

# **The Changing Awareness, Experience and Perception of Research by Undergraduates: The case of final year students at a new university, 2002-09**

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## **Abstract**

One of the best ways to develop the linkage between teaching and research is through engaging students in research and inquiry and making them the producers of knowledge and understanding, not just consumers. This report compares the findings of two surveys undertaken in 2002 and 2009 of the awareness, experience and perceptions of research by final year undergraduate students at a new University in the UK. Over this seven year period the research found, with some caveats, clear evidence of an increase in both awareness and experience of research. It also found that positive perceptions of the benefits for students of staff involvement in research have increased. These findings provide support for the positive impact of policies to enhance the linkages between teaching and research in the University and for the success in beginning to embed active learning, through engaging students in research and inquiry.

**Keywords:** teaching research nexus; undergraduate research; student experience

## **Introduction**

Both policy makers and academics in a wide range of countries are giving increased attention to the subject of linking research and teaching (Barnett, 2005; Brew, 2001, 2006; Healey & Jenkins, 2009; Jenkins *et al.*, 2003, 2007; Kreber, 2006). In order to promote international competitiveness many governments are concentrating their research funding in fewer higher education institutions. This has raised questions about the need for undergraduate students to be taught in a research environment. In the UK this debate occurred following the publication of the Government White Paper on Higher Education (DfES, 2003). However, in the face of strong opposition, and the advice of the Research Forum (2004), the government acknowledged the need to support 'new' universities to develop 'research-informed teaching environments' (DfES, 2004).

In contrast to the actions of governments, academics have argued that students benefit from being taught by active researchers and being involved directly in the research process (e.g. Healey, 2005a; Jenkins *et al.*, 2003; Lee, 2004), although others have drawn attention to the disbenefits for students of excessive attention being paid to research (e.g. Jenkins, 1995; Pocklington & Tupper, 2002). Many studies have examined whether or not there is a relationship between performance in teaching and performance in research or have explored the staff experience of the relationship (e.g. Brew, 2001; Durning & Jenkins, 2005; Hattie and Marsh, 1996; Robertson & Bond, 2001; 2005). Recent work has focused on what institutions, departments, disciplines and individuals may do to enhance the linkages for the benefit of student learning (e.g. Healey, 2005a; b; Healey & Jenkins, 2009; Jenkins & Healey, 2005; Jenkins *et al.*, 2003; Jenkins *et al.*, 2007). However, relatively few studies have explored the teaching-research nexus from the perspective of students (e.g. Jenkins *et al.*, 1998; Zamorski, 2002). Whilst some research has begun to explore the experience of students engaged

in research projects (e.g. Hunter *et al.*, 2007, 2008, 2010; Kinkead, 2003; Ryder, 2004; Seymour *et al.*, 2004), fewer have examined the range of ways in which students may experience research throughout their courses and time at university and none to our knowledge have examined these changes over time.

The research reported in this paper aims to explore the awareness, experience and perception of research by level 3 undergraduate students at a new university in 2009 and assess the similarities and differences with the findings of a similar survey in 2002.

The aims of both the 2002 and 2009 surveys were:

- to identify and analyse the views and experience that final year undergraduate students have about research and their inter-relationship with teaching and learning; and
- to explore the students' views about the benefits and disbenefits of staff involvement in research.

The main rationale for repeating the survey was to examine whether the increased emphasis on linking research and teaching in the case study university during this period, and particularly the emphasis since 2005 on engaging students in inquiry, is reflected in the students' awareness, experience and perception of research.

Discussion of the findings of the 2002 survey in many workshops and conferences has attracted a lot of interest around the world and several different institutions have undertaken their own surveys using the questionnaire used or a variant on it. Leuven (Verburgh *et al.* 2006) and Nottingham Trent (Puntha, 2009) have presented findings on it, while Jusoh & Abidin (2009, 2010) have analysed the findings among accountancy students in three institutions in Malaysia. Interest in Australia has led to the Australian Learning and Teaching Council Project including a copy of the questionnaire on their Teaching and Research Nexus Project Website (<http://trnexus.edu.au/uploads/downloads/TR%20Questionnaire.pdf>).

