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Title: A waste of science? The case for depositing undergraduate Psychology dissertation research in institutional repositories.

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A waste of science? The case for depositing undergraduate Psychology dissertation research in institutional repositories.

Abstract

The following paper makes the case for a recommended practice of depositing undergraduate student dissertations into Higher Education Institute (HEI) institutional research repositories. In discussing this, the reasons for doing so, and a comprehensive discussion of the benefits and challenges (motivationally, logistically and ethically) for the Discipline, Students and Supervisors are highlighted, along with ways in which the challenges may be addressed. Guidelines to simplify, and therefore encourage, greater rates of submission of undergraduate dissertation research into institutional research repositories are noted, along with the potential consequences for the Research Excellence Framework and Teaching Excellence Framework exercises. It is the author's hope that this paper will stimulate further discussion of this idea, including bringing to light considerations not addressed here.

(120 words).

A waste of science? The case for depositing undergraduate Psychology dissertation research in institutional repositories.

After finishing the final year of undergraduate study our students will take stock of what they have achieved. When reflecting on the final year much thought will probably be about the piece of work that took most of their time and investment across the year, the most independent piece of academic work the student has completed up to this point: The Dissertation (Todd, Bannister & Clegg, 2004). Many universities will celebrate student success by holding an annual student dissertation conference (e.g., UWL, 2019). Beyond this little else is normally done with the outcomes of most of these studies at institution level, consigned to the graveyard of the filing cabinet or last year's electronic folders. This leaves a huge amount of research findings that effectively go to waste which could contribute to their fields. Although supervisors will often collect data via dissertation students that they then go on to publish, there are many one-shot projects that after assessment go unread. Many replications, many null studies, many novel findings are never published or made public. There is however an emerging movement to encourage greater dissemination of undergraduate research (see the Frontiers, 2019, research topic page and articles on Engaging undergraduates in publishable research), and the platforms to allow it, e.g., Proquest Dissertations and Theses database for U.S based Master's and Doctoral dissertations (Proquest, 2019). At present two key avenues exist for disseminating student-led Psychology research in Britain:

Undergraduate Conferences – Usually held by the British Psychological Society regional branches, these effectively promote dissemination of undergraduate dissertation work (see Kent, Allen, Harding & Fielding, 2019; for a discussion of the South West Undergraduate Psychology conference). Kent et al., (2019) highlight the importance of this for the student completing the research cycle by dissemination of findings, which never happens for most

dissertation students. However, there is only so much space in conference proceedings, and conference organisers cannot accept everything. Conference preparation and presentation following the dissertation submission may also only be accessible to the most motivated of students.

MMU Psychology Journal (Dissertations) UK archive (Manchester Metropolitan University, 2010) – The MMU Psychology Journal is particularly effective in recognising undergraduate student dissertation projects of the highest calibre, but universities could go further than just depositing the best student dissertation project of that academic year.

Cogprints (University of Southampton, 2019) is an additional avenue that allowed for depositing of various types of project, including technical reports and unpublished papers along with preprints (draft manuscripts undergoing peer review), although it is mainly dedicated to projects in the area of cognitive psychology/science. The website is currently archived, with no deposit options available to the authors' understanding (the last recorded deposit by year was 2017, and no "how to" guidance provided in the *self-archive* hyperlink on the home page). The lack of deposit option may have been influenced by the emergence of the *PsyArXiv: Open Access Preprints for Psychological Sciences* database (PsyArXiv, 2016), which allows authors to upload unpublished and preprint articles for a range of areas in Psychology.

This article makes the case for a recommended practice of using institutional repositories to promote open access to undergraduate dissertation research. This outlet seems like the most viable option for expansion in creating open access of undergraduate dissertation research. This is partly due to allowing for an easier transition into public exposure for student dissertation research (usually the first published work of the student), rather than throwing the work in at the deep end of scrutinising commentary (even if

