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# Learning through undergraduate research: Encouraging a holistic approach to the teaching-research nexus

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**Abstract:** While most Australian universities aim to promote an understanding of research within their teaching programmes, few encourage undergraduate students to conduct their own research. This paper explores a more holistic approach to the teaching-research nexus where students learn about research methods and findings while conducting their own research. This model is critically examined in relation to a parliamentary internship programme offered to undergraduate students at Melbourne, Monash and Victoria Universities. While a research internship offers significant benefits for undergraduate students, it poses numerous practical difficulties for lecturers and students alike. This paper proposes a number of ways to manage these difficulties to best achieve an effective teaching-research nexus.

**Keywords:** Teaching-Research Nexus, Undergraduate Research, Parliamentary Internship

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Many Australian universities aim to cultivate a strong teaching-research nexus. While recent studies have explored the linking of research and teaching (Baldwin, 2005; Brew, 2001; Hattie, 1996; McLean, 2004; Neumann, 1996; *The Teaching-Research Nexus*, 2003), few have examined undergraduate student experiences of research-linked teaching programmes or the use of student research to enrich the learning process.

This paper will critically examine one model which encourages undergraduate student research. In particular, it will explore the advantages of and challenges posed by a parliamentary internship programme offered at Melbourne, Monash and Victoria Universities, where undergraduate students gain first hand experience of conducting an extensive piece of original research. It argues that students may strongly benefit from the linking of teaching and research in an undergraduate setting. However, this paper also advocates a more holistic conception of the teaching-research nexus to reflect the different needs of undergraduate students when conducting research.

## The teaching-research nexus

### *Current theories*

On the face of it, the teaching-research nexus is a very simple idea: learning is enriched when linked with research. As a result, students are thought to achieve better educational outcomes when teachers integrate research into the learning process in four key ways: first, by teaching students about research findings within the course content of a teaching programme (research led teaching); second, by focusing course content on research processes (research oriented teaching); third, by encouraging learning through enquiry-focused activities (research based teaching); and finally, by drawing on systematic inquiry to evaluate the learning process (research informed teaching) (Griffiths, 2004, 722; *The Teaching-Research Nexus*, 2003, 9-12).

Most literature on the teaching-research nexus examines research led or research informed teaching, and what (if any) benefits it entails for students (for example, Hattie, 1996; McLean, 2004; Neumann, 1996; *The Teaching-Research Nexus*, 2003). According to Neumann (1994), research led teaching may provide benefits to students on multiple levels. It provides tangible benefits by enabling the transmission of skills and knowledge to students; intangible benefits by transmitting a questioning, critical approach to knowledge and learning; and global benefits by guiding student courses to reflect department research activity (Neumann, 1994, 324, 327).

However, little research has examined the student experience of research based teaching, or the benefits of encouraging students to conduct their own research (Jenkins & Healey, 2005). Further, any consideration of student conducted research is generally limited to exploring the supervision of postgraduate research students (Woodhouse, 2001). However, it is possible that the teaching-research nexus is at its strongest when undergraduate students are encouraged to undertake well supervised research on real world problems (*The Teaching-Research Nexus*, 2003, 10; Zubrick, 2001), providing students with the opportunity to learn through inquiry, rather than through the transmission (and absorption) of information (Boyer Commission on Educating Undergraduates, 1998; *The Teaching-Research Nexus*, 2003, 10).

### ***Practical realities***

Teaching-research nexus theory explores four alternative learning approaches which may be selectively adopted when suitable opportunities arise. However at the undergraduate level, it is far from desirable to separate teaching about research methods from teaching about research findings and the conduct of research itself. Most undergraduate students lack the broad experiences and knowledge of their lecturers. As a result, they are unable to 'join the dots' of research when process, findings and methodology are taught as distinct entities. If students are encouraged to conduct their own research without being educated about current research methods, their research processes are likely to be ineffective, time consuming, and ultimately unreliable. Further, if students are encouraged to conduct research without being informed of past research findings, it is likely that their research will fail to make use of the experiences of other researchers, in turn being less effective and less able to make a contribution to their discipline's body of knowledge. Finally, if students are taught about research findings or research methods without having conducted research of their own, they are likely to have only a limited, theoretical understanding of research outcomes, their interpretation and their application to real world situations. Further, it may impede the development of students' own understanding of the context in which research is conducted, and may curtail students' ability to critique others' research methods and findings.

This initial overview suggests that at the undergraduate level of teaching or, indeed, at any level where students first encounter teaching integrated with research, the teaching-research nexus should be applied holistically.

