

## From the International Desk

### International Comparisons of the Integration of Research into Undergraduate Degrees in the Social Sciences

Undergraduate research can take many different forms (Healey and Jenkins 2009), but to what extent do different disciplines, universities, and even countries embed such research into their undergraduate degrees? When discussing research at the undergraduate level, the best way to compare activity is to look at degree requirements. The specific outcomes that are expected of all students across the entire curriculum provide the clearest and most valid indication of overall research participation. However, there has been little research comparing the extent to which universities integrate research throughout undergraduate degrees, from the perspective of disciplines or countries. In this article we analyze the place of research in the undergraduate degree by examining its role in the mainstream curriculum of the social science disciplines.

While many universities proclaim that their teaching is “research-led”, there is little evidence that undergraduate research is systematically taught or practiced. Most high-quality experiences of undergraduate research are limited in enrollment and overall impact. The senior thesis or research project is the most prominent example of undergraduate research at most institutions in the U.S., but rarely required and usually restricted to a small, elite group of students. Capstone courses or other activities, while they play an important role, often have no formal research component even when they are required. Further, a degree program needs to prepare students to make the most of their research experiences. Students must understand what research is and how to do it before carrying out a major project, so the teaching of research design and methods should be taken into account in any measure of undergraduate research.

We conducted a study analyzing the integration of research into undergraduate degrees by surveying the extent of required research-methods training, as well as research experiences, in five social science disciplines across eight countries. In the United States, for social science and humanities disciplines the senior thesis is most often associated with liberal arts colleges because they have a more highly defined core curriculum and progression of requirements that culminate in a research project in the student’s final year (Ishiyama and Hartlaub 2003; Pascarella and Terenzini 2005; Seifert *et al* 2008). The research project is a widely accepted part of many European undergraduate degrees, involving an intensive three-year progression of skills and preparation that constitutes a large portion of the overall degree.

In some cases, research is not limited to the final act of an undergraduate degree but occurs throughout. Integration of research into a curriculum should be measured by the full extent to which the curriculum coherently builds research skills into students’ coursework in a coherent sequence.

There are many institutional forces fragmenting the curricula for social science and humanities degrees in the United States. The profusion of student curricular choices through electives, the transfer of many students from community college to four-year institutions, and the lack of control over when students take compulsory courses have long undermined attempts to develop a strong structure in curricula for degrees, both for the first two years of general college requirements and for the final years in which the major is usually pursued. Critics in the 1980s noted that many degrees required simply a full year’s worth of courses taken from a single department, with the courses having little else in common (Zemsky 1989).

In the 1990s, a set of reports by the Association of American Colleges challenged this lack of structure in the American undergraduate curriculum. Reports from 12 disciplinary societies all recommended specific structures to make the curriculum “coherent.” First, a common course should introduce students to a discipline. Second, the curriculum for a major in a discipline should require an early course in research methods. Third, the curriculum for the major should provide sequencing of courses through prerequisites to systematically develop students’ skills and knowledge. Finally, students needed a final summative experience at the end of their degree program (AAC 1991a; 1991b). These types of experiences have been endorsed by further research evidence demonstrating that the more connected and integrated types of learning provided by such structures do, in fact, lead to improved student outcomes (Schneider 1996; Schneider and Green 1993; Astin 1993; Ishiyama and Hartlaub 2003; Ratcliff and Associates 1995).

The preparation for and practice of undergraduate research occurs through requirements for training in research methods, as well as through research projects or experiences themselves. Some studies have analyzed individual disciplines in this regard, but few have generalized across universities, and the use of different analytical methods prevents comparison across studies (Parker 2010). In the United States, some data on undergraduate research can be

extracted from the National Survey of Student Engagement, but its primary relevant question asks whether a student has worked “on a research project with a faculty member outside of course or program requirements.” This question excludes those research experiences that are required as part of the degree.

Compulsory forms of undergraduate research in the U.S. can still be captured in its question about whether a student has a “senior experience,” but this question mixes the senior thesis with other activities such as capstone courses and comprehensive exams that have no required research component. Further, many of these opportunities are limited to small numbers of students, particularly on large campuses or are offered to students on a voluntary basis (Kuh 2008). Overall, only 33 percent of seniors report any type of senior experience, so the proportion engaging in a senior thesis must be lower than that figure (National Survey of Student Engagement 2010). International comparisons of undergraduate research requirements are even scarcer.

