



**Pedagogic approaches to
developing students as
researchers, within the curriculum
and beyond**

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What do we mean by 'students as researchers'?

'Students as researchers' is an active pedagogy emphasising the process of undergraduate research and inquiry which can take place within and beyond the curriculum to develop student knowledge and understanding and in some cases contribute to the broader knowledge base of their discipline.

A four-fold typology of research-teaching approaches, distinguished on the basis of research focus (i.e. process/content) and the role of students has been widely shared (Healey, Flint and Harrington, 2014). These pedagogic approaches are 'research-led' (learning about current research in a discipline), 'research-oriented' (developing research skills and techniques), 'research-tutored' (engaging in research discussions) and 'research-based' approaches (undertaking research and inquiry).

Healey and Jenkins (2009, p. 3) argue: "All undergraduate students in all higher education institutions should experience learning through, and about, research and inquiry." In order to do this, staff need to create time and space in the curriculum, providing class time for students to work with others on projects and create research-based assessments. A wealth of examples of students as researchers practice can be found in Healey and Jenkins (2009).

Key issues

What constitutes research and research activity can be debated; it differs between disciplines and student research is no exception. Kuh and O'Donnell (2013) argue that the deepest engagement in student research happens when students participate in all aspects of the research process, from problem identification to public dissemination. This raises the question of whether students as researchers can be a pedagogy for all students, rather than being selective, particularly when the quality of research will vary widely.

The staff-student relationship in developing a 'students as researchers' pedagogy is highly significant. Mentoring can be used for individuals and small teams, but more embedded curricular approaches are needed for larger cohorts. An institutional approach is possible where infrastructural support is provided. Being able to share the products of student research is vital for sustaining interest and this can be done through a variety of formats, linked to assessment tasks or in the co-curriculum.

The communication and, in some cases, publication of student research is an integral part of the research process and can include blogs, wikis and podcasts; poster and paper presentations at conferences (virtual/face-to-face); presentations to clients, exhibitions and shows; journal articles, books and guides; competitions, debates and product development. Changing assessment briefs is an effective way of ensuring that students are presenting work for communication from the outset, rather than having to reformat it in their own time if they want to disseminate it more widely.

Pedagogic approaches – examples

Level 4: simulate research processes and use assignments which involve research or elements of the research process to develop student appreciation of research in the discipline, bringing research data into the curriculum for students to manipulate.

Level 5: ensure that students support their ideas and beliefs with evidence, make critical judgments about the value of information, arguments, or methods by examining how others gathered and interpreted data and as a team evaluate the validity and reliability of their conclusions; use dialogue to synthesise and organise ideas, information, or experiences into new, more complex interpretations and relationships.

Level 6: give students first-hand experience of research-based consultancy through placements with a research brief; Healey, Lannin, Stibbe and Derounian, (2013) summarise a range of different disciplinary approaches to replacing final year research with more authentic assessment tasks.

All levels: work on collaborative projects (cross-institutional, interdisciplinary) that require integration of ideas from varied sources; task students to orient their research work towards public research dissemination such as exhibitions, performances, debates, blogs and competitions; develop writing-intensive courses (within/outside the curriculum) to support the writing up of student research.

Student research conferences – authentic and professional settings for dialogue

Student conferences can take many different formats, usually incorporating poster-style conference and paper sessions, video presentations, demonstrations of interactive websites, performances, etc. The scale of the event can grow progressively from simulations such as poster sessions within modules, to department/faculty events or institutional conferences. National conferences can be hosted by discipline societies or academics forming national networks combining many disciplines.

Student benefits include receiving immediate in-depth dialogic feedback, being able to demonstrate critical thinking on your feet, gaining 'recognition as a researcher'. Timing is crucial to realise the full benefits of a conference for student learning. If a conference takes place when students still have the ability to adopt new ideas into their thinking and final submission of coursework, it can raise educational attainment. Conferences often lack a legacy in the longer term, although student conferences are starting to hold abstracts electronically and students can still refer to conference presentations on their CV. Multidisciplinary conferences provide the additional challenge of presenting complex ideas in a way that people from a range of disciplinary perspectives can understand. Students described themselves as 'budding professionals' in this type of venue and reported feelings of empowerment as a result (Walkington, 2015).