## **A model for integrating teaching and research**

### ***A parliamentary Internship***

One model for holistically integrating teaching and research is the parliamentary internship programme offered jointly by Melbourne, Monash and Victoria Universities. Within this programme, third year arts students conduct research under the supervision of an academic supervisor from their university and a Member of Victorian parliament. Lecturers from the three universities work collaboratively to present the programme, which includes regular

combined seminars on research methods, the history of Victorian parliament, and the internship process itself. In addition to direct supervision by their academic and parliamentary supervisors, students are also required to make presentations on their research progress and are assigned to collegial learning groups, or 'syndicate groups', based on their assigned topic, rather than university affiliation. Students are encouraged to hold regular meetings or use internet message boards to discuss their progress with other members of their syndicate group. This paper reviews the internship model from a student's perspective, based on the findings of a participation and observation study (Lee, 1999, 98-100). Personal experience of the programme was triangulated with extensive consultations with eight of the thirty-three students participating in the programme in semester one of 2005 and general feedback generated during seminar workshops.

### ***Benefits of this model from a student's perspective***

Students perceived the internship process to be highly beneficial. First, the programme provided the opportunity to conduct hands-on, grounded research, often in an original area of inquiry. Students investigated topics ranging from the history of a local football club to the use of racial vilification laws to town planning. The research was relevant, immediate and original, which gave it a sense of meaning and purpose. Further, as the research was being conducted at the request of a politician and the reports are held by the Victorian Parliamentary Library for future reference, there was a high likelihood that the research would have a purpose beyond assessment. Students were encouraged to feel as though they were part of an important enterprise, filling a useful role in the political system. In this way, the programme provided much greater satisfaction to students than a typical teaching programme, as their efforts had explicit purpose and meaning.

Second, the programme provided students with a unique opportunity to undertake independent, self-motivated research, where they were encouraged to take responsibility for their own learning. Traditional undergraduate university study is too often concerned with mastering structured levels of competency. The internship programme allowed students to structure their own research path, within the limits imposed by their academic and parliamentary supervisor.

Third, the internship allowed students to experience the numerous obstacles encountered by researchers. Students' activities were often hampered by a lack of time, a limited (or non-existent) budget, and the reluctance of public servants to comment on political topics. Many students developed a strong appreciation of the complexities of research and its potential limitations.

Finally, the internship encouraged a strong engagement with the area of study, as it allowed for a longer-term, in depth examination of a particular topic. This offered a particularly engaging and challenging opportunity for students who were high achievers.

From this brief overview, it can be seen that the internship model aims to integrate all four aspects of the teaching-research nexus. It reflects research led teaching through the exploration of research findings; research oriented teaching through the development of research methods; research based teaching through the research enquiry process; and research informed teaching by encouraging students to provide feedback on their learning experience.

### ***Challenges posed by this model from a student's perspective***

However, despite its many benefits, this model was hampered by significant practical limitations. First, while the unit was equivalent to half a full time student load for one semester, many interns found that the unit consumed a disproportionate amount of their time. Some students discovered that their political supervisor expected them to act as administrative assistants, press secretaries and confidantes while completing their extended piece of research. While this was not a common experience, it placed significant additional demands on some students, often leading to considerable stress, particularly toward the end of semester.

Contrastingly, while some students saw too much of their parliamentary supervisor, others were unable to contact or communicate with their Member of Parliament. In particularly unfortunate circumstances, this resulted in the student not having a topic of inquiry. This dramatically influenced the quality of their research output and their experience of the programme as a whole.

In addition, many students were unprepared for the political context and politicized nature of their research. Political supervisors occasionally requested that interns change their research reports to reflect the supervisor's political philosophy or political standpoint. This was directly in conflict with good research practice and academic integrity. Further, as students were being assessed on the academic merits of their research, it also jeopardized their final grade for the unit. Students were often placed in a difficult position due to the politically charged nature of their research.

Students were often ill-equipped to navigate Victorian parliamentary culture. In particular, female students assigned to male politicians were occasionally treated in a disrespectful and patronizing manner. In one instance, a female student was introduced to the male parliamentary supervisor's colleagues as 'my intern Monica', a reference to the intern Monica Lewinsky and her relationship with President Bill Clinton. Students were often caught unawares by the very conservative nature of parliamentary culture, and were unsure how to deal with issues as they arose. This was not addressed in the preparatory programme.

The internship programme was also complicated by political supervisors' expectations of what interns' research reports should encompass. In some cases, politicians requested that students survey their electorate in the preparation of their report. While this may be possible when conducting full-time research, it posed significant difficulties for an inexperienced, unpaid intern.