Social science disciplines in the United States vary widely in their approaches. Political science has generally neglected education in research methods, with no recommendations on a model curriculum from professional associations and few requirements for research in curricula for undergraduate degrees, particularly at research-intensive universities (Parker 2010). This lack of attention and consensus over a common standard is not shared by other disciplines, however. Psychology and sociology, whose national associations have frequently commissioned reports on the undergraduate degree, have made detailed recommendations on the content and structure of the undergraduate degree (Halonon *et al.* 2007; McKinney *et al.* 2004).

Requirements for research in undergraduate degrees would be expected to follow certain patterns based on university structures and on how undergraduates are taught about conducting research. Research develops high level educational outcomes in students (Kuh 2008), but achieving these ambitious outcomes requires sustained training and practice which can only be accomplished through an explicit sequencing of skills in the curriculum. The disciplines that have a stronger professional consensus about what should be taught will have more detailed guidance on curriculum standards. Such disciplines will be more able to develop and embed research into their degrees than those without clear standards. In the United States, psychology and sociology have more detailed guidance from their national associations on curricular standards than some other social science disciplines, so they should be more likely to provide undergraduate research than other disciplines that lack strong definitions of curricular standards.

Further, the most prominent form of undergraduate research, the honor’s thesis or dissertation, is closely associated with liberal arts colleges but rarely found in more research-oriented institutions because of the perceived heavy workload created by this type of teaching (Parker 2010). If research institutions generally resist this more intensive approach to teaching, there should be a portion of universities in every country that have few requirements for undergraduate research.

## Study Data and Methods

We surveyed degree requirements in five social science disciplines (business, economics, political science, psychology, and sociology) in eight countries— Australia, Canada, Finland, the Netherlands, Norway, Spain, Sweden, and the United States. The survey examined the extent to which degrees require training in research methods and research experiences by identifying mandatory courses in quantitative or qualitative research methods and courses in general research methods, as well as requirements for student research projects, theses, or dissertations.

Except for the United States, the survey included all universities in the target countries—30 in Australia, 66 in Canada, 7 in Finland, 4 in the Netherlands, 6 in Norway, and 14 in Sweden. The sample from the United States consisted of the top 100 institutions designated “national” universities in *U.S. News and World Report’s* annual rankings in 2006.

Mandatory course requirements in each subject were obtained from university catalogs and websites, which provide an efficient and relatively accurate way of obtaining information about the structure and requirements of a degree, which are much less likely to change than particular course offerings (Ishiyama 2005).

“Research” consisted of courses in which students design and engage in their own research. This activity can be called a thesis, dissertation, research project, capstone course, or senior seminar. This designation was not applied to every course fulfilling senior writing requirements or senior capstone seminars, as writing a paper is not the same as engaging in an independent research project. Only courses dedicated to the practice of research and the research process, including designing and conducting research or participating in a research project and writing a report on the results, were counted. These courses could occur at any point in the degree program.

Course data were used to construct simple distribution tables. A quick rule of thumb was adopted that a full load for a student should be eight to 10 courses per year, to provide consistency both within and across countries.

**Table 1: Percentage of Degrees Requiring Quantitative Methods**

	Australia	Canada	Finland	Netherlands	Norway	Spain	Sweden	Unite States
Business	64	91	43	100	100	95	33	59
Economics	43	85	75	100	100	95	73	89
Political Science	0	21	14	75	50	75	7	15
Psychology	18	81	85	100	100	38	54	87
Sociology	0	45	43	100	60	100	31	79

## Research Results

The results show consistencies across disciplines and countries, suggesting a number of trends.

Clear differences appear across disciplines. Economics and business degrees stand out as the most consistent in requiring students to take courses in quantitative research methods. Almost all universities in Canada, the Netherlands, Norway, and Spain require majors in economics and in business to take quantitative research methods courses. Only for business degrees in Finland and Sweden and for economics degrees in Australia are quantitative research methods courses not required by most universities. Psychology shows a similar pattern. Almost all universities in Canada, Finland, the Netherlands, Norway, and the United States require undergraduates to take a course in quantitative methods, and a majority of universities in Sweden require this. Only in Australia and Spain do most universities not require this.