Supporting co-curricular activity within the curriculum: Assignment in a journal article format

At Oxford Brookes University, two geography undergraduate research journals with the same author guidelines (one institutional, the other national) were linked to a module in the undergraduate curriculum at Level 6. Writing a journal article to the guidelines was the assessed work. The module replicated the journal process of review and redrafting. Publication in the journals was not mandatory but was possible for students who wished to pursue this after the module. Undergraduate authors reported a range of benefits from being involved in writing in a journal article format, regardless of whether their work was published; these included the direct benefits of supported writing development and the indirect acquisition of critical reading skills.

"I found it hard to change between writing as a learner to writing as a teacher."

"I enjoyed the fact that I was not just regurgitating what someone else had written."

"With the possibility of publication, it invoked a sense of pride. I felt the quality of my finished article was higher than usual."

(Walkington, 2015).

Start early

Undergraduate research should be encountered early in the student learning experience. If it is embedded in the curriculum it can be scaled up and inclusive of all learners. A 'students as researchers' pedagogic approach can enable students to see the employability benefits of their university endeavours from the outset and feel a sense of belonging to their disciplinary and university research community.

Scaffold the writing process

Teaching writing skills during class sessions provides opportunities to discuss reviewing criteria. This might include discussing article reviews, modelling the writing process and giving feedback on draft work. Including journal articles as the format for assignments gets students used to writing in a style which translates beyond assessment. Collaborative writing technologies facilitate group submissions and peer review, whereas peer mentoring can be used to improve writing quality for individual authors. Both strategies allow larger classes to engage in the writing process. Journals can even encourage students to write from the start of their undergraduate course by accepting paper and book reviews. Beyond the curriculum, writing groups can involve staff and students working in partnership.

Linking research-based approaches to reward and recognition

The mentoring of students can help to break the long standing disconnect between teaching and research with the potential to provide career pathways, reward and recognition for those who support students as researchers. However, the growth of institutional schemes to support student researchers by embedding research within and beyond the formal curriculum needs to be discussed and planned in full awareness of time commitments and infrastructural support, to ensure that the benefits and burdens of the approach are shared equitably and are sustainable.

Resources

In the UK undergraduate students have the opportunity to present their research at annual events [British Conference of Undergraduate Research](#) (BCUR) and Posters in Parliament event sharing research with a multi-disciplinary, multi-institutional audience. Other national conferences take place for example in the USA, Ireland, Australia, Canada and the Netherlands. International conferences are also being planned.

Four interactive resources accompany this fact sheet:

- > the context of students as researchers;
- > levels of student participation in research;
- > engaging students in research;
- > disseminating student research findings.

Key reading

Boyer Commission (1998) *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. Stony Brook, New York: Carnegie Foundation for the Advancement of Teaching.

Brew, A. (2013) Understanding the scope of undergraduate research: a framework for curricular and pedagogical decision-making. *Higher Education* 66, (5), pp 603-618.

Healey, M. & Jenkins, A. (2009) *Developing undergraduate research and inquiry*. York: Higher Education Academy. <https://www.heacademy.ac.uk/resource/developing-undergraduate-research-and-inquiry>

Healey, M., Flint, A., and Harrington, K. (2014). *Engagement through partnership: students as partners in learning and teaching in Higher Education*. York: HEA. <https://www.heacademy.ac.uk/engagement-through-partnership-students-partners-learning-and-teaching-higher-education>

Healey, M., Lannin, L., Stibbe, A. and Derounian, J. (2013) *Developing and enhancing undergraduate final year projects and dissertations*. York: HE Academy. <https://www.heacademy.ac.uk/resource/developing-and-enhancing-undergraduate-final-year-projects-and-dissertations>

Kuh, G.D. & O'Donnell, K. (2013). *Ensuring Quality and Taking High-Impact Practices to Scale*. Washington, DC: American Association of Colleges and Universities.

Walkington, H. (2015). *Students as researchers: supporting undergraduate research in the disciplines in higher education* HEA: York. <https://www.heacademy.ac.uk/resource/students-researchers-supporting-undergraduate-research-disciplines-higher-education>

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