Perhaps the most interesting study is a comparison of the case study university with the findings at two research-intensive universities, one based in the UK and the other in Canada (Turner *et al.*, 2008). Generally speaking students in the more research-intensive universities reported greater *awareness* of research, but students at the more teaching-oriented university reported that they were as frequently engaged in *doing* research. This finding supports the contention that active learning through inquiry is as relevant a way of linking research and teaching in less-research intensive universities as it is in more research-intensive ones.

The original survey was supplemented by group interviews with students. The findings are discussed in Pell (2003) and Healey *et al.* (2010).

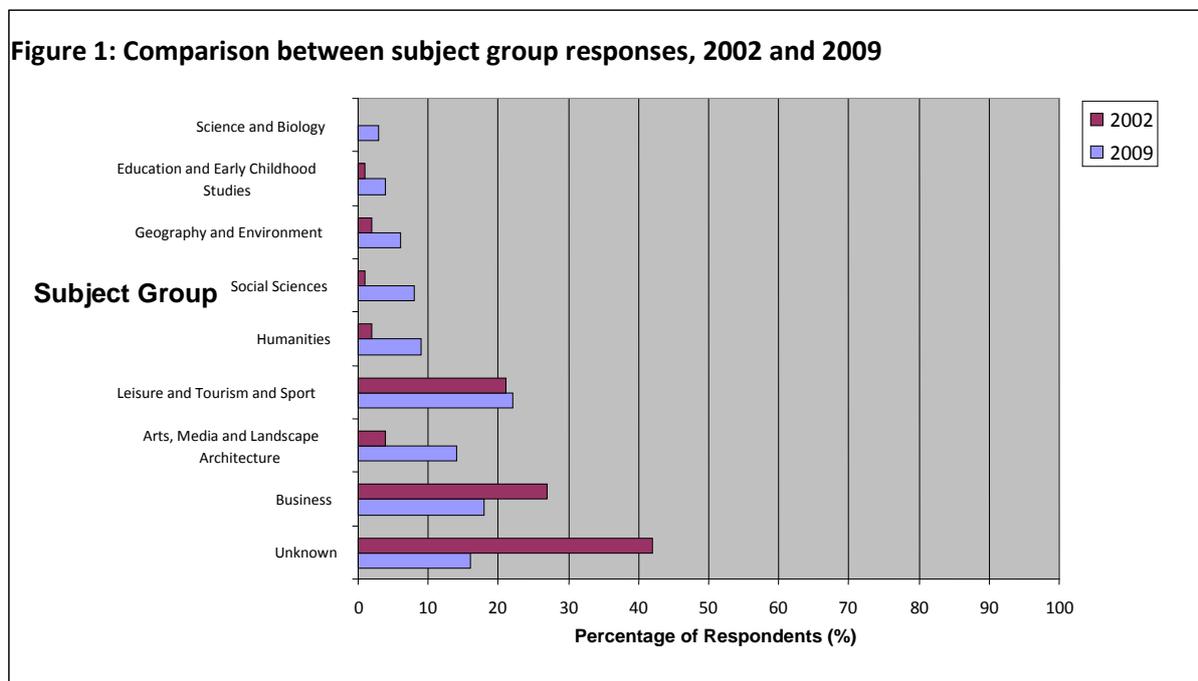
## **Methods and Results**

The resurvey focused on final year undergraduate students across the University, requesting them to complete a slightly updated questionnaire to the one used in 2002. However, the main questions were unaltered. Both surveys were undertaken in February and March by email with an incentive being a prize-draw of Amazon vouchers. Reminders were sent through emails and the Student Union.

The 2009 survey received 114 responses compared to 163 in 2002. This is broadly comparable and when the number of undelivered and unopened emails is taken into account the response rate in 2009 is 11% compared to 12% in 2002. Given the relatively low response rates in both years some caution is needed in interpreting the findings and attention should focus on major trends and areas of stability.