Sociology and political science stand out as having the fewest requirements for students to learn quantitative research methods. In sociology, only the Netherlands, Norway, Spain, and the United States require quantitative methods courses for most undergraduate degrees. A majority of universities in Canada, Finland, and Sweden do not require undergraduate majors in sociology and political science to take a quantitative methods course, and no Australian university requires this. Political science appears to have the fewest requirements for undergraduate majors to take quantitative methods courses, with only a majority of universities in the Netherlands, Norway, and Spain requiring them. Such courses are rarely required for majors in the discipline in Australia, Canada, Finland, Sweden, and the United States.

While there is much variation across disciplines, national cultures and systems of higher education have a clear effect on undergraduate requirements. The Netherlands and Norway appear consistently strong in their quantitative requirements for undergraduates, regardless of subject.

Australia and Sweden appear to require much less quantitative undergraduate coursework across all subjects, with the United States and Canada also having lower quantitative

requirements in many disciplines than the Netherlands and Norway.

Compared with requirements for students to take courses in quantitative research methods, classes are more often required that provide general training in the conduct of research. With only a few exceptions, all countries require general methods courses in an overwhelming majority of degree programs for disciplines other than business and economics. Business degrees require undergraduates to study general research methods in a majority of universities in Australia, the Netherlands, and Sweden. Psychology and sociology majors are required to take general research methods courses at almost all universities in the countries surveyed. Psychology degrees in the United States are the least likely to require such training, with 72 percent of universities requiring this. Clearly, psychology and sociology have a strong collective sense of what students need to know. The same does not hold for political science, which requires training undergraduates in general research methods more consistently than disciplines such as business and economics, but nowhere near as consistently as psychology and sociology. Training in general research methods is required in political science in a majority of universities in Finland, the Netherlands, Norway, Spain, and Sweden, but fewer than one third of universities in Australia, Canada, and the United States require such training.

Country differences in students' involvement in research projects appear very strong, with only Finland, the Netherlands, and Sweden requiring such involvement consistently across disciplines. Very little participation in research projects is required of undergraduates in Australia, Canada, Spain, and the United States across all subjects. Clearly, some countries' systems of higher education and academic cultures promote or require the inclusion of a research project as part of their undergraduate curricula. Despite the profusion of endorsements for undergraduate research, it remains a largely exclusive or elective element of many degrees in most countries we studied.

The United States compares poorly to other countries' requirements for research training and experience at the undergraduate level. One of the reasons for such low results

**Table 2: Percentage of Degrees Requiring General Research Methods**

	Australia	Canada	Finland	Netherlands	Norway	Spain	Sweden	United States
Business	64	14	43	86	33	25	58	18
Economics	73	5	50	67	0	50	0	5
Political Science	25	21	71	88	67	100	79	30
Psychology	91	84	83	100	100	100	92	72
Sociology	79	88	100	83	100	100	77	90

is that the sample of universities in the United States was taken from research institutions, which are much less likely than others to require research methods courses and undergraduate research projects, but this factor only accounts for a small proportion of the difference. An earlier study of political science using a representative sample of 200 universities found that 25 percent of research institutions required quantitative methods courses at the undergraduate level, while 20 percent of universities overall had the same requirements. Research-methods courses were required of undergraduate majors by only 13 percent of research universities compared to 24 percent of all universities in the U.S. overall, and only 6 percent of research universities required research projects of undergraduates, compared to 17 percent of all U.S. universities (Parker 2010). This previous research suggests that the results in this study may slightly underestimate overall requirements in the U.S., but the general conclusions would remain the same.

Research-intensive universities in the United States, though they have more staff, resources, and expertise than many other colleges, have been shown to be less likely to include undergraduate research in their undergraduate curricula compared to all universities. Research-intensive institutions may choose to avoid the large commitments of teaching and administrative resources needed to include undergraduate research in their curricula because fostering more undergraduate research would impinge upon other priorities, namely faculty and staff research. Ironically, the more intensive effort and planning required to teach and supervise under-

graduate research is seen as a much higher priority by non-research-intensive universities. American undergraduate degrees still lack consistent requirements for student training and practice in undergraduate research compared to the requirements in other, particularly northern European, countries (Parker 2010). Few disciplines and few countries consistently require students to train in research methods and apply them in doing research projects.

### Conclusion

Clear disciplinary differences emerge from our survey results. Not unexpectedly, business and economics proved much more likely to require undergraduates to study quantitative research methods, with an overwhelming majority of universities requiring such coursework in most countries. These same disciplines proved less likely to require training in general research methods. Political science also proved less likely than psychology and sociology to require research methods coursework of any kind, standing out as the least likely to provide research training of any social science discipline.