The purpose of the syndicate groups was somewhat ill-defined. Theoretically, the groups were intended to act as peer-support groups to supplement limited academic supervision and to reduce student isolation. In fact, the syndicate discussions were often unstructured and of short duration. Further, many students encountered difficulties which the syndicate groups could not resolve. As a result, student problems were often not addressed until they had escalated to being quite serious issues.

Finally, it was often difficult to give students sufficient grounding in research processes. As with many other research programmes, students undertaking the unit had widely different skill sets (Zubrick, 2001, 86). While some had previously been schooled in research methods, others had little to no understanding of research or survey techniques. Similarly, while some students were expected to undertake broad survey research for their project, others were merely expected to complete a literature review. As a result, it was difficult to predict how

much information and grounding the students needed to complete their research project. Unfortunately, the time available to provide students with this grounding was strictly limited, as seminar sessions were also used to provide general guidance on the internship, monitor student progress and inform students about past research findings. The holistic integration of teaching and research was severely hampered by time constraints.

### ***Institutional challenges posed by this model***

The internship model also posed a number of institutional challenges. Practically, the internship model will achieve the best educational outcomes if only a small number of students are involved, as students can be more closely monitored by their academic supervisor. This greatly limits the number of undergraduate students who can conduct intensive research projects in this manner. In this model, places in the internship were strictly limited and highly competitive, requiring students to apply for a place in the programme. A maximum of 15 students were selected from each participating university.

Further, the internship model may become very demanding on an academic supervisor's time. In many cases, students would benefit from having scheduled individual progress meetings with their academic supervisor, in a similar fashion to postgraduate research students. However, this would be very time consuming, and may deter academics from coordinating the unit (Zubrick, 2001, 86). Further, it may be more costly for the department concerned (Clark, 1997, 247).

Finally, the model necessitates delicate negotiation with Members of Parliament or similar sponsors. Based on this example, it is clear that some politicians are not suited to supervising interns. However, it may be difficult for academic supervisors to locate sufficient politicians willing to take students. Further, there is very little an academic supervisor can do to reign in troublesome politicians without damaging relations between the universities and the Victorian parliamentary body. Negotiating political egos and antics may prove to be a serious challenge for academic supervisors. Student welfare may be sacrificed to maintain the long-term relationship between the universities and the parliamentary body.

### ***Possible improvements to this model***

Certain changes may be made to smooth the operation of the parliamentary internship and other research based teaching programmes. First, the programme may be extended to be the equivalent of a full time student load for a semester. In this way, the unit could provide grounding in quantitative and qualitative research methods, offer a basic introduction to previous research findings, and support the student research project. Alternatively, students could be required to undertake research methods units as a prerequisite to undertaking the internship. This would allow a more comprehensive and holistic approach to integrating teaching and research. It would also better serve as an apprenticeship for honours and higher degree research.

Further, as noted above, it is desirable that students complete scheduled individual progress meetings with their academic supervisor to allow closer monitoring of student progress and earlier resolution of student problems (Boyer Commission on Educating Undergraduates, 1998). This additional cost would need to be recognised in teaching funding models. Inexperienced undergraduate researchers require more, not less, supervisory support. They commonly lacked time management, research management and research planning expertise as well as interpersonal skills appropriate to a politicized environment.

The syndicate groups had the potential to be a highly beneficial component of the programme. In addition to monitoring student progress, they provided networking opportunities and reduced the isolation of undertaking an individual research project. Further, they provided opportunities to share knowledge and experience with peers. However, more effective facilitation of these groups would be beneficial. Providing students with a weekly discussion topic relating to the research experience would enhance students' understanding of the teaching-research nexus. The provision of suitable meeting rooms (as opposed to a hotel bar) would also enhance the quality of discussion. More broadly, explicit guidance on the purposes and outcomes of the syndicate groups is required.

Finally, students should be better prepared for the applied context in which they will undertake their research. In the case of the parliamentary internship, this might explore political cultures and the challenges students may face when interacting with their political supervisor. Students may also benefit from training in conflict resolution, assertiveness, negotiation, and mutual goal setting. These skills would allow students to better manage their relationship with their parliamentary supervisor, in turn facilitating better educational outcomes from the internship process.

## Conclusion

With enhancements, the integration of a holistic teaching-research nexus can be highly beneficial to both student and university. As this model illustrated, the student experience can be improved through proper supervision, effective induction and clear guidance for all parties on the process and desired outcomes. Careful evaluation and consideration of student feedback could enable ongoing improvement. While this paper describes one undergraduate research context, it has wider applicability to other schemes that encourage student research in applied settings.

Holistic undergraduate programmes offer significant long-term benefits to the institution and students. They promote a comprehensive view of the teaching-research nexus to the next generation of researchers – and that, after all, is the ultimate goal of higher education.

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