### Comparison 2002 and 2009 surveys

Figure 1 compares the two samples in terms of the subject groups that they represent. The largest category in the 2002 survey was the unknown group and this hinders the comparison as this group was reduced to 15% of the 2009 survey. However, the response is broadly comparable in that the same three subject areas – Leisure, Tourism and Sport; Business; and Arts, Media and Landscape Architecture – provide the largest number of respondents.



**Figure 2** compares the two survey responses relating to student awareness of research. In most categories the 2009 sample seem more aware than those in 2002. This is most pronounced in terms of the academic outputs (books and journal articles) by academic staff rising from 51% in 2002 to 70% in 2009. Others, like research posters or seminars in the university, are very comparable. The only decline is in notice boards with 58% aware of these in 2002 compared to 48% in 2009. This may have to do with a change in the use of notice boards to promote research activity to more of a focus on websites and virtual media.

**Figure 2: Comparative Data for Student Awareness of Research Activity and Resources**

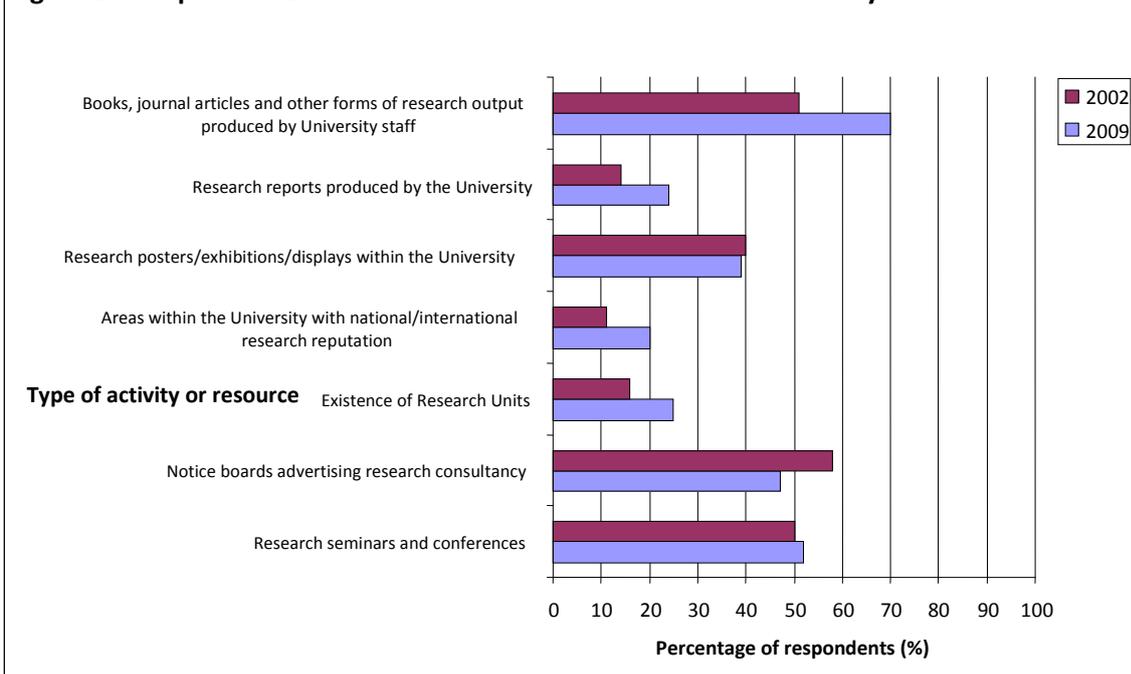


Table 1 shows the comparative data for the two surveys when students were asked 'during your studies at the University have you gained *experience* of research'. Again the figures suggest an increase in the range and amount of experiences from 2002 to 2009.

