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Researching research skills: How do graduates develop them and use them at work?

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Research Domains

Employability, enterprise and graduate careers (EE)

Abstract

We present a review of the ways of thinking about research skills developed in higher education and used by graduates at work as discussed in the academic literature, focusing on how graduates find, evaluate and utilise new information as well as produce new knowledge. Using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) protocol to inform our systematic literature review strategy, we searched four academic databases (Web of Science, ProQuest, Scopus and EBSCOHost) yielding 3239 items. We are currently half-way through title and abstract screening before full-text reviews, and present emerging findings on the bases of our work to date. Our research so far shows certain - usually discipline-specific - themes dominating the literature on the development and use of higher education research skills and that there are comparatively few publications looking at the use of those research skills at work, which suggests a potentially promising area for further research.

Full paper

In this paper we review the academic literature on ways of thinking about research skills developed in higher education and used by graduates at work. We explicitly focus on research skills - how graduates find, evaluate and utilise new information as well as produce new knowledge. We chose research skills as our focus because they intersect between 'graduate skills' and disciplinary knowledge developed at university and employers' demand for graduates.

Research skills are a higher order thinking skill necessary to find and evaluate information and produce new knowledge, and as such, required in the knowledge economy and society (Willison, 2010). In addition, research skills can be transformative for students at university, not only by developing students' understanding of disciplinary knowledge, but also their university experiences and personal projects more generally (Ashwin et al. 2017; Ashwin et al. 2016; Ashwin et al., 2023; Clark & Hordósy 2019; Hordósy 2021).

Research questions:

1. How do students develop research skills in HE?
2. How do graduates use the research skills developed during HE at work?

We use the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) protocol (Page et al., 2021) to inform our systematic literature review strategy. First, we jointly decide on a search string to capture literature through reviewing the aims and objectives of this research paper, our research questions, and by trying several combinations to see which ones gave us a reasonable number of results. We consult with a subject librarian to check the suitability of our search terms, search structure, target databases and platforms. Our final search string is: "Research skills" AND ("Work*" OR "Job" OR "Employment" OR "Employability" OR "Graduate outcomes" OR "graduateness") AND ("Universit*" OR "Graduate" OR "Higher Education"). We target Web of Science, ProQuest, Scopus and EBSCOHost platforms. The search date is the 6th of February 2024.

We include papers focused on university students and graduates from undergraduate and postgraduate degrees; conceptual and empirical papers; all disciplines; published in English between 2012 and 2023, and that contain references to research skills. We exclude papers broadly discussing skills, or on research-adjacent skills such as 'problem solving', unless they also focus on research skills (as above).

Overall, we find 3239 items in four databases (Web of Science, ProQuest, Scopus, EBSCOhost). We import these into Covidence software to help manage our collaborative work. Covidence automatically removes 999 duplicates, leaving 2100 items for screening. We screen items in two stages: (1) the title and abstract screening, and (2) full text screening. Items that we deem included following title and abstract screening proceeded to full text screening. We also have regular meetings to discuss items on which we disagree, dismissing items that do not meet our inclusion criteria. We are currently half-way through title and abstract screening, and present emerging findings of our work to date. We will update this paper as we complete our review this summer in time for the 2024 SRHE conference.

We set up quality criteria to assess the quality of evidence for the full-text part of the screening, adopting the quality assessment framework developed by Pascal et al. (2018) comprising of the four dimensions of relevance; conceptual/theoretical framing; methodological rigour; and reliability, validity and trustworthiness of the findings.

Our emerging findings suggest that the literature on students' and graduates research skills falls into several camps. First, there are distinct clusters in specific disciplines and professional groups, e.g. research skills in library information science, medicine, sciences, engineering, and education. Second, often groups of learners are highlighted, e.g. foreign/international students or under-represented students from minority ethnic groups. Third, substantive work focuses on the experience of HE teaching professionals in delivering research skills training - this can sometimes come across as anecdotal. Fourth, there is a distinct cluster of research focusing on the American Research Experience for Undergraduates (REU) program funded by the National Science Foundation following Boyer Commissions' report (1998).

Our research so far shows certain - usually discipline-specific - themes dominating the literature on the development and use of higher education research skills and that there are comparatively few publications looking at the use of those research skills at work. Some of the literature is difficult to evaluate because the interaction of the university discipline and its aligned profession obscures where and how the research skills are developed (e.g. student teachers) - more may become apparent as we complete the screening process. Overall, it seems there is a gap in looking at how graduates use their research skills at work is potentially a promising area for further research.

References

Ashwin, P., Abbas, A., & McLean, M. (2017). How does completing a dissertation transform undergraduate students' understandings of disciplinary knowledge? *Assessment & Evaluation in Higher Education*, 42(4), 517–530. https://doi.org/10.1080/02602938.2016.1154501.

Ashwin, P., Abbas, A., & McLean, M. (2016). Conceptualising transformative undergraduate experiences: A phenomenographic exploration of students' personal projects. *British Educational Research Journal*, 42(6), 962-977. https://doi.org/10.1002/berj.3244.

Ashwin, P., Goldschneider, B., Agrawal, A. & Smit, S. (2023). Beyond the Dichotomy of Students-as-Consumers and Personal Transformation: What Students Want from Their Degrees and Their Engagement with Knowledge. Studies in Higher Education, 1–12. https://doi.org/10.1080/03075079.2023.2267589.

Boyer. (1998). *Boyer commission on educating undergraduates in the research university reinventing undergraduate education: A blueprint for America's universities.* Stony Brook, NY: University of New York. Retrieved 29 June 2009, from http://naples.cc.sunysb.edu/Pres/boyer.nsf/

Clark, T., & Hordosy, R. (2019). Undergraduate experiences of the research/teaching nexus across the whole student lifecycle. *Teaching in Higher Education*, 24(3), 412-427. https://doi.org/10.1080/13562517.2018.1544123.

Hordósy, R. (2023). "I've Changed in Every Possible Way Someone Could Change" – Transformative University Transitions. Research Papers in Education 38(2): 187–207. https://doi.org/10.1080/02671522.2021.1961296.

Page M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., et al. 2021. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *British Medical Journal (Clinical research ed.)*, 372(71): 1-9. https://doi.org/10.1136/bmj.n71.

Pascal, C., Bertram T., & Peckham, K. (2018). *DfE Review of Evidence on EYFS Early Learning Goals, Teaching Content and Pedagogy in Reception Year.* DfE: London.

Willison, J. (2010). Development of all students' research skill becomes a knowledge society. *All Ireland Journal of Higher Education*, 2(1). https://ojs.aishe.org/index.php/aishe-j/article/view/12.