constructively so) with an outlet like *PsyArXiv*. According to data published by Securing a Hybrid Environment for Research Preservation and Access there are at least 150 institutional research repositories (SHERPA, 2020). The University of West London Research Repository has total item deposit statistics, as of the date checked (02/03/2011 to 02/01/2020), of 4,010 items, with 178,459 downloads (UWL, 2012, up to date statistics check was 02/01/2020). If we take the UWL Research repository as a representative example, this suggests a healthy level of activity for institutional repositories with 45 downloads (rounded up) on average per item/output using the figures noted previously (although some outputs are much more frequently downloaded than others). Considering the user statistics noted, it seems like a waste that more undergraduate students do not take advantage of this outlet (in collaboration with their supervisor) to promote themselves via their research by making it publicly available. Before stating what can be done to improve depositing of undergraduate dissertations in a research repository, we should consider some of the key benefits, and challenges to negotiate, in depositing undergraduate student dissertations (see Table 1 for a summary of the key points).

INSERT TABLE 1 HERE.

For the Discipline

    Benefits

For Psychology, this would allow greater dissemination of findings into the field, offering more evidence to support or argue positions. This is particularly true for the publication of null findings. Only in recent years have new journals and outlets dedicated to publishing null findings been created. One example is the PLOS One Missing Pieces

Collection (PLOS Blogs, 2015). Depositing undergraduate dissertations may be particularly useful for supervisors who wish to refer to findings from dissertations in their area that are relevant, but otherwise would be difficult to publish via more traditional avenues, those that require characteristics beyond the scope of a standard dissertation.

Challenges

One of the challenges to negotiate is securing student informed consent for the deposit of the work into an institutional repository (or for attempt at publication), as the student is the author of the work and therefore owns the copyright. Each institute could develop a standardised informed consent form which is issued to the student prior to the dissertation process beginning, explaining depositing and copyright information, and (in cases where consent is initially given) an opportunity for review after the dissertation process is complete to ensure the student still consents (or is given the option to withdraw consent). This is perhaps more important in the case of the undergraduate or taught postgraduate conversion dissertation project though, as many universities already electronically deposit postgraduate theses of students on programmes by research into an institutional research repository, usually covered under postgraduate academic regulations. In Psychology at UWL we now include a statement to the effect that the data may be stored and used for the purposes of publication (without any participant identifying information) in participant information sheets for undergraduate projects, should there be a possibility of publishing undergraduate work, so it makes sense to discuss and confirm these issues with the student upfront.

The quality of work produced by students for the undergraduate dissertation also tends to vary (usually along a relatively normal distribution). This raises the issue of whether a minimum classification should be set for the deposit of student dissertations. The purpose of setting a classification threshold would be to ensure the scientific integrity of the work

deposited. The dissertation achieving a 2:1 classification (at least) would seem a sensible threshold for maintaining scientific integrity. This is debatably unfair to students in lower classifications though who may still wish to have their work available through a repository. However, the argument in support of a minimum classification can also be made that the marking process for dissertations is effectively peer-review of the research for the purposes of scientific integrity (usually across two different academics). Therefore this threshold following review is an indicator of the way the research process works. Although not as stringent as submitting to a peer-reviewed journal, it ensures the work has a good level of integrity and value. Students will also come under similar reviewer scrutiny with job applications following their graduation, so it makes sense to raise the concept of peer-review and prepare them for it during the final year as part of the dissertation process.

For the Students

    Benefits

Students autonomously (relatively so) complete their dissertation project, with the end result being of "intrinsic value" (Todd et al., 2004, pg 345). This works well for those with mastery/learning goal orientations (Dweck & Legett, 1988) as the dissertation process involves adapting to slight variations from Levels 4 and 5 (Years One and Two) in the way the report is written, and the level of autonomy given to write it. The satisfaction in learning and mastering this is an intrinsic reward for these students. However, it does not work as well for those with a performance goal orientation whose motivations are more external (oriented around other people, organisations and the individual's status or reputation with them through their performance level). Informing students of depositing and the potential to use work as a showcase piece may encourage even greater dissertation performance from the student with a

performance-approach orientation, as those with an approach orientation also tend to be sensitive to external reward (Rawlings, Tapola & Niemivirta, 2017). Depositing the findings in a repository allows students to showcase their work to potential employers or the target academic audience for their topic, which gives the work additional external value outside of the context of the original dissertation module for which the work was completed.   This opportunity for final year undergraduate students to showcase their work would also benefit their student peers in the years following them as well, who can view the deposited work of previous students as inspiration when thinking about their own dissertation. Having this work available to view would assist students coming into the final year dissertation with forming ideas that are achievable within the scope of time they have to complete the project. This would create a viewable end product for new final year students who may be concerned about the scale of undertaking an undergraduate dissertation project from the outset. However, this raises challenges in its own right that will be addressed in the next section.