Statement	2002	2009	2002-09
	Overall %	Overall %	Direction
Hear member of staff discuss their research	56%	68%	++
Hear guest lecturer discuss their research	44%	45%	+
Read a research paper by member of staff	39%	49%	++
Attend a University research seminar	18%	16%	-
Attend an artistic performance linked to subject	7%	19%	++
Be a participant within a research project	8%	34%	+++
Develop research techniques	25%	42%	++
Undertake independent project within module	53%	61%	+
Undertake dissertation or thesis	71%	87%	++
Be involved in practical activities on research	24%	36%	++

+ / - less than 10 percentage point change; ++ / -- 10 and over percentage point change

**Table 1: Comparative data for student experiences of research**

In the majority of cases there is an increase in the student's experience of research and in some cases this is quite marked. The greatest increase is in the number of students who now recognise that they have taken part in a research project being run by a member of staff. This could be because the number of such projects has increased or that members of staff are more open about the research work that they are doing. The development of research techniques has also risen sharply from 25% in 2002 to 42% in 2009.

Table 2 shows the awareness of students of the research activities of the staff who teach them. As with previous tables there is a clear trend to greater awareness. This is most pronounced in the proportion aware of staff taking a research degree (up to 63% in 2009 from 43% in 2002). There is a small drop in one category, those undertaking funded personal research. A fifth of students are aware of the Cafe Scientific events that have been operating since 2008.

	2002	2009	2002-09
Statement	Overall %	Overall %	Direction
Undertaking a research degree	43%	63%	++
Undertaking non-funded personal research	16%	29%	++
Undertaking funded personal research	32%	28%	-
Writing for publication	57%	68%	++
Supervising research students	38%	40%	+

+ / - less than 10 percentage point change; ++ / -- 10 and over percentage point change

**Table 2: Comparative data on student awareness of staff research**

The next two tables (3 and 4) look at the positive and negative impacts on students by the staff who teach them. With regard to positive issues, all but one statement has a higher response rate in 2009 than in 2002, although sometime this is small. The only decrease is in the area of awareness of methodological issues falling from 41% to 34%.

	2002	2009	2002-09
Statement	Overall %	Overall %	direction
Increased my understanding of the subject	52%	58%	+
Contributed to development of research skills	30%	31%	+
Increased awareness of methodological issues	41%	34%	-
Stimulated my interest for the subject	41%	46%	+
Motivated me to consider post-graduate options	9%	19%	++
Increased my awareness of issues faced by research	11%	33%	++
Motivated me to pursuing a research career	4%	14%	++

+ / - less than 10 percentage point change; ++ / -- 10 and over percentage point change

**Table 3: Comparative data on positive impacts on students of research by staff**

In terms of negative impacts, Table 4 shows that they are small in all categories and the 2009 data are largely similar to the results from 2002.

Statement	2002	2009	2002-09
	Overall %	Overall %	Direction
Lack of availability of research staff to see me	14%	14%	
Apparent lack of interest in my teaching and learning	8%	6%	-
Lack of interest in supporting my academic welfare	4%	3%	-
Apparent inability to explain in ways I can understand	7%	11%	+
Their research interests distorts what they teach	4%	8%	+

+ / - less than 10 percentage point change; ++ / -- 10 and over percentage point change

#### **Table 4: Comparative data on negative impacts on students of research by staff**

The next set of questions on the questionnaire were based on Likert scale responses to questions looking at the student's perceptions of their awareness and views on academic staff being involved in research. The summary of the results shows that students in 2009 were more likely than their counterparts in 2002 to:

- disagree that 'I have little awareness of my lecturers' research interests'
- agree with the statement that 'I was aware of the research reputation of staff in my subject area(s) when I applied here'
- disagree that 'I am not aware of the benefits that the involvement of staff in my subject area(s) in research give me as a student'
- disagree that 'staff involved in research are more enthusiastic about their subject'
- disagree that 'I have learnt most when undertaking my own research project/dissertation'
- disagree that 'insufficient attention is given in the subject(s) I study to developing our research skills'
- be divided about whether 'the most effective teaching is when the lecturer involves us in aspects of the research process (e.g. a problem solving exercise, or writing a research bid or paper, or giving a presentation based on our research)'

#### **Discussion and Conclusions**

Relatively little is known about the awareness, experience and perception of research by students, and as far as we are aware this is the first study to examine how these have changed over time between cohorts. The research discussed in this paper aimed to explore these topics by surveying final year undergraduate students at a new university in the UK in 2009 and assessing the similarities and differences with the findings of a similar survey in 2002.