In terms of requirements for actual participation in research, there was very little variation among the disciplines. This result was unexpected, since the clear variation in research training should result in similar variations in research practice. However, the reason for this lack of variation can be seen in the results across countries. The impact of the aca-

**Table 3: Percentage of Degrees Requiring A Research Project or Equivalent**

	Australia*	Canada	Finland	Netherlands	Norway	Spain	Sweden	United States
Business	0	5	71	86	67	5	83	0
Economics	0	5	38	67	40	10	91	4
Political Science	0	0	57	100	33	8	100	2
Psychology	0	7	43	100	100	0	100	4
Sociology	0	0	71	100	60	10	100	10

\* Approximately 12 percent of Australian students take an additional year to complete an honors degree, which does require a thesis.

demographic culture and expectations within particular countries overwhelmed any differences in disciplinary requirements.

The provision of quantitative methods courses differed strongly by country, with the Netherlands, Norway, Spain, and the United States appearing stronger in this area than the other countries in our study. Offerings of general research methods courses were most prevalent in Finland, the Netherlands, Norway, Spain, and Sweden. Undergraduates' participation in research was strongest in Finland, the Netherlands, Norway, and Sweden. The varia-

tion by country in requirements for undergraduate participation in research was more striking than for research-methods training, because research tended to be required in most, if not all, universities in some countries and barely at all in the others. Research requirements seem to be all or nothing, which is unexpected. If requirements for undergraduates to participate in research place heavy teaching burdens on staff, then there should be more variation in which universities impose such requirements. Instead, the results show that many countries require all students to do undergraduate research—specifically northern European countries that

## NEW BOOK!



### ***Creative Inquiry in the Arts & Humanities: Models of Undergraduate Research***

*Edited by: Naomi Yavneh Klos, Jenny Olin Shanahan, Gregory Young*

*Creative Inquiry in the Arts & Humanities: Models of Undergraduate Research* aims to assist faculty and administrators of any academic discipline who are creating undergraduate research opportunities that move beyond the natural and social sciences, as well as those working to sustain well-established, multidisciplinary programs. It offers examples of successful programs, assignments, curricula, journals, and conferences that support the research, scholarship, and creative activity of students in arts and humanities disciplines. Those examples cover a diversity of students' scholarly and creative work, including individual and collaborative writing, oral presentations, works of visual art, scholarly compilations, exhibits, musical compositions, plays, performances, public scholarship, and publications in many different forms.

Those who mentor undergraduate research in the arts and humanities know the challenges of working with student researchers in disciplines in which solitary scholarship and individual creative processes are the norm. This work simply cannot, and should not, replicate a scientific model that utilizes teams of researchers, pooled data, and calibrated methods. Student research in the arts and humanities must reflect the kinds of work that scholars do in those fields. But which skills and bases of knowledge can mentors impart to students who do not have access to archives and special collections, who do not read classical languages, or who are just beginning to learn techniques that scholars in the field have mastered? How can faculty find the time to mentor individual student researchers when they are responsible for teaching hundreds of students every semester? Is it wise for faculty to invest that time in their undergraduate students' research when they need to publish their own work for tenure and promotion? *Creative Inquiry in the Arts & Humanities: Models of Undergraduate Research* is a collection of replicable examples and expert advice from scholars who are fully aware of these questions and difficulties and committed to addressing them with practical ideas and successful models.

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score highly in rankings by the Organisation of Economic Co-operation and Development (OCED) of higher education participation. Large research universities in those countries seem able to require large research projects from their students without losing control of faculty workloads.

The absence of research requirements or their restriction to a small, elite group of students in higher education systems appears to be caused more by cultural differences or a lack of will rather than shortages of resources or administrative feasibility. Our results demonstrate that an exclusive, restricted, or elite approach to teaching undergraduate research is not the only model in higher education. Universal requirements for undergraduate research can be found in a few, highly respected systems of higher education

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## Jonathan Parker

Keele University, United Kingdom

[j.parker@ams.keele.ac.uk](mailto:j.parker@ams.keele.ac.uk)

*Jonathan Parker is a senior lecturer in politics at Keele University. He received the University Award for Excellence in Learning and Teaching in 2005 and was made a National Teaching Fellow of the U.K. Higher Education Academy in 2008. His research interests include comparative higher education policy and the teaching of research methods.*