Challenges

Having a range of dissertations easily available to view may increase the risk of a student exactly copying the design of another dissertation for their own project, rather than developing or refining a design for themselves. This would be quite difficult to detect until it is too late in cases where the supervisor did not originally supervise the project the design was copied from. However, if this did occur it is unlikely the student would be able to appropriately discuss the design across the report. This would require further copying of content from the mimicked project and this would be picked up by good quality plagiarism detection software (assuming the project copied from has been run through that software). Alternately the student would have to attempt discussing the copied design themselves, which is unlikely to be of a high quality if the student chose to copy a design in the first place rather

than developing it. A consequence of either approach is that the overall quality of the final work would not be likely to achieve the required quality to be considered for deposit.

Ruling out plagiarism of the full project or ghost writing are also key challenges. We can counter the first by use of plagiarism detection software (although see the earlier note), and the supervisor checking the data against the analysis reported. Checking data is time consuming though, particularly for qualitative projects, and time to do this is not a liberty most dissertation supervisors will have. Ghost writing can usually be detected fairly easily due to clear inconsistencies with the original proposal, and the supervisor could take an executive decision not to upload to a repository on those grounds. Having a minimum classification threshold for deposit of 2:1 for the dissertation would help stamp out the possibility of these points becoming an issue as those who attain this level in the dissertation are much more likely to have done so through their own ability.

Notification to deposit early on in the dissertation process could create pressure on the student to perform to such a degree that it could have a negative impact on their performance. This might happen for those students with performance avoidance orientations who perform to avoid others believing they cannot perform, and also tend to be more sensitive to punishment (Rawlings, Tapola & Niemivirta, 2017). This is also a key reason for the informed consent procedures for project deposit being reviewed at the end of the project, and it becomes really important if a minimum classification for deposit is set and listed.

The preceding points all raise the question as to whether the supervisor (possibly in joint decision with the module leader) should be given the final decision on deposit, just in case there are academic or pastoral concerns that arise during the supervision process.

For the Supervisor

Benefits

As well as the previously mentioned benefit of having a greater evidence pool to refer to in their field, for the supervisor depositing of dissertations also promotes greater visibility within their institute for being research active through supervision, particularly in a time where dedicating time to research is becoming increasingly challenging for lecturing staff (McCulloch, 2017). Although the research overseen by the supervisor may not always be in line with their primary research interest, this does have benefits in allowing the supervisor to openly display their versatility in the areas they can oversee research. Uploading the projects supervised demonstrates ongoing research activity in a universally accessible way (from within and outside the university) that contributes to the scholarly output of that university. The supervisor can then use this track record to help them secure time to focus on projects being undertaken in their key area of interest that may be more time-consuming or complex.

Allowing supervisors to upload undergraduate dissertations they have overseen also has benefits outside of highlighting their own research activity. One of the key teaching benefits is expanding the resources available to the supervisor in developing their own teaching content to help promote 'research-led' teaching, in which the research product of the academic is used to inform the development of teaching materials (in line with the TEF, 2017, criteria LE1 Resources). It can be quite a challenge to link in research the supervisor has conducted into the variety of areas they have to deliver in a lecturing capacity, as the supervisor will generally have a quite refined or narrow research area of interest. Uploading dissertations in a variety of different topic areas that the supervisor has overseen can help the supervisor integrate research they have directly been involved with into their teaching practice, enhancing research-led teaching using an expanded library of student dissertations.

Challenges

Limited numbers of students giving permission, or not reaching the required classification to deposit may lead to unfair scrutiny of the supervisor, either informally or, in particularly unfair instances, during performance review. The disposition and quality of students overseen varies year by year, and is not necessarily attributable to the supervisor. The first point could be accounted for by using the informed consent procedures suggested earlier, ensuring the option has been given to students and the supervisor has a paper trail noting that students have refused the option. Supervision track record should alleviate concerns with the latter in those with a few years of experience supervising undergraduate dissertations.