There is evidence that both student awareness and experience of research in the case study university increased in the period 2002 to 2009. Given the low response rates in the two surveys a caveat needs to be made in interpreting the exact nature of this change, but the consistent, if not always uniform, increase in scores from 2002 to 2009 suggests that such a conclusion can be reasonably made. Moreover, generally the

students in 2009 were more positive about the impacts that staff research had on their learning than their counterparts in 2002. There was little or no change in their perceptions of the negative impacts. The average percentage of students identifying positive impacts was four times those identifying negative impacts.

These findings provide support for the positive impact of policies to enhance the linkages between teaching and research in the university and for the success in beginning to embed active learning, through engaging students in research and inquiry. The growth in awareness and experience of research and the enhanced perception of the benefits of staff undertaking research has reduced the gaps with more research-intensive institutions reported by Turner *et al.* (2008). Given current restructuring the challenge will be to maintain the undoubted benefits which students have gained from staff being involved in research and to continue the process of embedding students' own engagement with research and inquiry. We would argue that one of the best ways to develop the linkage between teaching and research is through engaging students in research and inquiry and making them the producers of knowledge and understanding, not just consumers.

## References

Barnett, R. (Ed.) (2005) *Reshaping the University: new relationships between research, scholarship and teaching* (Maidenhead: Open University Press).

Brew, A. (2001) *The Nature of Research: Inquiry in academic contexts* (London: Routledge Falmer).

Brew, A. (2003) Teaching and research: new relationships and their implications for inquiry-based teaching and learning in higher education, *Higher Education Research & Development* 22(1), 3-18

Brew, A. (2006) *Research and Teaching: Beyond the divide* (London: Palgrave Macmillan).

DfES (Department for Education & Skills) (2003) *The Future for Higher Education* (Norwich: The Stationery Office).

<http://www.dfes.gov.uk/hegateway/uploads/White%20Pape.pdf>.

DfES (2004) HEFCE Grant Letter.

<http://www.hefce.ac.uk/news/hefce/2004/grantletter/letter.asp>.

Durning, B. & Jenkins, A. (2005) Teaching/research relations in departments: the perspectives of built environment academics, *Studies in Higher Education*, 30 (4), 407-426.

Hattie, J. & Marsh, H. W. (1996) The relationship between research and teaching: A meta-analysis, *Review of Educational Research*, 66 (4), 507-542.

Healey M. (2005a) Linking research and teaching: disciplinary spaces, in: R. Barnett (Ed.) *Reshaping the university: new relationships between research, scholarship and teaching* pp.30-42 (Maidenhead: Open University Press).

Healey, M. (2005b) Linking research and teaching to benefit student learning, *Journal of Geography in Higher Education*, 29 (2), 183-201.

Healey, M. & Jenkins, A. (2009) *Developing Undergraduate Research and Inquiry*. York: HE Academy.

[www.heacademy.ac.uk/assets/York/documents/resources/publications/DevelopingUndergraduate\\_Final.pdf](http://www.heacademy.ac.uk/assets/York/documents/resources/publications/DevelopingUndergraduate_Final.pdf).

Healey, M., Jordan, F., Pell, B. & Short, C. (2010) The research-teaching nexus: A case study of students' awareness, experiences and perceptions of research, *Innovation in Education and Training Internationa*, 47(2), 235-246.

Hunter, A-B., Laursen, S.L. & Seymour, E. (2007) Becoming a scientist: the role of undergraduate research in students' cognitive, personal, and professional development. *Science Education*. 91, 36-74.

Hunter, A-B., Weston, T.J., Laursen, S.L. & Thiry, H. (2008) URSSA: evaluating student gains from undergraduate research in the sciences. *CUR Quarterly*. 29 (3), 15-19.

Hunter, A-B., Laursen, S.L., Seymour, E., Thiry, H. & Melton, G. (2010) *Summer scientists: establishing the value of shared research for science faculty and their students*. San Francisco: Jossey-Bass (in press).

