

Editorial:

Research waste in higher education settings: more issues and more opportunities

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Maximising the impact and output of research endeavors has received increased attention since a series of papers was published by the Lancet (Salman *et al.* 2014) on 'increasing value: reducing waste'. This has stimulated conferences (eg Increasing value and reducing waste in biomedical research conference, Edinburgh 2015), networks (Equator network: Enhancing the quality and transparency of health; REWARD: reduce research waste and reward diligence) and led to publication of a consensus statement:

"We recognise that, while we strive for excellence in research, there is much that needs to be done to reduce waste and increase the value of our contributions. We maximise our research potential when:

- 1. we set the right research priorities;*
- 2. we use robust research design, conduct and analysis;*
- 3. our regulations and management are proportionate to risks;*
- 4. all of our information on research methods and findings are accessible;*
- 5. our reports of research are complete and usable."*

So what is waste in this context? At one level this could be the research performed which never reaches any audience.

Experiments performed but not published. Some data is presented at conferences, but never moves beyond that audience into a peer reviewed article. Furthermore, we are aware that many empirical or publishable dissertations/theses from under and post graduates students are often 'shelved' which is a huge waste of the knowledge economy. In turn, recently many universities implemented e-repositories at minimal level of requirement on educational dissertations. Researchers must thoroughly evaluate the existing literature in order to fill gaps in knowledge. Failure to do this can lead to repeating research. In our current publication system, it is very difficult to publish negative data, leading to systematic gaps in the knowledge base. Poor reporting makes published work difficult to interpret or repeat. It is important that funders monitor research output, including seed grants to faculty members and graduate students.

We propose five strategies to reduce research waste in Higher Education. Firstly, undergraduate and graduate research modules could incorporate the submission of journal manuscripts as an authentic assessment and training for the real world. Secondly, central university policies on standards of practice in publication ethics need to be developed. Some universities offer incentives for faculty members when they publish. It is standard practice

across universities that the number and quality of publications are included as important criteria for academic promotions. However, we reject the concept of a ‘reward or punishment per publication’ approach, as this could endanger the concept of a ‘modern academic’ who can research, practice and educate young scholars in their field. In contrast, such a reward or punishment based approach may ‘push’ academics to enter unethical publication behaviours in order to increase their number of publications and practice ghost authorship or guest authorship which endanger the knowledge economy and intellectual rights. Hence, standards of practice on adherence of publication ethics as recommended by established communities of practice for example ICME (International Committee of Medical Journal Editors) or COPE (Committee of Publication Ethics) would strengthen

this area and avoid research waste. Thirdly, good institutional research ethics committees may also support a reduction in research waste by exercising their power to advise the worth, originality, usefulness and resonance of the context for the proposed research and also verify its ethical dissemination plan well. Fourthly, research teams should have experienced researchers with a good track record who have already demonstrated their experience in conducting useful externally funded projects and also have junior faculty as a trainee researchers who would learn good research governance. Finally, stronger institutional research governance in terms of supporting good quality projects by adequate scrutiny is essential. Table 1 summarises how some common institutional committees would act to reducing research waste in higher education institutions.

Table: Common University Committees and recommended roles

S.N.	University committees	Roles in reducing research waste
1	Faculty research committee	<ul style="list-style-type: none"> To scrutinise potential outcomes, impact and originality of the project for example, is it worth replicating the same research in a different area or not Check and advise on the experience / track record of the research team on the selected research Develop tools to measure the research waste regularly and implement measures to reduce them
2	Faculty Research graduate committee	<ul style="list-style-type: none"> Ensure research projects are achievable and appropriate for the level To recommend publications and other outputs are mandatory for academic awards
3	Institutional research and ethics committee	<ul style="list-style-type: none"> Advise the worth, originality, usefulness and resonance to the context for the proposed research Ethical dissemination plan
4	Funding bodies (both internal grants and external grants)	<ul style="list-style-type: none"> Choose the useful research projects with stronger dissemination plan Final awards should be based on outcomes
5	Academic promotion boards/committees	<ul style="list-style-type: none"> Award the promotions based on quality of projects and initiation and completion ratio

6	Individuals	<ul style="list-style-type: none">• Take individual accountability for developing quality research projects• Ensure well-thought dissemination plans

References

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