School of
Biomedical Sciences

Newcastle University

Reinforcing the links between teaching and research:

evaluation of a scheme to employ undergraduate students as laboratory assistants

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Context

Post-RAE2001: strong research focus

- Some separation of R&T: research institutes, academic posts
- Concerns re possible separation of research and teaching 2002: major University restructuring

Establishment of School of Cell and Molecular Biosciences (Biomedical Sciences)

- Merger of 3 Departments that offered BSc programmes

Technical support structure: 1 technician: 4 PIs

- How to allocate between groups?

Many routine jobs performed by people who are ‘over-skilled’

Undergraduates

School admits approx 270 UG students p.a.

- Entrance requirements AAB/ABB

Research-led programmes

- Research informs curriculum
- Final year research project (40 credits)
- MSci with extended project (80 credits)
- Optional vacation placements

Students encouraged to attend research seminars

‘*biomedicine+*’ programme of research talks for first years

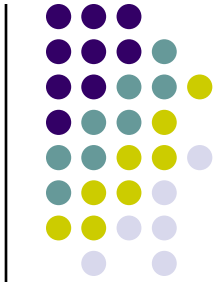
The Scheme

- Staff are asked to indicate if they would like a student lab assistant
- Second year students invited to apply to individual PIs and appointments made
- Students work 5-8 hours per week, negotiated with PI to fit with timetable commitments
- Stops in advance of summer exam period
- Currently 19 students employed: cost approximately equivalent to one technical post
- PIs can top up hours or pay for additional posts through their own funds

Management

- A senior technician oversees the scheme (Kate Brown)
  - Responsible for induction, including safety and other matters
  - HR issues (payment etc)
  - Assisting with appointments
- Students appointed at point 1 on University common pay scale
  - Routine work (different from projects or vacation placements)
  - Work alongside postdocs, graduate students etc
  - School allocates around £15K p.a. to scheme

Evaluation

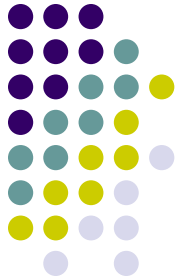


74 students employed in first five years of scheme

Feedback sought from students and staff involved

Impact on academic performance and career choices

Student responses



Overwhelmingly positive responses to questions

- ‘Did you enjoy the experience of working in a research lab?’
- Would you recommend the job to a friend?’
- ‘Did the experience have a positive or negative effect on your studies?”

Comments

"…Particularly like how the scheme ran in term time and its flexible hours"

"…really appreciate the opportunity to gain some work experience in the field I wish to pursue"

"I did an industrial placement last year and at the interview I was able to talk about the work I was doing in the lab…."

"As well as doing routine things the research staff explained the work that is going on in the lab and made me feel like part of the team"

Comments: effect on studies

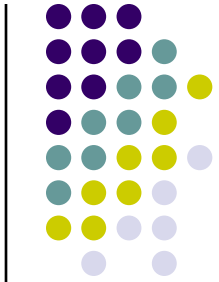
"It helped with practical work"

"It meant that I didn't waste time in between lectures as if I have an hour gap I can just nip to the lab"

"it gave me a lot of background knowledge and improved my practical work"

"definitely a positive effect, practical lab skills etc."

Comments: links between teaching & research



"Students tend to think lecturers are only there to teach. The scheme really taught me to understand how deeply involved in research our staff is"

"If more students were involved it would be better"

"I feel there is a good connection between teaching and research already"

Impact on academic performance

No measurable effect on performance

Graduated	2005	2006	2007	2008
Year group mean final mark	62.4 (210)	63.3 (244)	64.3 (210)	66.1 (229)
Employed students mean final mark	68.7 (11)	69.3 (12)	64.9 (16)	68.3 (15)

(but could be affecting things we are not very good at measuring)

Career choice

20/30 graduates went on to do a PhD (1 MRes)

"I'd go so far as to say that it really did shape the beginning of my decision to follow a career in research"

"This experience gave me the advantage and references I needed to secure my PhD over many candidates who had higher academic qualifications"

"I have now started a PhD encouraged by my experiences"

"I was able to learn techniques and discuss theoretical issues that were not discussed in the lectures, but helped me later to make a decision whether to stay in a research-based career"

Staff attitudes

Some reservations at start of scheme

All except one PI has continued to take undergraduate lab assistants

Generally delighted with the students' work and feel that having a student lab assistant increases productivity

Staff comments

"I cannot express strongly enough how great it was having D and A in the lab…. the single biggest improvement to our research conditions/productivity of any changes that have taken place in the 4.5 years I have worked here"

"The student lab assistants were excellent, being both competent and conscientious. They made a large contribution to lab productivity by freeing up PhD student/postdocs from routine lab tasks"

"Students…contributed to a lively atmosphere in the lab"

Staff comments: suggested improvements

"*Giving the students a few extra hours pay during the vacations would be good*"

"*…gain sufficient funds to have a student in almost every research lab*"

Staff comments: reservations

"I am not sure this is the best use of the School's technical resources"

"I would prefer to appoint an extra technician within the School rather than have this scheme"

"We made the mistake of trying to get them to do experiments, but this is not realistic in the time available"

"We are concerned that S's experience was not a particularly good one because her time was spent on non-challenging, boring tasks such as filling pipette boxes, washing up, autoclaving waste"

Summary

Scheme very well-received by students

PIs also highly positive re effect on productivity of lab and competence of students

Majority of technical staff were in favour of the scheme

Key factors: role of senior technician, keeping tasks basic

Relatively inexpensive way of providing students with valuable experience and research labs with additional support

No evidence that it helps academic performance but may encourage students to think about a career in research