and Jenkins, 2008) are used by five e-journals.

Student Engagement Strategy		Geoversity	GEOverse	The Plymouth Student Journals*		
				Science	Health, Social Work	Education
1.	Build publication into dissertation and honors-level requirements	no	no	no	no	no
2.	Build publication into course and program requirements	no	no	no	no	no
3.	Widen what counts as “research”	no	no	no	yes	yes
4.	Widen the forms of publication	yes	no	yes	yes	no
5.	Build the results of publication into the curriculum	informal	yes	yes	informal	informal
6.	Involve undergraduate students in the publication process	yes	no	no	no	no
7.	Train postgraduate students as reviewers for undergraduate research journals	yes	yes	no	no	yes
8.	Make the employment benefits of undergraduate research clear to students	informally	informally	informally	informally	informally
9.	Make effective use of current and emerging technologies	yes	online, but only standard journal articles	yes	yes	online, but only standard journal articles
10.	Create linked publication opportunities	yes	yes	no	no	no

* (The Plymouth Student Scientist—TPSS; The Plymouth Student Journal of Health and Social Work—HSW; The Plymouth Student Educator—TPSE)

high-quality work suitable for publication through a more inclusive approach.

Reflecting on the strategies from Walkington and Jenkins (2008) that we have not used prompted us to be more explicit about additional strategies that some of the journals in our case studies use to maximize student engagement. These include:

1. Building a research culture in which students expect and want to participate;
2. Having transparent acceptance rules—for example, get an A-grade to get your research published;
3. Making formats as broad as possible to minimize the need for students to rewrite their work and consider publishing students’ original academic assignment (e.g., TPSS);
4. Ensuring that students submit their work before leaving the institution to allow for subsequent dialogue or revisions;
5. Publishing multiple issues or large issues of the journals to accommodate a large volume of submissions, rather than only selecting a small number of papers for a limited set of issues, in order to increase the potential audience and impact;
6. Encouraging faculty to use the articles in classes as part of sessions on academic writing and choices of honors projects;
7. Inviting submissions from partner colleges and pre-honors students;
8. Allowing co-production with staff and/or peers as a way of supporting a wider group of students;

9. Using a creative commons license that allows students to retain the copyright to their work, so that they can submit their work elsewhere as well;
10. Encouraging faculty members to market the journal to new and prospective students who can become readers and participants in the research process.

Conclusion

Let's return to our initial question: Should research publication be for *all* students and can this really include *all* undergraduates? In our experience, publication in the broadest sense, in formats that include blogs, wikis, conference presentations, and so on, should be possible for all students. (An exception might be a student who is not meeting the learning outcomes of his or her degree program). However, the desirability of developing a policy on publication of standard journal articles "for all students" is highly questionable, especially if the aims include the promotion of academic quality and inspiring other student researchers.

Journals can be one option in a wide portfolio of dissemination formats for student research, and having journals embedded within institutions or departments can act to motivate students even if they choose not to submit work for publication. The mere presence of a journal can also legitimize a shift in the work students are asked to submit for grading. Writing for an external audience, following guidelines for authors, is a graduate-level skill, regardless of whether the writing results in publication or not. It is possible to simply make student work "public" by putting it online in a "journal" format, but there is little appetite for this sort of publication among most academics, and in terms of developing communities of authentic readers over a sustained period of time, this would appear to be a step too far.

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NCUR 2014 Horse image

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