Encouraging greater deposit of undergraduate work into repositories

The structure is in place with many universities having (at least) one institutional research repository, some have several, dedicated to different types of submission, e.g., University of Nottingham has separate repositories for staff research output, and postgraduate student theses (SHERPA, 2020). The key to encouraging more expansive depositing in research repositories is giving undergraduate dissertation supervisors appropriate time to oversee the process of depositing, and to ensure that institutional repository staff are not overwhelmed by the sheer number of projects that would be submitted. To assist both parties with this, the process needs to be as simple as possible, with only the essential information to be submitted to an institute's repository. To make it as easy as possible for the supervisor it would be suggested that only original (non-edited, final submission before marking) versions of the student's project should be submitted into the institutional repository. A framework for the

brief information to be submitted by the supervisor alongside the dissertation project file could be:

- Name of the student, title of project, name of the supervisor and year conducted.

- At least three keywords for database searching. Perhaps two topic keywords and one keyword related to the method used, that are likely to tap into a controlled vocabulary list(s) for the area researched (JISC, 2014), along with the supervisor name as a possible keyword too.

- Copy of the student's final consent to have the work deposited.

The author of this piece would suggest that the exact grade of the work is not recorded for confidentiality reasons. Instead a note could be provided with all deposited projects stating that the minimum requirement for student work to be submitted to the repository is receiving the stated classification (e.g., 2:1). Repository staff, or the supervisor depending on how the institute organises the submission process, would be suggested to archive in the supervisor's account, under the following guidelines:

- The student is listed as primary author, and the supervisor is listed as second author.

- The type of work is listed as a Project report, and Scholarly/Scholarship activity.

- The date submitted/completed should be listed as the end of that academic year.

- The publisher should be listed as the University where the Dissertation is completed.

- List the keywords provided by the supervisor.

- Upload the non-edited project, stating and attaching student consent for deposit.

REF and TEF consequences

In terms of Research Excellence Framework (REF 2021) potential value (REF, 2019) depositing the student dissertation in a research repository would contribute to enhancing the

research environment (REF criteria 5), rather than the studies contributing directly towards the output criterion (REF criteria 2). Research environment is important in its own right, and this approach would also give the supervisor scope to pursue publication through more traditional means as a journal article in collaboration with the student if both parties wished. The version submitted for publication in peer review journals would almost certainly be edited, or the student's data may only form part of a wider project. However, upon submission to a journal the supervisor and student may wish to state that the original version, or a write up of parts of the data, is uploaded into an open access institutional repository to ensure full disclosure is provided to the journal in question. In terms of consequences for the Teaching Excellence Framework (TEF, 2017) potential value this approach taps into is about improving the criteria of Resources (LE1), and Scholarship, Research and Professional Practice (LE2) in the institute, as well as helping students demonstrate the Employability and Transferable Skills learned through conducting independent research (SO2).

Conclusion

The greater deposit of student undergraduate dissertations in institutional repositories would have the positive outcome of making students' research work openly available to the wider community, in a way that is accessible to more students for external use than current avenues provide. With the points discussed in this article it can be done with ethical and scientific integrity. The approach described in this article also allows those who wish to pursue publication via traditional avenues to do so, with the security blanket of knowing the original work will always be available in the institutional repository. However, the viability of this approach would need to be examined by rate of uptake from students.

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Table 1: The benefits and challenges to depositing student dissertations.

What are the key benefits of publishing dissertation findings?	What are the challenges of negotiating this?
Greater dissemination of findings.	Obtaining student consent to deposit the project.
	Dissertation quality varies considerably, how do we balance this out against scientific integrity?
Improving external rewards for completing the dissertation.	Does it create too much pressure for certain types of student?
Inspiration for students about to undertake their dissertation.	Ruling out copying a research design from another student, more expansive plagiarism or ghost writing.
Greater institutional visibility for the supervisor.	Students not giving permission to deposit may lead to unwarranted scrutiny of the supervisor.
Aids the development of 'research-led' teaching.	Potential for unfair use in performance review, considering varying standards of students supervised year on year.