Liverpool Seminar- Undergraduate Research – Oct 19th 2010

Table 2:
Les Kirkup (Australia) **Chair**
Orla Hanratty (Ireland) **Reporter**
Tom Wenzell (USA)
Ellen Bastiaens (Netherlands)
Gayle Brewer (UK)
Cornelia Lindenau (UK)
Michael Palladino (USA)
Kris Knorr (Canada)

Topic: Conceptual Issues – the nature of undergraduate research
Tom Wenzell presented on this topic and it was valuable to have him at our table to develop many points raised in his presentation.
We commenced with key questions:

- What is undergraduate research and inquiry?
- Is it to create new knowledge or 'research like' experience?
- Does undergraduate research make a difference to students?

Tom tried to convince us and explained to the group that several studies had been carried out on the impact of undergraduate research on students, including...are many studies published which highlight that there are indeed clear benefits for undergraduates engaging in research. Examples include published work by Elaine Seymour and David Lopatto:
1] Laursen, Sandra, Anne-Barrie Hunter, Elaine Seymour, Heather Thiry, Ginger Melton. 2010. Undergraduate Research in the Sciences: Engaging students in real science, San Francisco: Jossey-Bass.

[2] Lopatto, David. 2009. Science in solution: The impact of undergraduate research on student learning, Tucson, AZ: Research Corporation for Science Advancement (http://www.rescorp.org/gdresources/downloads/Science_in_Solution_Lopatto.pdf).

Publishing was an issue which was discussed in relation to this topic. A valuable message identified that when there is an original research opportunity, it is important to provide the opportunity to publish it.
Participants from two US Colleges / Universities noted that between 1/3 and 2/3s of their undergraduates publish - some being lead authors. Models to support this were mentioned such as Juniors working with Seniors. Others contributed that while we aim to be inclusive and we would like to give all students the opportunity to publish, it is difficult to achieve this and some students are more interested than others and depends greatly on the staff / faculty supporting them.

We concluded our discussion on this with strategies for supporting undergraduate research with three approaches:

Staff / Faculty – supporting them to support students
Encouraging students to get involved – students best advertisement
Prioritizing it within the Department / Institution

Topic: Comparing national systems
Our previous discussion on conceptual issues inevitably also included references to specific national / institutional systems. We began our discussions based on some points noted within Angela Brew's presentation in relation to **professional development to support research** and we focused on this issue of supporting staff / faculty to enhance the research experience for undergraduates.

We noted a general consensus that there is more structured support for the role of teaching rather than for research. In the UK a Postgraduate Certificate in Teaching and Learning is a requirement for staff / faculty teaching within higher education. This is also becoming highly recommended in many Irish universities / colleges. In the US and Canada it was noted that some staff / faculty are on Teaching only or Research only type contracts. It was suggested that the 'research track' positions were more highly esteemed in many national contexts.

Specific foundations and initiatives within national systems were noted such as the National Science Foundation in the US and Science Foundation Ireland (SFI) in Ireland which support faculty staff and students. They offer a range of supports such as the 'Preparing Future Faculty' program (US) and Summer Undergraduate Research Experience (SURE) in Ireland.

Our discussions were echoed by another group who reported on their discussions on this issue of supporting staff / faculty.

Topic: Comparing institutional experiences
We began this discussion session with a key point noted by Susan Vajoczki's presentation emphasizing the importance of **champions** within the institution. We all agreed on the value of these champions and identified some of the difficulties associated with it at an institutional level. Such challenges included the turnover of staff / faculty, funding and need for strategic senior management endorsement.

Our discussion then developed to include the important issue of **Intellectual Property** and experiences within different institutions were shared including the adherence to institutional policies, acknowledging the contribution of staff, seeking patents and noting the vulnerability of students if not supported.

The positioning of research experiences within the **curriculum** was also discussed in terms of institutional contexts – with experiences shared on the use of a final dissertation / capstone project and the development of research skills in the build up. The use of such strategies as Problem Based Learning was

discussed by participants who use it widely within in their institutions - Maastricht and McMaster. The challenge of scaling strategies with large groups was raised.

Take away messages from the table:

- Faculty development – handbook for supervisors
- Institutional strategy – discuss with senior management
- Campus initiatives – have Science example but could broaden across campus
- What is perceived as the role of undergraduate research and staff / faculty in that area – handbook for staff
- Investigate more on inquiry based curriculum prior to the capstone / senior thesis project
- FAQ Handbook - inquiry based learning for tutors
- Journal of undergraduate research within university
- Develop more 'bottom up approach – start with 1st years
- Include students in own research – work placement model
- Focus on concerted approach and scale

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