

## UNDERGRADUATE STUDENTS' CONCEPTIONS OF RESEARCH

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**ABSTRACT:** Queen Mary University of London (QMUL) funded a pilot programme - QResearchers - to involve undergraduate students directly in academic research across the disciplines. There were eight research projects completed within the academic year 2014-2015, all outside the regular curriculum. The Learning Development team at QMUL designed and run the evaluation process, namely with a view to clarifying its outcomes and benefits, and making recommendations for continued institutional support and embedding. This presentation is aimed to focus on data collected through a survey (mainly constituted by open questions) about conceptions of research directed to students who were involved in undergraduate research projects. It is thus our main objective to systematise the conceptions of research shared by 19 students at the end of the undergraduate research project. Discussions with the audience will be encouraged to address the question: how are undergraduates stimulated to develop their (disciplinary) conceptions of research?

**KEYWORDS:** Undergraduate Research, Conceptions of Research, Students' Experiences.

### THEORETICAL FRAMEWORK

The importance of engaging students in research-based opportunities within and outside the classroom has been extensively studied. It is thus very interesting to find strong convergence as to the types of students' gains reported by diverse studies (Brown & McCartney, 1998; Hunter, Laursen & Seymour, 2007; Lopatto, 2009). Healey (2005), for instance, stresses that the involvement of undergraduate students in research activities helps them to develop several competences in a holistic, integrated and in-depth manner. Consequently, research-based contexts allow the students to improve and/or enhance personal, interpersonal, scientific and academic, cognitive, and so many other competences of transferable nature, which will be extremely important for their future professional careers within and outside Academia.

However, little has been investigated in what concerns the conceptions of research that students, who participate in undergraduate research activities outside the classroom, possess. Studies have been carried out with academics (Akerlind, 2008; Brew, 2001), supervisors (Bills, 2004), postgraduate students (Meyer, Shanahan & Laugksch, 2005), doctoral students (Pitcher, 2011; Stubb, Pyhalto & Lonka, 2014), and postdoctoral researchers (Pitcher & Akerlind, 2009).

Brew (2001), for instance, developed a framework based on a qualitative study with Australian academics from three disciplinary areas. She identified four conceptions of research: 'domino' (characterised as separate tasks, events, activities, problems, experiments, ideas or questions, which are distinct aspects within the research); 'trading' (mainly seen as research outputs and products, namely publications and grants); 'layer' (focused on shedding light on explanations regarding different levels of research problems, and on uncovering new meanings); and 'journey' (considered the most holistic perspective, intertwining research and researchers' life and understanding, leading to transformation).

Meyer and colleagues (2005), on the other hand, carried out a quantitative and qualitative research with South African postgraduate (both Master and PhD) students. The results led the authors to identify the main categories: research as 'the gathering of information', 'discovering the truth', 'an insightful process', 're-search', and 'finding solutions to problems'.

The previous two studies highlight how researchers think about research (Brew, 2001), and how students engage in research activities (Meyer et al, 2005) – two intertwined though distinctive approaches and interpretations. It might thus be considered that the differences between the studies' participants and the type of methodology interfere with the conceptions of research that emerged and were explored.

The study here presented was supported on Akerlind's categorisation (2008). Though her qualitative investigation is focused on academics' understanding of research, she started by analysing different categorisations on conceptions of research, and proposed a framework that, based on different studies, brings together what academics' conceptions of research have in common. As such, Akerlind's framework (2008) seems quite useful to make explicit different dimensions of ways of thinking about research. The four main categories that *show four qualitatively different ways of understanding being a university researcher* are:

1. *Fulfilling academic requirements, with research experienced as an academic duty;*
2. *Establishing oneself in the field, with research experienced as a personal achievement;*
3. *Developing oneself personally, with research experienced as a route to personal understanding;*
4. *Enabling broader change, with research experiences as an impetus for change to benefit a larger community (Akerlind, 2008, p.24).*

Additionally, Akerlind's systematisation integrate key themes emerging from the literature and her own research, which relate to academics' understandings of research intentions, processes,

outcomes, feelings, and object of study. These are the dimensions of academics' views of the nature of research (p.28).

## **METHODS**

Queen Mary University of London (QMUL) funded a pilot programme - QResearchers - to involve undergraduate students directly in academic research across the disciplines. There were eight research projects completed within the academic year 2014-2015, all of them outside the regular curriculum. The goal was to raise students' potential interest in postgraduate study, to develop/enhance disciplinary-specific and also transferable skills, to enrich the students' overall experience of HE, and to increase their employability skills. The Learning Development (LD) team at QMUL designed and run the evaluation process of the QResearchers project.

The method followed was the case study, due to several reasons (Yin, 2009):

- A contemporary phenomenon (undergraduate research outside the classroom) was chosen to be researched, over which the investigator has little or no control;
- The boundaries of the phenomenon are not clearly evident, and conceptual frontiers are complex to be established, because the phenomenon is particularly characterised as a process which includes diverse 'variables' (i.e. students and academics experiences);
- It opens the possibility of using multiple sources of evidence (of qualitative and/or quantitative nature), giving a high importance to participants' voices;
- It allows an analytic generalization. As such, the conclusions may be important not only to the HE institution where the research took place, but also to other contexts.

In this presentation the aim is to focus on data collected through the 'CRES Survey – Conceptions of RESearch', which was designed by the LD lead researcher and was based on the work of Akerlind (2008), as previously stated. Nineteen undergraduate students (from twenty-one) completed the survey. This comprehends 91% of the cohort of students involved in the undergraduate projects - two students chose not to participate in the study.

Specifically, Akerlind's research dimensions and categories were followed to design the survey. The survey was constituted by one closed question, and four open questions. It was directed to students after they finished the work in the undergraduate research project. Data have already been collected, and content analysis of open questions is being run, and will be ready to present at the Conference.

## FINDINGS AND CONCLUSION

In the close question related to Akerlind's categories, students were given the possibility of choosing the category (from the four identified above) that would best describe a university researcher in their field, after having had the research experience at undergraduate level. It can be observed that the majority of the student (n=10) chose the fourth category, 4 chose the second category, 3 the third, 1 the first, and 1 chose 'other category' (the student grouped all four categories).

Content analysis regarding to two open questions is still being run and is focused on:

- The main reasons why students chose a specific category;
- Students' descriptions regarding Akerlind's four dimensions: 'researcher intentions', 'research process', 'research impact', and 'research feelings'.

It will be interesting to observe if (i) there is a consistency between the selection of the category and the descriptions that undergraduates wrote in each dimension; (ii) if there is a link between the selection of the category and/or description of each dimension and the disciplinary domain; and (iii) if connections from undergraduate students' perspectives can be made with academics' perspectives from Akerlind's study (2008).

Finally, discussions with the audience will be encouraged to address the question: how are undergraduates stimulated to develop their (disciplinary) conceptions of research? In addition to research experiences outside the curriculum, how are undergraduate students enculturated in (inter)disciplinary research?

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