Jenkins, A. (1995) The impact of research assessment exercises on teaching in selected geography departments in England and Wales, *Geography*, 80, 367-374.

Jenkins, A., Blackman, T., Lindsay, R. & Paton-Saltzberg, R. (1998) Teaching and research: Student perspectives and policy implications, *Studies in Higher Education*, 23 (2), 127-141.

Jenkins, A., Breen, R., & Lindsay, R. with Brew, A. (2003) *Re-shaping Higher Education: Linking teaching and research* (London: Routledge / SEDA).

Jenkins, A. & Healey, M. (2005) *Institutional Strategies to Link Teaching and Research* (York: The Higher Education Academy).

[http://www.heacademy.ac.uk/assets/York/documents/ourwork/research/Institutional\\_strategies.pdf](http://www.heacademy.ac.uk/assets/York/documents/ourwork/research/Institutional_strategies.pdf).

Jenkins, A., Healey, M. & Zetter, R. (2007) *Linking Research and Teaching in Disciplines and Departments* (York: Higher Education Academy).

[http://www.heacademy.ac.uk/assets/York/documents/LinkingTeachingAndResearch\\_April07.pdf](http://www.heacademy.ac.uk/assets/York/documents/LinkingTeachingAndResearch_April07.pdf).

Jusoh, R. & Abidin, Z. Z. (2009) The teaching-research nexus: a study on the impact of research on teaching and learning, presented at International Conference at Concorde Hotel Malaysia, December.

Jusoh, R. & Abidin, Z. Z. (2010) The teaching-research nexus: a study on the students' awareness, experiences and perceptions of research, conference paper to be presented in Brunei, May.

Kinkead, J. (Ed.) (2003) *Valuing and Supporting Undergraduate Research*, New Directions for Teaching and Learning, 93 (San Francisco: Jossey-Bass).

Kreber, C. (Ed.) (2006) *Exploring Research-based Teaching*, New Directions in Teaching and Learning, 107 (San Francisco: Jossey-Bass).

Lee, R. (2004) Research and teaching: making – or breaking – the links, *Planet 12*, 9-10.

Pell B. (2003) *Student Experiences of the Relationship between Teaching and Research/Consultancy: the case of a new university*, MA(Res) thesis, University of Gloucester.

Pocklington, T. & Tupper, A. (2002) *No Place to Learn: Why universities aren't working* (Vancouver, BC: University of British Columbia Press).

Puntha, H. (2009) Research informed teaching at NTU, paper presented at Nottingham Trent University Symposium on Research-informed Teaching, Nottingham 13 November

Research Forum (2004) *Forum's advice to Ministers on Teaching and Research* <http://www.dfes.gov.uk/hegateway/hereform/heresearchforum/index.cfm>.

Robertson, J. & Bond, C. (2001) Experiences of the relation between teaching and research: what do academics value? *Higher Education Research and Development*, 20(1), 5-19.

Robertson, J. & Bond, C. (2005) The research/teaching relation: A view from the 'edge', *Higher Education*, 50(3), 509-535.

Ryder, J. (2004) What can students learn from final year research projects? *Bioscience Education E-journal* 4, paper 2. <http://www.bioscience.heacademy.ac.uk/journal/vol4/beej-4-2.htm>.

Seymour, E., Hunter, A., Laursen, S. L. & Deantoni, T. (2004) Establishing the benefits of research experiences for undergraduates in the sciences: first findings from a three year study, *Science Education*, 88 (4), 493-534.

Turner, N., Wuetherick, B. & Healey, M. (2008) International perspectives on student awareness, experiences and perceptions of research: Implications for academic developers in implementing research-based teaching and learning, *International Journal for Academic Development* 13(3), 161-173.

Verburgh, A., Elen, J. & Clays, K. (2006) The relation between teaching and research: the perception of first year students at the University of Leuven, *Proceedings European University-Industry Network: European Models of Synergy between Teaching and Research in Higher Education*, Estonia, 105-110.

Zamorski, B. (2002) Research-led teaching and learning in higher education: a case, *Teaching in Higher Education*, 7 (4), 411-427.

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